



# राजस्थान रोजगार संदेश

पक्षिक

(राजस्थान सरकार के रोजगार सेवा निदेशालय द्वारा प्रकाशित व्यावसायिक मार्गदर्शन एवं रोजगार संबंधी सूचनाओं का एकमात्र प्रकाशन)

वर्ष 49 अंक 7

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## राजस्थान कर्मचारी चयन बोर्ड, जयपुर

राज्य कृषि प्रबंध संस्थान परिसर, दुर्गापुरा, जयपुर-302018 दूरभाष नं. 0141-2722520

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-: विज्ञापन संख्या 06/2026 :-

-: राजस्थान कॉलेज ऐजुकेशन सोसाइटी (Raj-CES) के टीचिंग एसोसियेट (संविदा आधारित) पदों हेतु सीधी भर्ती-2026 :-

राजस्थान कॉलेज ऐजुकेशन सोसाइटी हेतु राजस्थान कॉलेज ऐजुकेशन सोसाइटी (Raj-CES) हायरिंग ऑफ मेन पावर रूल्स 2023 (यथा संशोधित) के अन्तर्गत टीचिंग एसोसियेट के निम्नलिखित पदों (संविदा आधारित पद) पर भर्ती हेतु निर्धारित प्रपत्र में राजस्थान कर्मचारी चयन बोर्ड द्वारा विज्ञापन में वर्णित शर्तों एवं निर्बन्धनों के अधीन ऑनलाईन आवेदन पत्र (Online Application Form) अमंत्रित किये जाते हैं। जिसका विवरण निम्नानुसार है-

क्र.सं./ पद कोड	पद का नाम	पदों की संख्या	सेवा नियम
1.	टीचिंग एसोसियेट (कम्प्यूटर विज्ञान) (संविदा आधारित पद)	58	राजस्थान कॉलेज ऐजुकेशन सोसाइटी (Raj-CES) हायरिंग ऑफ मेन पावर रूल्स 2023
2.	टीचिंग एसोसियेट (चित्रकला) (संविदा आधारित पद)	36	
3.	टीचिंग एसोसियेट (अर्थशास्त्र) (संविदा आधारित पद)	121	
4.	टीचिंग एसोसियेट (अंग्रेजी) (संविदा आधारित पद)	314	
5.	टीचिंग एसोसियेट (भूगोल) (संविदा आधारित पद)	365	
6.	टीचिंग एसोसियेट (हिन्दी) (संविदा आधारित पद)	393	
7.	टीचिंग एसोसियेट (इतिहास) (संविदा आधारित पद)	365	
8.	टीचिंग एसोसियेट (गृह विज्ञान) (संविदा आधारित पद)	104	
9.	टीचिंग एसोसियेट (राजनीति विज्ञान) (संविदा आधारित पद)	339	
10.	टीचिंग एसोसियेट (लोक प्रशासन) (संविदा आधारित पद)	74	
11.	टीचिंग एसोसियेट (संस्कृत) (संविदा आधारित पद)	150	
12.	टीचिंग एसोसियेट (समाजशास्त्र) (संविदा आधारित पद)	185	
13.	टीचिंग एसोसियेट (उर्दू) (संविदा आधारित पद)	32	
14.	टीचिंग एसोसियेट (वनस्पति शास्त्र) (संविदा आधारित पद)	85	
15.	टीचिंग एसोसियेट (रसायन शास्त्र) (संविदा आधारित पद)	103	
16.	टीचिंग एसोसियेट (गणित) (संविदा आधारित पद)	90	

(क्रमशः)

17.	टीचिंग एसोसियेट (भौतिक शास्त्र) (संविदा आधारित पद)	85
18.	टीचिंग एसोसियेट (प्राणी शास्त्र) (संविदा आधारित पद)	95
19.	टीचिंग एसोसियेट (ए.बी.एस.टी) (संविदा आधारित पद)	30
20.	टीचिंग एसोसियेट (व्यावसायिक प्रशासन) (संविदा आधारित पद)	30
21.	टीचिंग एसोसियेट (ई.ए.एफ.एम.) (संविदा आधारित पद)	30
22.	टीचिंग एसोसियेट (विभिन्न) (संविदा आधारित पद)	33
23.	टीचिंग एसोसियेट (उद्यान विज्ञान) (संविदा आधारित पद)	44
24.	टीचिंग एसोसियेट (कृषि अभियान्त्रिकी) (संविदा आधारित पद)	43
25.	टीचिंग एसोसियेट (कृषि अर्थशास्त्र) (संविदा आधारित पद)	43
26.	टीचिंग एसोसियेट (कृषि विस्तार एवं संचार) (संविदा आधारित पद)	44
27.	टीचिंग एसोसियेट (सस्य विज्ञान) (संविदा आधारित पद)	43
28.	टीचिंग एसोसियेट (पशु विज्ञान) (संविदा आधारित पद)	43
29.	टीचिंग एसोसियेट (फ़ीट विज्ञान) (संविदा आधारित पद)	43
30.	टीचिंग एसोसियेट (आनुवांशिकी एवं पादप प्रजनन) (संविदा आधारित पद)	43
31.	टीचिंग एसोसियेट (पादप रोगविज्ञान) (संविदा आधारित पद)	43
32.	टीचिंग एसोसियेट (मृदा विज्ञान एवं कृषि रसायन) (संविदा आधारित पद)	44
कुल पद		3540

**विशेष नोट :-**

1. "राजसेस हायरिंग ऑफ मेन पावर रूल्स 2023" नियमों के अंतर्गत सूचित पदों पर प्रथम संविदा नियुक्ति अधिकतम पाँच वर्ष की अवधि के लिए अथवा सोसायटी की अवधि की समाप्ति तक, जो भी पहले हो, के लिए की जाएगी। तथापि, यदि सोसायटी की अवधि में विस्तार किया जाता है, तो सोसायटी आवश्यकतानुसार तथा संविदा पर नियुक्त व्यक्ति की उपयुक्तता का मूल्यांकन करने के उपरांत, संविदा नियुक्ति की अवधि को एक बार में अधिकतम 3 वर्ष के लिए बढ़ाने का निर्णय ले सकती है। यह भी स्पष्ट किया जाता है कि संविदा नियुक्ति को उस तिथि के पश्चात नहीं बढ़ाया जाएगा, जिस तिथि को संविदा पर नियुक्त व्यक्ति 60 वर्ष की आयु पूर्ण कर लेता है। उक्त हेतु पृथक से कोई आदेश जारी नहीं किये जायेंगे।"
2. सक्षम प्राधिकारी के पास उक्त सभी संवर्गों के पदों को बढ़ाना, घटाना या निरस्त करना/प्रत्याहारित करने का अधिकार होगा और इन पदों के नियम एवं शर्तों को संशोधन करने का अधिकार होगा।
3. सक्षम प्राधिकारी के पास इस विज्ञापन को बिना कारण बताये एवं बिना पूर्व सूचना के निरस्त करने का अधिकार होगा।
4. अर्हता किसी भी राजकीय सेवा के लिए अयोग्य घोषित किया हुआ नहीं होना चाहिए या उसे राजकीय सेवा से अनुशासनात्मक आधार पर सेवा से पृथक किया हुआ नहीं होना चाहिए।
5. ऐसे अर्हता उक्त भर्ती के लिए पात्र नहीं होंगे जिन्हें अनैतिक आचरण के किसी भी मामले में दोषी सिद्ध पाया गया हो।
6. विज्ञापन में दर्शायी गयी शर्तों और कार्य का विवरण प्रतीकात्मक है और सक्षम प्राधिकारी को कार्यक्रम के हित में इसमें परिवर्तन/संशोधन करने का अधिकार होगा।
7. **Online Application Form** में समस्त वांछित सूचना अवश्य अंकित करें। ऑनलाईन आवेदन भरने से पूर्व बोर्ड की वेबसाइट पर उपलब्ध इस विज्ञापित को ध्यानपूर्वक पढ़ लें तथा इसमें दिये गए निर्देशों को ध्यान में रखते हुए आवेदन भरें। कोई सूचना गलत या अपूर्ण भरने पर आवेदक का आवेदन पत्र बिना किसी पूर्व सूचना के रद्द कर उसे परीक्षा में प्रवेश नहीं दिया जायेगा एवं उसकी उम्मीदवारी किसी भी स्तर पर निरस्त की जा सकेगी एवं कानूनी अय्याज पाये जाने पर कानूनी कार्यवाही अमल में लाई जा सकेगी। जिसकी सम्पूर्ण जिम्मेदारी स्वयं आवेदक की होगी। गलत/असत्य सूचना या अपूर्ण आवेदन के सुधार के क्रम में बोर्ड द्वारा कोई पत्र व्यवहार स्वीकार नहीं किया जाएगा।

1. **आवेदन प्रक्रिया :-** बोर्ड द्वारा आवेदन Online Application Form माध्यम से ही प्राप्त किये जाएंगे जिन्हें राज्य के अधिकृत/निर्धारित ई-मित्र कियोस्क/जन सुविधा केन्द्र के माध्यम से भरा जा सकता है। ऑनलाईन आवेदन-पत्र भरने से पूर्व सर्वप्रथम अर्हता विस्तृत विज्ञापन का अध्ययन आवश्यक रूप से कर लें। तदुपरांत ही अर्हता ऑनलाईन आवेदन करें। ऑनलाईन आवेदन करने की प्रक्रिया निम्नानुसार होगी:-

ऑनलाईन आवेदन करने के लिए अर्हताओं को एस.एस.ओ पोर्टल <http://sso.rajasthan.gov.in> से Login करने के उपरांत Citizen Apps (G2C) में उपलब्ध Recruitment Portal का चयन करना होगा। इसके बाद अर्हता Apply Now पर क्लिक करेंगे। यदि अर्हता द्वारा OTR (One Time Registration) का एकवारीय फंजीयन शुल्क जमा नहीं किया गया है तो अर्हताओं को सर्वप्रथम OTR (One Time Registration) टैब पर अपनी श्रेणी Unreserved (UR) अथवा Reserved (EWS/OBC-NC/MBC-NC/SC/ST/SAH) श्रेणी, दिव्यांगता की स्थिति व गृह राज्य का विवरण दर्ज करके निर्धारित शुल्क का भुगतान करना होगा। ऑनलाईन आवेदन में अर्हताओं को OTR (One Time Registration) के समय भरी गई श्रेणी, दिव्यांगता की स्थिति व गृह राज्य के अनुरूप ही Options भरने हेतु मिलेंगे। अतः अर्हता OTR (One Time Registration) प्रक्रिया को सावधानी से भरें। OTR प्रक्रिया को पूरा करने के बाद अर्हता SSO ID के माध्यम से आवेदन कर सकेगा।

बोर्ड द्वारा, ऑनलाईन आवेदन पत्र में, शैक्षणिक योग्यता व भर्ती संबंधी अन्य दस्तावेज एवं प्रविष्टियाँ भरने की प्रक्रिया में परिवर्तन किया गया है। इस संबंध में दिशा निर्देश विज्ञापित एवं सहायता दस्तावेज बोर्ड की वेबसाइट पर अपलोड किये गए हैं। अर्हताओं को सलाह दी जाती है कि वे इन दस्तावेजों का भली प्रकार अध्ययन करने के उपरांत ही ऑनलाईन आवेदन करें।

OTR डेशबोर्ड के ODV सेक्शन में अर्हता अपनी शैक्षणिक योग्यता का चुनाव सावधानीपूर्वक करें। भर्ती विज्ञापित में निर्धारित नियमों के अनुसार योग्यता संबंधी दस्तावेज अर्हताओं द्वारा डॉक्यूमेंट सिलेक्शन में अपलोड किए जायेंगे। आवेदन करने से पूर्व अर्हता सुनिश्चित कर लें कि उसकी शैक्षणिक योग्यता, भर्ती विज्ञापित नियमों के अनुरूप है तदुपरांत ही ऑनलाईन आवेदन करें। स्वयं की शैक्षणिक योग्यता व दस्तावेजों की, भर्ती विज्ञापित नियमों के अनुरूपता एवं सत्यता के लिए अर्हता स्वयं उत्तरदायी होगा। यदि किसी भी स्तर पर प्रदान की गयी जानकारी गलत, अपूर्ण या भ्रामक पायी जाती है तो उसके लिए अर्हता स्वयं जिम्मेदार होगा। ऐसी स्थिति में भर्ती प्रक्रिया के किसी भी चरण पर अर्हता का

आवेदन निरस्त किया जा सकता है तथा कानूनी अवज्ञा पाये जाने पर उसके विरुद्ध भारतीय न्याय संहिता की धारा 217 एवं भर्ती/विज्ञापित नियमों के अनुसार कानूनी कार्यवाही की जा सकती है।

समस्त अभ्यर्थियों को सूचित किया जाता है कि आवेदन मरने से पूर्व OTR (One Time Registration) को जांच ले और यदि किसी भी प्रकार की त्रुटि पाई जाती है आवेदन मरने पूर्व ही उसका सुधार कर लेवे OTR सेक्शन में दर्ज प्रविष्टियों को Recruitment Portal (<https://recruitment.rajasthan.gov.in/frequentlyaskedquestions>) पर जारी FAQ एवं User manual का अध्ययन आवश्यक रूप से कर केवल प्रथम बार स्वयं संशोधित कर सकेंगे।

OTR में प्रथम बार संशोधन के अवसर का लाभ ले लिए जाने के पश्चातवर्ती सभी संशोधन हेतु एवं अभ्यर्थी को डॉक्यूमेंट डिटेल सेक्शन में यदि अपनी नवीन शैक्षणिक योग्यता जोड़नी है तो यह स्वयं जोड़ सकेगा परन्तु यदि उसके द्वारा पूर्व में किसी शैक्षणिक योग्यता को दर्ज करने में त्रुटि कर दी गई है और वह उसे ठीक करना चाहता है तो अभ्यर्थी प्रथम बार स्वयं Edit/Delete बटन पर क्लिक करके संबंधित शैक्षणिक योग्यता के विवरण को संशोधित कर सकता है या उस शैक्षणिक विवरण को हटाकर पुनः सही विवरण दर्ज कर सकता है। (केवल एक बार संशोधन Edit की सुविधा उपलब्ध है।) अभ्यर्थी अतिरिक्त सहायता हेतु recruitment portal (<https://recruitment.rajasthan.gov.in/frequentlyaskedquestions>) पर अपलोड किये गये FAQ एवं User manual का अध्ययन करें। अतः अभ्यर्थियों को सलाह दी जाती है कि वे अपनी शैक्षणिक योग्यता को अत्यंत सावधानी के साथ करें।

आवेदन पत्र में अभ्यर्थी द्वारा OTR में दर्ज की गई सूचनाएं प्रदर्शित रहेंगी एवं उसमें संशोधन नहीं किया जा सकेगा। अन्य सभी सूचनाएं अभ्यर्थी को सावधानी पूर्वक भरनी होगी। ई-मित्र संचालक द्वारा ऑनलाईन आवेदन में यदि कोई गलत प्रविष्टि की जाती है तो उसे अभ्यर्थी की ही गलती माना जावेगा। आवेदन पत्र को Final Submit करते ही अभ्यर्थी का ऑनलाईन आवेदन क्रमांक जेनरेट हो जायेगा। अभ्यर्थी को इस ऑनलाईन आवेदन पत्र का प्रिन्ट अपने पास सुरक्षित रख लेना चाहिए। अभ्यर्थी को एकबारीय पंजीयन शुल्क जमा करवाने हेतु किसी अन्य पोर्टल अथवा सुविधा का उपयोग नहीं करने की सलाह दी जाती है।

- I. अभ्यर्थी एकबारीय पंजीयन शुल्क का भुगतान आवेदन की अंतिम दिनांक से पूर्व सुनिश्चित करें ताकि किसी प्रकार की भुगतान संबंधित Transaction के लम्बित रहने का सत्यापन समय रहते हो सके अन्यथा इसकी जिम्मेदारी स्वयं अभ्यर्थी की होगी।
- II. अभ्यर्थी स्वयं का ही मोबाईल नम्बर एवं स्वयं की ई-मेल आई.डी. दर्ज करें तथा नियुक्ति प्रक्रिया पूर्ण होने तक इसे नहीं बदलें। ज्ञातव्य रहे कि महत्वपूर्ण सूचनाएं आवेदन में दर्ज मोबाईल नम्बर एवं ई-मेल आई.डी. पर ही भेजी जाती है। आवेदक स्वयं की SSO ID से ही आवेदन भरना सुनिश्चित करें। अन्य दूसरी SSO ID से भरा गया आवेदन मान्य नहीं किया जावेगा।
- III. आवेदक को ऑनलाईन आवेदन करने के पश्चात् ऑनलाईन आवेदन पत्र क्रमांक आवश्यक रूप से प्राप्त होगा और यदि आवेदन पत्र क्रमांक (Application ID) अंकित या प्राप्त नहीं हुआ है, तो इसका अर्थ यह है कि उसका आवेदन पत्र स्वीकार नहीं हुआ है। आवेदन पत्र के Preview को आवेदन का Submit होना नहीं माना जायेगा।
- IV. अभ्यर्थियों द्वारा निर्धारित तिथि तक ऑनलाईन आवेदन करना अनिवार्य होगा, किसी भी परिस्थिति में ऑफलाईन आवेदन स्वीकार नहीं किया जायेगा।
- V. आवेदक को आवेदन करते समय अगर किसी प्रकार की कोई समस्या हो तो Recruitment Portal पर दिये गये Helpdesk Number या E-Mail- [ITCELL.RSSB@RAJASTHAN.GOV.IN](mailto:ITCELL.RSSB@RAJASTHAN.GOV.IN) तथा [RECRUITMENTHELPSDESK@RAJASTHAN.GOV.IN](mailto:RECRUITMENTHELPSDESK@RAJASTHAN.GOV.IN) पर सम्पर्क करें। ई-मित्र हेल्पलाइन नम्बर 0141-2922241/2922238 एवं ऑनलाईन आवेदन संबंधी समस्याओं के लिये हेल्पलाइन नम्बर 0294-3057541 पर सम्पर्क करें।
- VI. अभ्यर्थी बिना कार्यालय में उपस्थित हुए अपनी परीक्षा संबंधी समस्याओं/शिकायतों को ईमेल द्वारा [pg.rsb@rajasthan.gov.in](mailto:pg.rsb@rajasthan.gov.in) पर ऑनलाईन भिजवा सकते हैं।
- VII. आवेदक द्वारा ऑनलाईन आवेदन में गलत सूचना देने/तथ्य छुपाने पर बोर्ड अभ्यर्थी पर नियमानुसार कार्यवाही के लिए स्वतंत्र होगा।
- VIII. समस्त सूचनाएं बोर्ड की वेबसाइट [rsb.rajasthan.gov.in](http://rsb.rajasthan.gov.in) के माध्यम से प्रकाशित/सूचित की जायेगी। कृपया इस भर्ती परीक्षा के संबंध में समस्त अद्यतन जानकारी के लिये बोर्ड की वेबसाइट को निरंतर रूप से देखते रहें। अलग से कोई पत्राचार नहीं किया जायेगा।

2. एकबारीय पंजीयन शुल्क:-कार्मिक विभाग के परिपत्र दिनांक 19.04.2023 के द्वारा अभ्यर्थियों को अपनी SSO ID द्वारा लॉगिन करने के बाद एकबारीय पंजीयन प्रणाली (One Time Registration) ऑप्शन पर जाकर निम्नानुसार निर्धारित पंजीयन शुल्क राज्य के निर्धारित ई-मित्र कियोस्क या जन सुविधा केन्द्र (C.S.C.) के माध्यम से चयन बोर्ड को ऑनलाईन जमा करावे।
  - (क) सामान्य वर्ग व कीमीलेयर श्रेणी के अन्य पिछड़ा वर्ग/अति पिछड़ा वर्ग के आवेदक हेतु -रूपये 600/-
  - (ख) राजस्थान के नॉन कीमीलेयर श्रेणी के अन्य पिछड़ा वर्ग/अति पिछड़ा वर्ग एवं आर्थिक रूप से कमजोर वर्ग/अनुसूचित जाति/अनुसूचित जनजाति के आवेदक हेतु -रूपये 400/-
  - (ग) समस्त दिव्यांगजन आवेदक हेतु -रूपये 400/-

नोट:-

- 1-राजस्थान राज्य के अलावा ऐसे अभ्यर्थी जो अन्य राज्यों/केन्द्रशासित प्रदेशों के मूल निवासी हैं तथा अनुसूचित जाति/अनुसूचित जनजाति/अन्य पिछड़ा वर्ग/अति पिछड़ा वर्ग/आर्थिक रूप से कमजोर वर्ग की श्रेणी में आते हैं, को इस भर्ती प्रक्रिया के लिये सामान्य वर्ग का अभ्यर्थी माना जायेगा। अतः ऐसे अभ्यर्थियों को सामान्य अभ्यर्थियों के लिए निर्धारित पंजीयन शुल्क का भुगतान करना होगा।
- 2-पूर्व में एकबारीय पंजीयन शुल्क (OTR) जमा करवा चुके अभ्यर्थियों से दुबारा शुल्क नहीं लिया जाएगा।
- 3-कार्मिक विभाग (क-2) द्वारा परिपत्र क्रमांक-प.8(3)कार्मिक/क-2/2023-04443 दिनांक 09.05.2025 के क्रम में अभ्यर्थियों के लिये निर्देश जारी किये गये हैं कि यदि कोई अभ्यर्थी राजस्थान लोक सेवा आयोग, अजमेर, राजस्थान कर्मचारी चयन बोर्ड, जयपुर या राजस्थान राज्य की अन्य किसी भर्ती एजेन्सी द्वारा एक वित्तीय वर्ष (01 अप्रैल-31 मार्च) में आयोजित किसी दो परीक्षाओं में उपस्थित नहीं होगा तो ऐसी स्थिति में अभ्यर्थी के ऑनलाईन आवेदन करने की सुविधा अर्थात् एकबारीय पंजीयन (OTR) सुविधा को प्रतिबन्धित (Block) कर दिया जायेगा। ऐसे अभ्यर्थी प्रथम बार प्रतिबन्धित होने पर पैनलटी शुल्क 750/- रूपये देकर अपना एकबारीय पंजीयन शुल्क (OTR) पुनः चालू कर सकेंगे। यदि अभ्यर्थी पुनः उसी वित्तीय वर्ष में दो और भर्ती-परीक्षाओं में अनुपस्थित हो जाता है तो उसके ऑनलाईन आवेदन करने की सुविधा को पुनः प्रतिबन्धित (Block) कर दिया जायेगा तथा वापस सुविधा तभी उपलब्ध होगी जब पैनलटी शुल्क दोगुना यानि 1500/- रूपये नहीं चुका देता। अतः उक्तानुसार बोर्ड द्वारा आगामी कार्यवाही की जावेगी।

(क्रमशः)

3. टीचिंग एसोसियेट संविदा आधारित रिक्त पदों का वर्गवार आरक्षण निम्न प्रकार है:-

(01) टीचिंग एसोसियेट (कम्प्यूटर विज्ञान) संविदा आधारित पद (गैर अनुसूचित क्षेत्र) पद कोड संख्या-01

कुल पद	सामान्य				अनुसूचित जाति				अनुसूचित जनजाति				अन्य पिछड़ा वर्ग				अति पिछड़ा वर्ग				आर्थिक रूप से कमजोर वर्ग			
	सामान्य	सामान्य महिला	श्रीवा	परिवारिका	सामान्य	सामान्य महिला	श्रीवा	परिवारिका	सामान्य	सामान्य महिला	श्रीवा	परिवारिका	सामान्य	सामान्य महिला	श्रीवा	परिवारिका	सामान्य	सामान्य महिला	श्रीवा	परिवारिका	सामान्य	सामान्य महिला	श्रीवा	परिवारिका
58	17	5	2	0	7	2	0	0	5	1	0	0	9	2	1	0	2	0	0	0	4	1	0	0

क्षैतिज आरक्षण (HORIZONTAL RESERVATION)												
दिव्यांगजन				राजकीय कर्मचारी			भूतपूर्व सैनिक					
B/LV	D & H H	LD/C P	I.D./MI/S.L D. & AUTISM, MD	अराजपत्रित कर्मचारी	मंत्रालयिक कर्मचारी	विभागीय कर्मचारी	GEN	SC	ST	OBC	MBC	EWS
1	1	1	0	0	0	0	1	0	0	0	0	0

(02) टीचिंग एसोसियेट (चित्रकला) संविदा आधारित पद (गैर अनुसूचित क्षेत्र) पद कोड संख्या-02

कुल पद	सामान्य				अनुसूचित जाति				अनुसूचित जनजाति				अन्य पिछड़ा वर्ग				अति पिछड़ा वर्ग				आर्थिक रूप से कमजोर वर्ग			
	सामान्य	सामान्य महिला	श्रीवा	परिवारिका	सामान्य	सामान्य महिला	श्रीवा	परिवारिका	सामान्य	सामान्य महिला	श्रीवा	परिवारिका	सामान्य	सामान्य महिला	श्रीवा	परिवारिका	सामान्य	सामान्य महिला	श्रीवा	परिवारिका	सामान्य	सामान्य महिला	श्रीवा	परिवारिका
36	12	3	1	0	4	1	0	0	3	1	0	0	5	2	0	0	1	0	0	0	3	0	0	0

क्षैतिज आरक्षण (HORIZONTAL RESERVATION)												
दिव्यांगजन				राजकीय कर्मचारी			भूतपूर्व सैनिक					
B/LV	D & H H	LD/C P	I.D./MI/S.L D. & AUTISM, MD	अराजपत्रित कर्मचारी	मंत्रालयिक कर्मचारी	विभागीय कर्मचारी	GEN	SC	ST	OBC	MBC	EWS
1	1	0	0	0	0	0	0	0	0	0	0	0

(03) टीचिंग एसोसियेट (अर्थशास्त्र) संविदा आधारित पद (गैर अनुसूचित क्षेत्र) पद कोड संख्या-03

कुल पद	सामान्य				अनुसूचित जाति				अनुसूचित जनजाति				अन्य पिछड़ा वर्ग				अति पिछड़ा वर्ग				आर्थिक रूप से कमजोर वर्ग			
	सामान्य	सामान्य महिला	श्रीवा	परिवारिका	सामान्य	सामान्य महिला	श्रीवा	परिवारिका	सामान्य	सामान्य महिला	श्रीवा	परिवारिका	सामान्य	सामान्य महिला	श्रीवा	परिवारिका	सामान्य	सामान्य महिला	श्रीवा	परिवारिका	सामान्य	सामान्य महिला	श्रीवा	परिवारिका
121	33	9	4	0	14	4	1	0	10	3	1	0	18	5	2	0	5	1	0	0	8	2	1	0

क्षैतिज आरक्षण (HORIZONTAL RESERVATION)												
दिव्यांगजन				राजकीय कर्मचारी			भूतपूर्व सैनिक					
B/LV	D & H H	LD/C P	I.D./MI/S.L D. & AUTISM, MD	अराजपत्रित कर्मचारी	मंत्रालयिक कर्मचारी	विभागीय कर्मचारी	GEN	SC	ST	OBC	MBC	EWS
2	1	1	1	0	0	0	2	0	0	1	0	0

(04) टीचिंग एसोसियेट (अंग्रेजी) संविदा आधारित पद (गैर अनुसूचित क्षेत्र) पद कोड संख्या-04

कुल पद	सामान्य				अनुसूचित जाति				अनुसूचित जनजाति				अन्य पिछड़ा वर्ग				अति पिछड़ा वर्ग				आर्थिक रूप से कमजोर वर्ग			
	सामान्य	सामान्य महिला	श्रीवा	परिवारिका	सामान्य	सामान्य महिला	श्रीवा	परिवारिका	सामान्य	सामान्य महिला	श्रीवा	परिवारिका	सामान्य	सामान्य महिला	श्रीवा	परिवारिका	सामान्य	सामान्य महिला	श्रीवा	परिवारिका	सामान्य	सामान्य महिला	श्रीवा	परिवारिका
314	82	23	9	2	35	10	4	1	26	8	3	0	46	13	5	1	11	3	1	0	22	7	2	0

क्षैतिज आरक्षण (HORIZONTAL RESERVATION)												
दिव्यांगजन				राजकीय कर्मचारी			भूतपूर्व सैनिक					
B/LV	D & H H	LD/C P	I.D./MI/S.L D. & AUTISM, MD	अराजपत्रित कर्मचारी	मंत्रालयिक कर्मचारी	विभागीय कर्मचारी	GEN	SC	ST	OBC	MBC	EWS
4	3	3	3	0	0	0	5	2	1	3	0	1

(06) टीचिंग एसोसियेट (भूगोल) संविदा आधारित पद (गैर अनुसूचित क्षेत्र) पद कोड संख्या-05

कुल पद	सामान्य				अनुसूचित जाति				अनुसूचित जनजाति				अन्य पिछड़ा वर्ग				अति पिछड़ा वर्ग				आर्थिक रूप से कमजोर वर्ग			
	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका
386	94	27	11	2	41	12	4	1	31	9	3	0	54	15	6	1	13	4	1	0	26	7	3	0

क्षैतिज आरक्षण (HORIZONTAL RESERVATION)												
दिव्यांगजन				राजकीय कर्मचारी			भूतपूर्व सैनिक					
B/LV	D & H H	LD/C P	I.D./MI/S.L D. & AUTISM, MD	अराजपत्रित कर्मचारी	मंत्रालयिक कर्मचारी	विभागीय कर्मचारी	GEN	SC	ST	OBC	MBC	EWS
4	4	4	3	0	0	0	6	2	2	3	0	1

(06) टीचिंग एसोसियेट (हिंदी) संविदा आधारित पद (गैर अनुसूचित क्षेत्र) पद कोड संख्या-06

कुल पद	सामान्य				अनुसूचित जाति				अनुसूचित जनजाति				अन्य पिछड़ा वर्ग				अति पिछड़ा वर्ग				आर्थिक रूप से कमजोर वर्ग			
	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका
393	101	29	12	2	44	12	5	1	33	10	4	0	58	17	6	1	14	4	1	0	28	8	3	0

क्षैतिज आरक्षण (HORIZONTAL RESERVATION)												
दिव्यांगजन				राजकीय कर्मचारी			भूतपूर्व सैनिक					
B/LV	D & H H	LD/C P	I.D./MI/S.L D. & AUTISM, MD	अराजपत्रित कर्मचारी	मंत्रालयिक कर्मचारी	विभागीय कर्मचारी	GEN	SC	ST	OBC	MBC	EWS
4	4	4	4	0	0	0	7	3	2	4	0	1

(07) टीचिंग एसोसियेट (इतिहास) संविदा आधारित पद (गैर अनुसूचित क्षेत्र) पद कोड संख्या-07

कुल पद	सामान्य				अनुसूचित जाति				अनुसूचित जनजाति				अन्य पिछड़ा वर्ग				अति पिछड़ा वर्ग				आर्थिक रूप से कमजोर वर्ग			
	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका
356	82	27	10	2	40	11	4	1	30	9	3	0	52	15	6	1	12	4	1	0	25	7	3	0

क्षैतिज आरक्षण (HORIZONTAL RESERVATION)												
दिव्यांगजन				राजकीय कर्मचारी			भूतपूर्व सैनिक					
B/LV	D & H H	LD/C P	I.D./MI/S.L D. & AUTISM, MD	अराजपत्रित कर्मचारी	मंत्रालयिक कर्मचारी	विभागीय कर्मचारी	GEN	SC	ST	OBC	MBC	EWS
4	4	4	3	0	0	0	6	2	2	3	0	1

(08) टीचिंग एसोसियेट (गृह विज्ञान) संविदा आधारित पद (गैर अनुसूचित क्षेत्र) पद कोड संख्या-08

कुल पद	सामान्य				अनुसूचित जाति				अनुसूचित जनजाति				अन्य पिछड़ा वर्ग				अति पिछड़ा वर्ग				आर्थिक रूप से कमजोर वर्ग			
	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका
104	28	9	3	0	12	3	1	0	9	2	1	0	15	5	1	0	4	1	0	0	7	2	1	0

क्षैतिज आरक्षण (HORIZONTAL RESERVATION)												
दिव्यांगजन				राजकीय कर्मचारी			भूतपूर्व सैनिक					
B/LV	D & H H	LD/C P	I.D./MI/S.L D. & AUTISM, MD	अराजपत्रित कर्मचारी	मंत्रालयिक कर्मचारी	विभागीय कर्मचारी	GEN	SC	ST	OBC	MBC	EWS
2	1	1	1	0	0	0	2	0	0	1	0	0

(क्रमशः)

(09) टीचिंग एसोसियेट (राजनीति विज्ञान) संविदा आधारित पद (गैर अनुसूचित क्षेत्र) पद कोड संख्या-09

कुल पद	सामान्य				अनुसूचित जाति				अनुसूचित जनजाति				अन्य पिछड़ा वर्ग				अति पिछड़ा वर्ग				आर्थिक रूप से कमजोर वर्ग			
	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका
339	88	25	10	2	38	11	4	1	28	9	3	0	50	15	5	1	12	3	1	0	24	7	2	0

क्षैतिज आरक्षण (HORIZONTAL RESERVATION)													
दिव्यांगजन				राजकीय कर्मचारी			भूतपूर्व सैनिक						
B/LV	D & H H	LD/C P	I.D./MI/S.L. D. & AUTISM, MD	अराजपत्रित कर्मचारी	मंत्रालयिक कर्मचारी	विभागीय कर्मचारी	GEN	SC	ST	OBC	MBC	EWS	
4	4	3	3	0	0	0	6	2	2	3	0	1	

(10) टीचिंग एसोसियेट (लोक प्रशासन) संविदा आधारित पद (गैर अनुसूचित क्षेत्र) पद कोड संख्या-10

कुल पद	सामान्य				अनुसूचित जाति				अनुसूचित जनजाति				अन्य पिछड़ा वर्ग				अति पिछड़ा वर्ग				आर्थिक रूप से कमजोर वर्ग			
	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका
74	21	7	2	0	8	2	1	0	6	2	0	0	11	3	1	0	3	0	0	0	5	2	0	0

क्षैतिज आरक्षण (HORIZONTAL RESERVATION)													
दिव्यांगजन				राजकीय कर्मचारी			भूतपूर्व सैनिक						
B/LV	D & H H	LD/C P	I.D./MI/S.L. D. & AUTISM, MD	अराजपत्रित कर्मचारी	मंत्रालयिक कर्मचारी	विभागीय कर्मचारी	GEN	SC	ST	OBC	MBC	EWS	
1	1	1	0	0	0	0	1	0	0	0	0	0	

(11) टीचिंग एसोसियेट (संस्कृत) संविदा आधारित पद (गैर अनुसूचित क्षेत्र) पद कोड संख्या-11

कुल पद	सामान्य				अनुसूचित जाति				अनुसूचित जनजाति				अन्य पिछड़ा वर्ग				अति पिछड़ा वर्ग				आर्थिक रूप से कमजोर वर्ग			
	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका
150	40	12	4	1	17	5	1	0	13	4	1	0	22	7	2	0	5	2	0	0	10	3	1	0

क्षैतिज आरक्षण (HORIZONTAL RESERVATION)													
दिव्यांगजन				राजकीय कर्मचारी			भूतपूर्व सैनिक						
B/LV	D & H H	LD/C P	I.D./MI/S.L. D. & AUTISM, MD	अराजपत्रित कर्मचारी	मंत्रालयिक कर्मचारी	विभागीय कर्मचारी	GEN	SC	ST	OBC	MBC	EWS	
2	2	1	1	0	0	0	2	1	0	1	0	0	

(12) टीचिंग एसोसियेट (समाजशास्त्र) संविदा आधारित पद (गैर अनुसूचित क्षेत्र) पद कोड संख्या-12

कुल पद	सामान्य				अनुसूचित जाति				अनुसूचित जनजाति				अन्य पिछड़ा वर्ग				अति पिछड़ा वर्ग				आर्थिक रूप से कमजोर वर्ग			
	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका	सामान्य	सामान्य महिला	श्रद्धा	परिव्रका
185	49	14	5	1	21	6	2	0	16	5	1	0	27	8	3	0	7	2	0	0	13	4	1	0

क्षैतिज आरक्षण (HORIZONTAL RESERVATION)													
दिव्यांगजन				राजकीय कर्मचारी			भूतपूर्व सैनिक						
B/LV	D & H H	LD/C P	I.D./MI/S.L. D. & AUTISM, MD	अराजपत्रित कर्मचारी	मंत्रालयिक कर्मचारी	विभागीय कर्मचारी	GEN	SC	ST	OBC	MBC	EWS	
2	2	2	2	0	0	0	3	1	1	1	0	0	

(क्रमशः)

(13) टीचिंग एसोसियेट (उर्दू) संविदा आधारित पद (गैर अनुसूचित क्षेत्र) पद कोड संख्या-13

कुल पद	सामान्य				अनुसूचित जाति				अनुसूचित जनजाति				अन्य पिछड़ा वर्ग				अति पिछड़ा वर्ग				आर्थिक रूप से कमजोर वर्ग			
	सामान्य	सामान्य महिला	विधवा	परिवरका	सामान्य	सामान्य महिला	विधवा	परिवरका	सामान्य	सामान्य महिला	विधवा	परिवरका	सामान्य	सामान्य महिला	विधवा	परिवरका	सामान्य	सामान्य महिला	विधवा	परिवरका	सामान्य	सामान्य महिला	विधवा	परिवरका
32	10	3	1	0	4	1	0	0	3	0	0	0	5	1	0	0	1	0	0	0	3	0	0	0

क्षैतिज आरक्षण (HORIZONTAL RESERVATION)												
दिव्यांगजन				राजकीय कर्मचारी			भूतपूर्व सैनिक					
B/LV	D & H H	LD/CP	I.D./MI/S.L D. & AUTISM, MD	अराजपत्रित कर्मचारी	मंत्रालयिक कर्मचारी	विभागीय कर्मचारी	GEN	SC	ST	OBC	MBC	EWS
1	1	0	0	0	0	0	0	0	0	0	0	0

(14) टीचिंग एसोसियेट (वनस्पति शास्त्र) संविदा आधारित पद (गैर अनुसूचित क्षेत्र) पद कोड संख्या-14

कुल पद	सामान्य				अनुसूचित जाति				अनुसूचित जनजाति				अन्य पिछड़ा वर्ग				अति पिछड़ा वर्ग				आर्थिक रूप से कमजोर वर्ग			
	सामान्य	सामान्य महिला	विधवा	परिवरका	सामान्य	सामान्य महिला	विधवा	परिवरका	सामान्य	सामान्य महिला	विधवा	परिवरका	सामान्य	सामान्य महिला	विधवा	परिवरका	सामान्य	सामान्य महिला	विधवा	परिवरका	सामान्य	सामान्य महिला	विधवा	परिवरका
85	24	7	2	0	10	2	1	0	7	2	1	0	12	4	1	0	3	1	0	0	6	2	0	0

क्षैतिज आरक्षण (HORIZONTAL RESERVATION)												
दिव्यांगजन				राजकीय कर्मचारी			भूतपूर्व सैनिक					
B/LV	D & H H	LD/CP	I.D./MI/S.L D. & AUTISM, MD	अराजपत्रित कर्मचारी	मंत्रालयिक कर्मचारी	विभागीय कर्मचारी	GEN	SC	ST	OBC	MBC	EWS
1	1	1	1	0	0	0	1	0	0	0	0	0

(15) टीचिंग एसोसियेट (रसायन शास्त्र) संविदा आधारित पद (गैर अनुसूचित क्षेत्र) पद कोड संख्या-15

कुल पद	सामान्य				अनुसूचित जाति				अनुसूचित जनजाति				अन्य पिछड़ा वर्ग				अति पिछड़ा वर्ग				आर्थिक रूप से कमजोर वर्ग			
	सामान्य	सामान्य महिला	विधवा	परिवरका	सामान्य	सामान्य महिला	विधवा	परिवरका	सामान्य	सामान्य महिला	विधवा	परिवरका	सामान्य	सामान्य महिला	विधवा	परिवरका	सामान्य	सामान्य महिला	विधवा	परिवरका	सामान्य	सामान्य महिला	विधवा	परिवरका
103	28	8	3	0	12	3	1	0	9	2	1	0	15	5	1	0	4	1	0	0	7	2	1	0

क्षैतिज आरक्षण (HORIZONTAL RESERVATION)												
दिव्यांगजन				राजकीय कर्मचारी			भूतपूर्व सैनिक					
B/LV	D & H H	LD/CP	I.D./MI/S.L D. & AUTISM, MD	अराजपत्रित कर्मचारी	मंत्रालयिक कर्मचारी	विभागीय कर्मचारी	GEN	SC	ST	OBC	MBC	EWS
2	1	1	1	0	0	0	1	0	0	1	0	0

(16) टीचिंग एसोसियेट (गणित) संविदा आधारित पद (गैर अनुसूचित क्षेत्र) पद कोड संख्या-16

कुल पद	सामान्य				अनुसूचित जाति				अनुसूचित जनजाति				अन्य पिछड़ा वर्ग				अति पिछड़ा वर्ग				आर्थिक रूप से कमजोर वर्ग			
	सामान्य	सामान्य महिला	विधवा	परिवरका	सामान्य	सामान्य महिला	विधवा	परिवरका	सामान्य	सामान्य महिला	विधवा	परिवरका	सामान्य	सामान्य महिला	विधवा	परिवरका	सामान्य	सामान्य महिला	विधवा	परिवरका	सामान्य	सामान्य महिला	विधवा	परिवरका
90	25	7	3	0	10	3	1	0	7	2	1	0	13	4	1	0	3	1	0	0	7	2	0	0

क्षैतिज आरक्षण (HORIZONTAL RESERVATION)												
दिव्यांगजन				राजकीय कर्मचारी			भूतपूर्व सैनिक					
B/LV	D & H H	LD/CP	I.D./MI/S.L D. & AUTISM, MD	अराजपत्रित कर्मचारी	मंत्रालयिक कर्मचारी	विभागीय कर्मचारी	GEN	SC	ST	OBC	MBC	EWS
1	1	1	1	0	0	0	1	0	0	0	0	0

(क्रमशः)

(17) टीचिंग एसोसियेट (भौतिक शास्त्र) संविदा आधारित पद (गैर अनुसूचित क्षेत्र) पद कोड संख्या-17

कुल पद	सामान्य				अनुसूचित जाति				अनुसूचित जनजाति				अन्य पिछड़ा वर्ग				अति पिछड़ा वर्ग				आर्थिक रूप से कमजोर वर्ग			
	सामान्य	सामान्य महिला	शिवदा	परिवक्षका	सामान्य	सामान्य महिला	शिवदा	परिवक्षका	सामान्य	सामान्य महिला	शिवदा	परिवक्षका	सामान्य	सामान्य महिला	शिवदा	परिवक्षका	सामान्य	सामान्य महिला	शिवदा	परिवक्षका	सामान्य	सामान्य महिला	शिवदा	परिवक्षका
85	24	7	2	0	10	2	1	0	7	2	1	0	12	4	1	0	3	1	0	0	6	2	0	0

क्षैतिज आरक्षण (HORIZONTAL RESERVATION)												
दिव्यांगजन				राजकीय कर्मचारी			भूतपूर्व सैनिक					
B/LV	D & H H	LD/CP	I.D./MI/S.L. D. & AUTISM, MD	अराजपत्रित कर्मचारी	मंत्रालयिक कर्मचारी	विभागीय कर्मचारी	GEN	SC	ST	OBC	MBC	EWS
1	1	1	1	0	0	0	1	0	0	0	0	0

(18) टीचिंग एसोसियेट (प्राणी शास्त्र) संविदा आधारित पद (गैर अनुसूचित क्षेत्र) पद कोड संख्या-18

कुल पद	सामान्य				अनुसूचित जाति				अनुसूचित जनजाति				अन्य पिछड़ा वर्ग				अति पिछड़ा वर्ग				आर्थिक रूप से कमजोर वर्ग			
	सामान्य	सामान्य महिला	शिवदा	परिवक्षका	सामान्य	सामान्य महिला	शिवदा	परिवक्षका	सामान्य	सामान्य महिला	शिवदा	परिवक्षका	सामान्य	सामान्य महिला	शिवदा	परिवक्षका	सामान्य	सामान्य महिला	शिवदा	परिवक्षका	सामान्य	सामान्य महिला	शिवदा	परिवक्षका
95	26	7	3	0	11	3	1	0	8	2	1	0	14	5	1	0	3	1	0	0	7	2	0	0

क्षैतिज आरक्षण (HORIZONTAL RESERVATION)												
दिव्यांगजन				राजकीय कर्मचारी			भूतपूर्व सैनिक					
B/LV	D & H H	LD/CP	I.D./MI/S.L. D. & AUTISM, MD	अराजपत्रित कर्मचारी	मंत्रालयिक कर्मचारी	विभागीय कर्मचारी	GEN	SC	ST	OBC	MBC	EWS
1	1	1	1	0	0	0	1	0	0	1	0	0

(19) टीचिंग एसोसियेट (ए.बी.एस.टी.) संविदा आधारित पद (गैर अनुसूचित क्षेत्र) पद कोड संख्या-19

कुल पद	सामान्य				अनुसूचित जाति				अनुसूचित जनजाति				अन्य पिछड़ा वर्ग				अति पिछड़ा वर्ग				आर्थिक रूप से कमजोर वर्ग			
	सामान्य	सामान्य महिला	शिवदा	परिवक्षका	सामान्य	सामान्य महिला	शिवदा	परिवक्षका	सामान्य	सामान्य महिला	शिवदा	परिवक्षका	सामान्य	सामान्य महिला	शिवदा	परिवक्षका	सामान्य	सामान्य महिला	शिवदा	परिवक्षका	सामान्य	सामान्य महिला	शिवदा	परिवक्षका
30	10	2	1	0	3	1	0	0	3	0	0	0	5	1	0	0	1	0	0	0	3	0	0	0

क्षैतिज आरक्षण (HORIZONTAL RESERVATION)												
दिव्यांगजन				राजकीय कर्मचारी			भूतपूर्व सैनिक					
B/LV	D & H H	LD/CP	I.D./MI/S.L. D. & AUTISM, MD	अराजपत्रित कर्मचारी	मंत्रालयिक कर्मचारी	विभागीय कर्मचारी	GEN	SC	ST	OBC	MBC	EWS
1	1	0	0	0	0	0	0	0	0	0	0	0

(20) टीचिंग एसोसियेट (व्यावसायिक प्रशासन) संविदा आधारित पद (गैर अनुसूचित क्षेत्र) पद कोड संख्या-20

कुल पद	सामान्य				अनुसूचित जाति				अनुसूचित जनजाति				अन्य पिछड़ा वर्ग				अति पिछड़ा वर्ग				आर्थिक रूप से कमजोर वर्ग			
	सामान्य	सामान्य महिला	शिवदा	परिवक्षका	सामान्य	सामान्य महिला	शिवदा	परिवक्षका	सामान्य	सामान्य महिला	शिवदा	परिवक्षका	सामान्य	सामान्य महिला	शिवदा	परिवक्षका	सामान्य	सामान्य महिला	शिवदा	परिवक्षका	सामान्य	सामान्य महिला	शिवदा	परिवक्षका
30	10	2	1	0	3	1	0	0	3	0	0	0	5	1	0	0	1	0	0	0	3	0	0	0

क्षैतिज आरक्षण (HORIZONTAL RESERVATION)												
दिव्यांगजन				राजकीय कर्मचारी			भूतपूर्व सैनिक					
B/LV	D & H H	LD/CP	I.D./MI/S.L. D. & AUTISM, MD	अराजपत्रित कर्मचारी	मंत्रालयिक कर्मचारी	विभागीय कर्मचारी	GEN	SC	ST	OBC	MBC	EWS
1	1	0	0	0	0	0	0	0	0	0	0	0









12- कार्यालय (क-2) विभाग के राजकाज क्रमांक 17010930 दिनांक 06.08.2026 के अनुसार विद्यमान प्रमाण पत्र के संकल में नए या बदलाईन जारी की गई है, जिसमें गैरविद्यमान कॉलेज के अधीनस्थों को विद्यमान प्रमाण पत्र के लिए अपेक्षित किया गया है। अतः उक्त नतीजे में विद्यमान/नए हेतु प्रस्ताव जमा एवं वरदान के सापेक्ष में UDID कार्ड को वैध प्रमाण (Valid Proof) के रूप में प्रस्तुत करना अनिवार्य होगा। विभाग अभ्यर्थियों को ऑनलाइन आवेदन में UDID Registration/Card का विवरण भरना होगा।

4. अनुसूचित क्षेत्र के अभ्यर्थियों के लिए विशेष निर्देश :- अनुसूचित क्षेत्र के अभ्यर्थियों के लिए नियमानुसार संबंधित विभागीय मतानुसार उक्त पदों के लिये अनुसूचित क्षेत्र संबंधी आरक्षण को प्रकटान जाम, नहीं होने।

5. मानदेय- टोचिंग एसोसिएट (सहाय्यता आचारित) पद हेतु 28850/- (फिक्स) पारिश्रमिक देय होगा। मासिक निम्न पारिश्रमिक राज्य सरकार के आदेशानुसार परिवर्तनीय होगा।

क्र.सं.	पद का नाम	फिक्स मासिक पारिश्रमिक
1.	टोचिंग एसोसिएट (कंप्यूटर विज्ञान) (सहाय्यता आचारित पद)	28850/- प्रतिमास
2.	टोचिंग एसोसिएट (विद्यकला) (सहाय्यता आचारित पद)	
3.	टोचिंग एसोसिएट (अर्थशास्त्र) (सहाय्यता आचारित पद)	
4.	टोचिंग एसोसिएट (अर्थशास्त्र) (सहाय्यता आचारित पद)	
5.	टोचिंग एसोसिएट (भूगोल) (सहाय्यता आचारित पद)	
6.	टोचिंग एसोसिएट (इतिहास) (सहाय्यता आचारित पद)	
7.	टोचिंग एसोसिएट (इतिहास) (सहाय्यता आचारित पद)	
8.	टोचिंग एसोसिएट (सहाय्यता आचारित पद)	
9.	टोचिंग एसोसिएट (राजनीति विज्ञान) (सहाय्यता आचारित पद)	
10.	टोचिंग एसोसिएट (लोक प्रशासन) (सहाय्यता आचारित पद)	
11.	टोचिंग एसोसिएट (संस्कृत) (सहाय्यता आचारित पद)	
12.	टोचिंग एसोसिएट (समाजशास्त्र) (सहाय्यता आचारित पद)	
13.	टोचिंग एसोसिएट (उर्दू) (सहाय्यता आचारित पद)	
14.	टोचिंग एसोसिएट (वनस्पति शास्त्र) (सहाय्यता आचारित पद)	
15.	टोचिंग एसोसिएट (समान शास्त्र) (सहाय्यता आचारित पद)	
16.	टोचिंग एसोसिएट (साहित्य) (सहाय्यता आचारित पद)	
17.	टोचिंग एसोसिएट (भौतिक शास्त्र) (सहाय्यता आचारित पद)	
18.	टोचिंग एसोसिएट (ग्रामी शास्त्र) (सहाय्यता आचारित पद)	
19.	टोचिंग एसोसिएट (ए.बी.एस.सी.) (सहाय्यता आचारित पद)	
20.	टोचिंग एसोसिएट (व्यावसायिक प्रशासन) (सहाय्यता आचारित पद)	
21.	टोचिंग एसोसिएट (ई.ए.ए.एम.) (सहाय्यता आचारित पद)	
22.	टोचिंग एसोसिएट (इति) (सहाय्यता आचारित पद)	
23.	टोचिंग एसोसिएट (उद्यम विज्ञान) (सहाय्यता आचारित पद)	
24.	टोचिंग एसोसिएट (कृषि अभिगमनिकी) (सहाय्यता आचारित पद)	
25.	टोचिंग एसोसिएट (कृषि अंतरााल) (सहाय्यता आचारित पद)	
26.	टोचिंग एसोसिएट (कृषि विज्ञान एवं प्रशासन) (सहाय्यता आचारित पद)	
27.	टोचिंग एसोसिएट (समाज विज्ञान) (सहाय्यता आचारित पद)	
28.	टोचिंग एसोसिएट (समाज विज्ञान) (सहाय्यता आचारित पद)	
29.	टोचिंग एसोसिएट (क्रीडा विज्ञान) (सहाय्यता आचारित पद)	
30.	टोचिंग एसोसिएट (आनुवंशिकी एवं पशु प्रजनन) (सहाय्यता आचारित पद)	
31.	टोचिंग एसोसिएट (सहय योगविज्ञान) (सहाय्यता आचारित पद)	
32.	टोचिंग एसोसिएट (सहाय्यता आचारित पद)	

**विशेष नोट-**

01. "राजस्थान टोचिंग ऑफिस में पावर रूल 2023" में वर्णित प्रकटान के अनुसार 'प्रस्तावित सहाय्यता पद पर नियुक्ति स्वीकार करने वाले अभ्यर्थी को सहाय्यता अति के दौरान, राज्य सरकार द्वारा समय-समय पर निर्धारित वरी के अनुसार, मासिक स्थिर पारिश्रमिक (Fixed Remuneration) देय होगा।"

**6. पाठ्यता एवं शैक्षणिक योग्यता-**

S. No.	Name of contractual Post	Minimum qualification and experience for hiring indirect contractual post	Remarks
1	2	3	4
<b>Teaching wing</b>			
1.	Teaching Associate	<p><b>For the Disciplines of Arts, Commerce, Humanities, Education, Law, Social Sciences, Sciences, Languages and Journalism &amp; Mass Communication.</b></p> <p><b>A. (i) A Master's degree with 55% marks (or an equivalent grade in a point-scale wherever the grading system is followed) in a concerned/relevant/allied subject from an Indian University, or an equivalent degree from an accredited foreign university.</b></p> <p><b>(ii) Besides fulfilling the above qualifications, the candidate must have cleared the National Eligibility Test (NET) conducted by the UGC or the CSIR, or a similar test accredited by the UGC, like SLET/SET or who are or have been awarded a Ph. D. Degree in accordance with the University Grants Commission (Minimum Standards and Procedure for Award of M.Phil./Ph.D. Degree) Regulations, 2009 or 2016 and their amendments from time to time as the case may be exempted from NET/SLET/SET :</b></p> <p><b>Provided, the candidates registered for the Ph.D. programme prior to July 11, 2009, shall be governed by the provisions of the then existing Ordinances/Bye- laws/Regulations of the Institution awarding the degree and such Ph.D. candidates shall be exempted from the requirement of NET/SLET/SET for recruitment and appointment of Assistant Professor or equivalent positions in Universities/ Colleges/Institutions subject to the fulfillment of the following conditions :-</b></p> <p><b>(a) The Ph.D. degree of the candidate has been awarded in a regular mode;</b>  <b>(b) The Ph.D. thesis has been evaluated by at least two external examiners;</b>  <b>(c) An open Ph.D. viva voce of the candidate has been conducted;</b>  <b>(d) The candidate has published two research papers from his/her Ph.D. work, out of which at least one is in a refereed journal;</b>  <b>(e) The candidate has presented at least two papers based on his/her Ph.D. work in conferences/seminars sponsored/funded/supported by the UGC/ICSSR/CSIR or any similar agency.</b></p> <p><b>The fulfillment of these conditions is to be certified by the Registrar or the Dean (Academic Affairs) of the University concerned.</b>  <b>Note: NET/SLET/SET shall also not be required for such Masters Programmes in disciplines for which NET/SLET/SET is not conducted by the UGC, CSIR or similar test accredited by the UGC, like SLET/SET.</b></p> <p style="text-align: center;"><b>OR</b></p> <p><b>B. The Ph.D. degree has been obtained from a foreign university/institution with a ranking among top 500 in the World University Ranking (at any time) by any one of the following:</b>  <b>(i) Quacquarelli Symonds (QS)</b>  <b>(ii) the Times Higher Education (THE) or</b>  <b>(iii) the Academic Ranking of World Universities (ARWU) of the Shanghai Jiao Tong University (Shanghai).</b></p>	<p><b>A relaxation of 5% shall be allowed at the Bachelor's as well as at the Master's level for the candidates belonging to Scheduled Caste/Scheduled Tribe/More Backward Classes /Backward Classes (BC) (Non-creamy Layer)/Differently-abled</b>  <b>(a) Blindness and low vision;</b>  <b>(b) Deaf and Hand off Hearing;</b>  <b>(c) Locomotor disability including cerebral palsy, leprosy cured, dwarfism, acid-attack victims and muscular dystrophy;</b>  <b>(d) Autism, intellectual disability, specific learning disability and mental illness;</b>  <b>(e) Multipledisabilities from amongst persons under (a) to (d) including deaf-blindness) for the purpose of eligibility and assessing good academic record for hiring on direct contractual post. The eligibility marks of 55% marks (or an equivalent grade in a point scale wherever the grading system is followed) and the relaxation of 5% to the categories mentioned above are permissible, based only on the qualifying marks without including any grace mark procedure</b></p>

(ii) देवनागरी लिपि में लिखी हिन्दी में कार्य करने का ज्ञान एवं समर्थन की संस्कृति का ज्ञान।

जो व्यक्ति पाठ्यक्रम के अंतिम वर्ष की परीक्षा में उत्तीर्ण हुआ है या सम्मिलित हो रहा हो, जो इन नियमों में उल्लिखित पद के लिए शैक्षणिक योग्यता की आवश्यकता है या पदों नहीं के लिए उक्त पद के लिए आवेदन करने के लिए बाध होगा लेकिन यह/उत्तरे उत्पन्न करने एजेंसी को अतिरिक्त शैक्षणिक योग्यता प्राप्त करने का प्रमाण प्रस्तुत करना होगा, - उत्पन्न करने सहाय्यता पदों के अनुसार सम्बन्धित की नहीं के लिए लिखित परीक्षा आयोजित की जाएगी, जिसमें परीक्षा में सम्मिलित होने वाले सम्मिलित उम्मीदवारों की संख्या और परीक्षा को सूचना संसाधन को सुनिश्चित किया जाएगा।

**नोट-**

01. इस नतीजे हेतु निर्धारित शैक्षणिक योग्यता को अंतिम वर्ष में सम्मिलित होने वाले है या सम्मिलित हो रहे है अभ्यर्थी आवेदन कर सकते परंतु निर्धारित शैक्षणिक योग्यता इस नतीजे की परीक्षा की लिखित अति करने अनिवार्य होगी। अन्यथा परीक्षा की प्राथमिक लिखित तक के बाद शैक्षणिक योग्यता अति करने वाले अभ्यर्थियों को इस नतीजे हेतु पात्र नहीं माना जाएगा।

02. ऐसे प्रमाणों लेनिके पास 15 वर्ष की सेवा सेवा के उपरमत्त स्तरक को सम्बन्धित जारी प्रमाण पत्र है, ऐसे प्रमाणों लेनिके अनिवार्य आवेदन करते समय OTR डैशबोर्ड पर document details section में शैक्षणिक योग्यता के उचितवरी सौकर/प्राप्तक के कोलम में रोल नम्बर के हिसाब में "Not Applicable" एवं परिणाम में Grade का चयन कर N' Grade अति कर आवेदन कर सकते हैं तथा प्रमाण पत्र आवश्यक रूप से अपलोड करें।

(क्रमशः)





**19.अभ्यर्थियों के प्रमाण पत्र के संबंध में प्रावधान :-**

- i. आर्थिक विभाग द्वारा जारी परिपत्र दिनांक 22.08.2024 द्वारा पात्रता की जांच एवं दस्तावेजों के सत्यापन की कार्यवाही संबंधित विभागों द्वारा की जायेगी। अभ्यर्थियों की पात्रता के संबंध में संयुक्त निर्णय संबंधित विभाग द्वारा किया जायेगा।
- ii. आवेदक द्वारा ऑनलाइन आवेदन/ओबीआर में भरी गई शैक्षणिक एवं तकनीकी योग्यता को ही अंतिम रूप से मान्य किया जायेगा। ऑनलाइन आवेदन/ओबीआर में दर्ज योग्यता के अतिरिक्त अन्य संस्था/विश्वविद्यालय से प्राप्त डिग्री/डिप्लोमा को स्वीकार/मान्य नहीं किया जायेगा। आत आवेदक सत्यवचनीपूर्वक अपनी शैक्षणिक योग्यता ऑनलाइन आवेदन में भरे।
- iii. अभ्यर्थियों को वर्ग विशेष हेतु अर्जित पदों का लाभ तभी देय होगा जब उनके मूल दस्तावेजों की जांच उपर्युक्त अभ्यर्थी नियमानुसार नियुक्ति हेतु पात्र है।
- iv. अर्जित पदों हेतु अभ्यर्थियों को राजस्थान राज्य में सक्षम अधिकारी द्वारा जारी मूल निवास प्रमाण पत्र एवं जाति प्रमाण पत्र प्रस्तुत करने अनिवार्य होंगे।
- v. आर्थिक विभाग की अनुसूचित विनांक 20.01.2022 के अनुसार आवेदक को वर्ग विशेष (अनुसूचित जाति/अनुसूचित जनजाति/अन्य पिछड़ा वर्ग/अति पिछड़ा वर्ग/आर्थिक रूप से कमजोर वर्ग) का लाभ तब ही देय होगा जबकि आवेदक का उक्त प्रमाण पत्र इस वर्ग के लिए आवेदन करने की अंतिम तिथि तक या इससे पूर्व का सक्षम प्राधिकारी द्वारा जारी किया गया हो। अभ्यर्थियों को उनके वर्ग में आस्था का लाभ, प्रमाण-पत्र जारी होने की दिनांक से देय होता है और अभ्यर्थी को पास सक्षम प्राधिकारी द्वारा जारी प्रमाण-पत्र, आवेदन करने की अंतिम तिथि से पूर्व का होना आवश्यक है। अतः भर्ती हेतु अभ्यर्थी की भेगी के संबंध में उसकी पात्रता का मुख्यतः आवेदन की अंतिम तिथि तक जारी प्रमाण-पत्र के आधार पर किया जायेगा।  
आर्थिक विभाग के परिपत्र दिनांक 17.10.2022 के अनुसार उक्त परिपत्र के अन्त में निम्न परन्तुक्त जोड़ा गया है:-  
"यदि किसी कारणों से अभ्यर्थी द्वारा आवेदन की अंतिम तिथि तक जारी प्रमाण-पत्र प्रस्तुत नहीं किया जाता है तथा अंतिम तिथि के पश्चात जारी किया हुआ प्रमाण-पत्र प्रस्तुत किया जाता है तो ऐसे अभ्यर्थी से इस आशय का एक शपथ-पत्र लिखा जाये कि यह आवेदन की अंतिम तिथि को संयोजित वर्ग की पात्रता रखता था तथा यह सूचना मल्टा पाये जाने पर उसकी नियुक्ति निरस्त की जा सकती।"
- vi. जाति प्रमाण पत्र की वैधता अवधि:- सामाजिक न्याय एवं अधिकारिता विभाग के जाति प्रमाण-पत्र दिशा-निर्देश दिनांक 09.09.2016 के अनुसार :-  
i. अनुसूचित जाति/जनजाति के लिये जारी किये गये जाति प्रमाण पत्रों की अंतिम जीवन पर्यंत होगी जबकि ओबीसी को लिये संकीर्ण प्रमाण पत्र एक बार ही जारी किया जायेगा परन्तु क्रिमीलेयर में नहीं होने संकीर्ण पत्र को तीन वर्ष के विधि समन्त शपथ-पत्र के आधार पर मजबूत ही जायेगी।  
ii. क्रिमीलेयर में नहीं होने संकीर्ण प्रमाण पत्र एक वर्ष के लिए मान्य होगा एक बार क्रिमीलेयर में नहीं होने का प्रमाण पत्र जारी होने के उपरान्त अगर प्रार्थी आगामी वर्ष में भी क्रिमीलेयर में नहीं है तो ऐसी स्थिति में उसके सत्यापित शपथ पत्र लेकर पूर्व में जारी प्रमाण पत्र को ही मान लिया जाये ऐसा अधिकतम तीन वर्ष तक किया जा सकता है।  
iii. सामाजिक न्याय एवं अधिकारिता विभाग के परिपत्र दिनांक 21.06.2019 के अनुसार अति पिछड़ा वर्ग में वर्गीत जातियों को अन्य पिछड़ा वर्ग की जाति प्रमाण पत्र को आधार पर ही अति पिछड़ा वर्ग का लाभ देय होगा।
- vii. अन्य पिछड़ा वर्ग/अति पिछड़ा वर्ग का नवीनतम प्रमाण पत्र जो पिता के नाम, निवास एवं आय के आधार पर सक्षम अधिकारी द्वारा जारी किया हुआ हो, प्रस्तुत करने पर ही उस वर्ग का लाभ देय होगा। यदि के नाम, निवास एवं आय के आधार पर जारी प्रमाण पत्र मान्य नहीं होगा।
- viii. अनुसूचित जाति/अनुसूचित जनजाति जाति का प्रमाण पत्र नियमानुसार सक्षम प्राधिकारी द्वारा निर्धारित प्रमन में जारी किया हुआ होना चाहिए, अनुसूचित जाति/अनुसूचित जनजाति जाति की विधायित मंडल आवेदक को इन वर्गों के लिये अर्जित पदों का लाभ प्राप्त करने हेतु अपने पिता के नाम व निवास के आधार पर सक्षम अधिकारी द्वारा नियमानुसार जारी जाति प्रमाण पत्र प्रस्तुत करने पर ही उस वर्ग का लाभ देय होगा। यदि के नाम, निवास के आधार पर जारी प्रमाण पत्र मान्य नहीं होगा।
- ix. आर्थिक रूप से कमजोर वर्ग को अभ्यर्थियों को जारी किये जाने वाले Income & Asset Certificate की वैधता के संबंध में सामाजिक न्याय एवं अधिकारिता विभाग के परिपत्र क्रमांक एन110/अ.क. व/ओबीसी/सामाजिक/19/28046 दिनांक 06.05.2022 के द्वारा यह निर्दिष्ट किया गया है कि राज्य के लिए जारी Income & Asset Certificate एक वर्ष के लिए मान्य होगा। एक बार उक्त Income & Asset Certificate जारी होने के उपरान्त अगर प्रार्थी आगामी वर्ष में भी आर्थिक कमजोर वर्ग के लिए निर्धारित मापदंडों के अनुसार पात्र है तो ऐसी स्थिति में प्रार्थी से सत्यापित संरक्षण शपथ-पत्र के आधार पर पूर्व में जारी Income & Asset Certificate को ही मान लिया जायेगा, ऐस अधिकतम 3 वर्ष के लिए किया जा सकता है।
- x. दस्तावेज सत्यापन के समय शैक्षणिक एवं प्रशासनिक योग्यता, आय, वैवाहिक स्थिति, परिवारका, भ्रूणपूर्व शैक्षणिक, विशेष योग्यता संबंधी मूल दस्तावेज प्रस्तुत करने अनिवार्य होंगे।
- xi. भ्रूणपूर्व शैक्षणिक को पदों हेतु अर्जित पदों का लाभ ऑनलाइन आवेदन की अंतिम निर्धारित दिनांक तक का सक्षम स्तर से जारी शैक्षणिक प्रमाण पत्र/एन ओ सी का प्रमाण पत्र प्रस्तुत करने पर ही देय होगा।
- xii. किताब श्रेणी में आवेदन करने वाली महिला अभ्यर्थी के पास पति का मृत्यु प्रमाण पत्र एवं पति के नाम से बैंकिंग ऐसा दस्तावेज/सक्षम जिसमें उसकी पति का नाम अंकित हो गया विवाद प्रमाण पत्र, आधार कार्ड, राशन कार्ड, बचो का जन्म प्रमाण पत्र, मसदाता महजान पत्र पति के नाम से जारी मूल निवास/जाति प्रमाण पत्र प्रस्तुत करने होंगे।
- xiii. परिवारका/विवाह विधिगत श्रेणी में आवेदन करने वाली महिला अभ्यर्थी के द्वारा आवेदन करने की अंतिम तिथि तक का माननीय न्यायालय द्वारा जारी विवाह विच्छेद की विकल्प/आदेश प्रस्तुत करने पर ही इस श्रेणी हेतु पात्र माना जायेगा।
- xiv. शासन के परिपत्र क्रमांक प6(19)गृह-13/2006 दिनांक 22.05.2006 से राजकीय सेवा में नियुक्ति हेतु विवाह-पंजीयन करवाया जाना अनिवार्य किया गया है अतः इस संबंध में विवाह प्रमाण पत्र प्रस्तुत करना बाध्यकारी है।
- xv. विवाहित महिलाओं के लिये सत्यापन संबंधी घोषणा प्रस्तुत करना अनिवार्य है और परिवारका श्रेणी की महिलाओं को ऑनलाइन आवेदन की अंतिम दिनांक तक पुनर्विचार नहीं किये जाने संकीर्ण या परिवारका श्रेणी में होने संकीर्ण शपथ पत्र प्रस्तुत करना होगा।
- xvi. अभ्यर्थी को अंतिम शैक्षणिक संस्था द्वारा जारी चरित्र प्रमाण पत्र या सभ्य प्रस्तुत करना अनिवार्य होगा, चिरमं चरित्र के संबंध में कम से कम "अच्छा" का उल्लेख/अंकित होना आवश्यक होगा। अभ्यर्थी को ये राजपत्रित अधिकारियों द्वारा जारी नवीनतम चरित्र प्रमाण पत्र प्रस्तुत करने अनिवार्य है।
- xvii. अभ्यर्थी को सभ्य उपचान आचरण संबंधी पुलिस सत्यापन प्रमाण पत्र यथा समय नियुक्ति प्राधिकारी को प्रस्तुत करना होगा जिसमें आवेदक के विरुद्ध ऐसी किसी आपराधिक घात का उल्लेख नहीं होना चाहिए जिससे राज्य सेवा में नियुक्ति में बाधा/समस्या उत्पन्न हो। किसी आपराधिक प्रकरण में दोष सिद्ध होने या प्रकरण/वाद न्यायिक रूप से विचारधीन होने पर आर्थिक विभाग के परिपत्र क्रमांक प(1)आर्थिक/क-2/2016 दिनांक 04.12.2019 के प्रकृतानुसार अभ्यर्थी की पात्रता का निरसन किया जायेगा।
- xviii. अभ्यर्थी को सभ्य उपचान सक्षम प्राधिकारी द्वारा जारी चिकित्सा जांच संबंधी चिकित्सा प्रमाण पत्र यथासमय नियुक्ति प्राधिकारी को प्रस्तुत करना आवश्यक होगा, कि वह पूर्ण रूप से स्वस्थ है एवं राज्य सेवा के लिये भूषित उपयुक्त है।
- xix. ऐसे आवेदक जो पहले से राजकीय सेवा में हो, या राजकीय औद्योगिक उपक्रमों में हो, या किसी प्रकार के अन्य संचालनों में हो, या गैर सरकारी संस्था में नियुक्त हो, उन्हें नियुक्ति के समय अपनी नियोजक का अनुमति प्रमाण पत्र नियुक्ति अधिकारी को प्रस्तुत करना होगा। जो आवेदक पहले से ही राजकीय सेवा/उक्त उपक्रमों में कार्यरत है, उन्हें अपने नियोजक को इस भर्ती हेतु आवेदन करने की तिथिगत सूचना की जानकारी अनापत्ति प्राप्त कर लेना चाहिए। संबंधित नियुक्ति अधिकारी के अनुमति प्रमाण-पत्र के अभाव में अभ्यर्थी को पूर्व सेवा से त्याग-पत्र देकर नव-नियुक्ति के समय त्याग-पत्र स्वीकार करने सम्बंधी आदेश प्रस्तुत करना होगा।
- xx. ऑनलाइन आवेदन की अंतिम निर्धारित दिनांक के पश्चात का प्रमाण पत्र होने पर वर्ग विशेष का लाभ देय नहीं होगा।
- xxi. आवेदकों द्वारा ऑनलाइन आवेदन पर उपलब्ध कराई गई सूचना के आधार पर ही अभ्यर्थियों की पात्रता जांच, परीक्षा परिणाम जारी किये जाने के उपरान्त दस्तावेज सत्यापन के समय की जायेगी, अतः इस संबंध में पात्रता संबंधी समस्त उत्तरदायित्व स्वयं आवेदक का होगा। पात्रता संबंधी दस्तावेजों की जांच के समय पात्र नहीं पाये जाने पर वह अभ्यर्थी अनाज माना जायेगा, जानबूझ कर मल्टा सूचना भरे जाने की स्थिति में आवेदक के विरुद्ध नियमानुसार कानूनी कार्यवाही की जायेगी।

**20.आवेदन में मल्टा सूचना प्रस्तुत करने व अनुचित साधनों की शोकाभ्यास:-** आवेदकों को अपने ऑनलाइन आवेदन में समस्त सूचना सही-सही अंकित करनी चाहिए और परीक्षास्थलों को कंप्यूटरीकृत/ऑनलाइन/बोर्ड द्वारा नियुक्त अधिकारी अथवा कार्यवाही द्वारा दिये गये निर्देशों का अभिसार्यत घालन करना चाहिए, ऐसा न करने अथवा परीक्षा केंद्र पर किसी प्रकार का अनुचित व्यवहार करने एवं परीक्षा में अनुचित साधनों का प्रयोग/उपयोग करने पर परीक्षाओं के विरुद्ध बोट/कंप्यूटरीकृत जो भी उचित समझे समस्त कार्यवाही कर सकता है तथा परीक्षाओं के खिलाफ भारतीय न्याय संहिता एवं राजस्थान सार्वजनिक परीक्षा (भर्ती में अनुचित साधनों की शोकाभ्यास के अनुपचार) अधिनियम 2022 के अन्तर्गत एवं बोटों द्वारा निर्धारित "Punishment for insolent behavior/disorderly conduct/using or attempting unfair means during the course of examination" तथा "The Rajasthan Subordinate and Ministerial Service Selection Board Prevention of Unfair means in Board Examinations Regulations, 2016" के अनुसार कार्यवाही की जा सकती है। परीक्षास्थलों को साक्ष्यन किया जाता है कि राजस्थान सार्वजनिक परीक्षा (भर्ती में अनुचित साधनों की शोकाभ्यास के अनुपचार) अधिनियम, 2022 (2022 का अधिनियम संख्यांक 8) के प्रावधानों के तहत यथा वर्णित किसी सार्वजनिक परीक्षा में अनुचित साधनों का प्रयोग/उपयोग करने या उनका सहारा लेने, अनाधिकृत प्रवेश, प्रश्न-पत्र का कब्जा व प्रकटीकरण तथा संबंधित अपराधों को लिए कठोर कानून का प्रकथन किया गया है। अनुचित साधनों में लिप्य परीक्षाओं के लिए तीन वर्ष तक के कठोर कारावास एवं रुपये 1,00,000/- (अब्दे एक लाख) न्यूनतम जुर्माना के प्रावधान विद्यमान हैं। परीक्षाओं के अतिरिक्त अन्य व्यक्ति द्वारा भ्रष्टाचर या अधिनियम वर्णित अनुचित साधनों में लिप्य होने पर या सुधेयित करने पर न्यूनतम पाँच वर्ष के कारावास जो कि दस वर्ष तक हो सकता है एवं न्यूनतम रुपये 10,00,000/- (अब्दे दस लाख ) का जुर्माना जो कि दस करोड़ तक हो सकता है, के दण्डित करने के प्रावधान विद्यमान हैं। दोष सिद्धि पर दो वर्ष की कारावाही के लिए कोई सार्वजनिक परीक्षा देने से विवर्धित किए जाने के भी प्रावधान विद्यमान हैं। उपरोक्त अधिनियम की विधिगत अनुसार कठोर कारवाही सुनिश्चित की जायेगी।

**21. परीक्षा की स्वीम एवं पाठ्यक्रम :-**

-: सचिवा टीचिंग एग्जामिनेट पब्लिशर हेतु परीक्षा की स्वीम :-  
Exam Pattern

Paper	Subjects	No. of Question	Marks	Time
I	General Studies of Rajasthan	60	75	1 Hour.
II	Subject concerned with the post	120	300	2 Hours.
<b>Total Marks</b>			<b>375</b>	

- Note:-
1. The Board shall prepare a list of candidates, on the basis of marks obtained in written examination, whom they consider suitable for appointment to the posts concerned, arranged in order of merit and then the Board shall forward the list to the Government. The Board shall not recommend any candidate who has failed to obtain a minimum of 36% marks in each paper and 40% marks in aggregate of written examination:  
Provided that:-  
The percentage fixed as above shall be relaxed by 5% for the candidates belonging to the Scheduled Castes and Scheduled Tribes.
  2. The paper will have Negative Marking and 1/3 will be deducted for each wrong answer.

(क्रमशः)

पाठ्यक्रम (Syllabus)

PAPER-I

SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF TEACHING ASSOCIATE FOR GENERAL STUDIES OF RAJASTHAN

History, Art, Culture, Literature and Heritage of Rajasthan

- Ancient Civilizations of Rajasthan with special reference to Mesolithic (Late Stone Age) sites in Rajasthan i.e. Nimberaha, Nagar and Mandla.
Major dynasties of Rajasthan and its rulers through the Ages and their cultural achievements (1000-1800 A.D.)
Political resistance of Rajput rulers against Muslim Power. Special reference to Ratan Singh, Hamir, Kanhai Dev and Mubayy, Chandrarao and Pratap.
(i) Bhakti Movement and Sufism in Medieval Rajasthan, Special reference to Mira, Dadu and Khawaja Mohin-ud-din Chishti, Salis; Special emphasis to be paid to teachings of Ramdevji, Gogaji, Tejaji, Babaji, Malhotra, Dhanra, Pipa, Haridas, Baldev, Janaha and other saints.
(ii) Folk gods and goddesses.
Political Awakening and Freedom Movement in Rajasthan: 1857, Peasant and Tribal Movements, Prajalandar Movements, Contribution of Women in Social and Political Awakening.
(i) Folk Culture: Fairs and Festivals, Different Schools of Painting, Folk Tales and Gathas, Folk Songs, Folk Dances, Folk Music and Instruments.
(ii) Dress and Ornaments, Handicrafts.
Rajasthani Language: Origin and Development.
Main Dialects and Region.
Rajasthani Scripts: Modia and Devanagari.
(i) Rajasthani Literature: Its Evolution.
(ii) Early Period
(iii) Post-Medieval Period
(iv) Modern Period.
(v) Famous Writers and their Works.
Tourism and Rajasthan: Heritage, Tourism Policy and Vision.

Geography of Rajasthan

- Physiographic regions, Rivers and lakes.
Climate, Natural Vegetation, Soil, Minerals and Energy Resources - Renewable and Non-renewable.
Population - Characteristics, Location, Density, Biodiversity and its conservation.
Production and Distribution of Major crops, Major Irrigation Projects, Major Industries.
Drought and Famines, Desertification, Environmental Problems, Disaster Management and Pandemics.

Political and Administrative System of Rajasthan

- Structure, Chief Ministers and Council of Ministers.
State Legislative Assembly, High Court and Judicial System of Rajasthan.
Rajasthan Public Service Commission, State Election Commission, State Finance Commission, State Human Rights Commission, State Commission for Women, State Information Commission, Lokayukta and Auditor General.
Chief Secretary, Executive Secretariat, Chief Minister's Office (CMO), Divisional Commissioner, District Administration, Institutions of Panchayati Raj and Urban Local Self Government.
Government's Right to Information, Guaranteed Delivery of Public Services, Citizen's Charters, Social Audit, Jan Shiksha Portal, Rajasthan Samarkat Portal etc.

Economy of Rajasthan

- Characteristics of state economy.
Occupational distribution.
Compositional trend of state economic product.
Major Sectoral Issues:
(i) Agricultural Sector: Characteristics of agricultural sector in Rajasthan, Major rabi and kharif crops with special reference to all seeds and sprout, irrigated area and trends, problems of migrant workers and their rehabilitation, Agricultural credit.
(ii) Livestock: Trends in livestock population, Milk production in Rajasthan.
(iii) Industrial Outlook: Major industries of Rajasthan, Constraints to development of industries, MSMEs in Rajasthan, Roles and problem of small industries, industrial clusters, Major state public sector enterprises, SEZ in Rajasthan, Role of RICO and REC, Agro-processing policy (2020).
(iv) Service Sector: Primary education, Development in recent years, Health programmes of state government, Mid-day meal programme, Indra Aashirwad.
(v) Infrastructure Development: Progress in national highways, state highways and village roads, Power: Progress in power generation, Recent progress in solar power projects.
(vi) Handicrafts of Rajasthan.
(vii) Major items of exports from Rajasthan.
(viii) Latest major welfare schemes of state government with special reference to economically and socially backward classes, disabled people, old aged people, Steps taken for women empowerment and child development.
(ix) Regional economic inequalities in Rajasthan.

Contemporary Events

- Major Contemporary Events and issues of Rajasthan.
Persons and Places in News.
Sports and Games.

Paper-II

01. SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF TEACHING ASSOCIATE IN COMPUTER SCIENCE

- Unit-1 Computer Organization and Architecture: Number representation and computer arithmetic (fixed and floating point), Logic functions, Minimization, Design and synthesis of combinational and sequential circuits: Machine instructions and addressing modes, ALU and data-path, CPU and control design, Memory interface, I/O interface (interrupt and DMA mode), Instruction pipelining, Cache and main memory, Secondary storage.
Unit-2 Computer Programming: Programming in C: Functions, Recursion, Parameter passing, Scope, Binding; Abstract data types, Arrays, Stacks, Queues, Linked Lists, Trees, Binary search trees, Binary heaps, File handling, Object-oriented programming: Class, Object, inheritance, polymorphism and overriding, constructors & destructors, overloading, exception handling.
Unit-3 Software Engineering: Software development Life Cycle and different models, Information gathering, requirement and feasibility analysis, data flow diagrams, process specifications, input/output design, process flow chart, planning and managing the project, design, coding, testing, implementation, maintenance.
Unit-4 Operating System: Main functions and different types of OS, Processes, Threads, Interprocess communication, Concurrency, Synchronization, Deadlock, CPU scheduling, Memory management and virtual memory, File systems, The UNIX system, File systems, process Management, Bourne shell, shell variables, command line programming, filters and Unix commands, system calls.
Unit-5 Computer Networks: LAN, MAN, WAN, Transmission Media: Guided and unguided, Multiplexing (TDM, FDM, SDM & WDM) and switching techniques, Routing algorithms, Network reference models: OSI Model, TCP/IP Model, TCP/IP and Society, IPv4 & IPv6, DNS, Network Security: Symmetric & Asymmetric Cryptography, Message Digest, Block and Stream Ciphers, One time pad, IP Security, E-Mail Security, PGP, IDS, Firewall.
Unit-6 Discrete Mathematical Structures: Counting principles, Linear recurrence, mathematical induction, relations and functions, modular and polynomial arithmetic, Locus, Definition and properties, connected graph, cycles & circuits, Tree: rooted tree, spanning trees, Models of Computability: Regular Expressions and Finite Automata, Context Free grammars and Push down Automata, Regular and Context free languages, pumping lemma, Turing Machines and undecidability.
Unit-7 Data Structures and Algorithms: Analysis, Asymptotic notation, Notions of space and time complexity, Best, Worst and average case analysis; Design: Greedy approach, Dynamic programming, Divide-and-conquer; Tree and graph traversals, Spanning tree algorithms, Shortest paths: Finding, Sorting, Searching, Basic concepts of complexity classes P, NP, NP-hard, NP-complete.
Unit-8 Database Management System: ER-model, Relational model, relational algebra, tuple calculus, Database design (integrity constraints, normalisation 1NF, 2NF, 3NF, BCNF and 4NF), Structured Query language (SQL), File structure (sequential files, indexing, B and B+ trees), Transactions and concurrency control.
Unit-9 System Software: Assemblers: one pass & two pass assemblers; Design, Macro & Macro processors, loaders & linkers, Text editors & debuggers, Program generators, Compiler & Interpreter, Different phases of compilation process.
Unit-10 Emerging Trends and Technologies: Concept of Parallel Computing (Parallel Virtual Machine and Message passing interface) Mobile Computing: Cellular system, Handoff, Location Management, Pervasive Computing, WLAN, 5G-Technology: Ecosystem: framework and applications, Business models, electronic payment System: Digital Token, Smart Cards, Credit Cards, risks in e-payment system, Data Warehousing and Data Mining.

02. SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF TEACHING ASSOCIATE IN DRAWING & PAINTING

- Unit-I Meaning, Origin & Development and Classification of Arts: Various form of Visual Art and their inter-relationship with other mode of creative expression, e.g. Performing Art and Literature.
Material and Method: Application of materials, Support in Painting (Canvas, Paper, Wall Surface, Plaster, Mix Media, Oil Painting and its techniques: Traditional and Non-Traditional Techniques of Wall Painting: Traditional (Fresco, Sotco and Burno) and Modern.
Water Color Painting: Wash technique, Pastel and Crayon, Acrylic: color, color preparation and technical aspect of pigment, color theory and color harmony, Nature and Function of Art in the Society: Folk Art: Tradition: Rajasthan (Mandana, Pithora), Plak and Kavad Painting), (Dhol and Bengol (Patichha), Bhar (Malsubhan painting), Gogri (Pithora painting) and Maharashtra (Wash painting).
Unit - II History of Indian Art - Pre-historic Painting in India, Indus Valley Civilization, Wall Painting of Agra, Ajanta, Bagh, Badami and Sarnath. Manuscript painting tradition of pala and western India, Tradition of Miniature Painting: Mughal, Rajasthani, Pahari (Datoli and Guler-Kangra) and Deccan painting (Ahmednagar, Bijapur and Golconda). A comprehensive study of early Indian sculpture from Indus Valley to Gupta period- Maurya, Shunga, Satavahana, Kushan and Gupta Dynasty.
Unit - III Art of Rajasthan - Rangpoo/Vijayargia, Kirpal Singh Shikharwar, Goverdhan Lal Joshi, Dhor Singh Shikharwar, Devki Nandan Sharma, Paramand Choyal, Bhawan CharanGur, Dwarika Prasad Sharma, Ram Jaiswal, Suresh Sharma, Motam Sharma, Jyoti Swaroop, R.V. Sakthakar, C.S. Modia, Bhawan Shankar Sharma, Samudendra Sharma, ShalChoyal, Nandlal Verma, Vidhyasagar Upadhyay, Samander Singh Khanawat.
Unit - IV Major Phases in Western Painting: Proto-classic Painting (France and Spain), Egyptian, Aegean Art, Greek Art and Roman Art, Byzantine, Gothic, Renaissance, Baroque and Rococo style of Painting.
Unit - V Eastern Concept of Beauty- Concept of Beauty in Veda and Upanishad, Pundit Yashobhara's Theory of Shudanga, Vishnu Dharmar Purna, Concept of Ras-Rupa in Natya Shashtra and its commentators, Theory of Rasa, Sadharanikarnam of Bharat Muni, Bhar Lalan, Shukadi, Bhairavay, Abhinav Gupta, Contribution of Rabindra Nath Tagore and A.R. Coomaraswami towards Indian Aesthetics.

Unit - VI

- Fundamental Elements of Visual Art (Line, Form, Colour, Tone, Texture, Space, Shape, Perspective, Design etc), Principles of Composition - Unity, Harmony, Balance, Emphasis or Dominance, Rhythm, Proportion, Contrast and foregrounding, etc. Creative Process (Observation Perception, Imagination, Expression), Six Canons of Painting - In Indian and Chinese Painting.
Unit - VIII Major Trends in Indian Art- Company school of Painting, Advent of Modernism with Raja Ravi Varma, Bengal School: Abanindranath Tagore and his Disciples, Nandalal Bose and his Disciples. Breakthrough in Indian Painting: Contribution of Amrita Sher-Gil, Progressive Artist Group Bombay and Calcutta Group-Calcutta, Shikha Chatter-Delhi, Chela Mandal-Madras and Baroda. School- Baroda Famous Artists and Sculptors of India Painters- Abanindranath Tagore, Rabindra Nath Tagore, Nandalal Bose, Jamini Roy, K.H. Haral, Asit Kumar Haldar, Amrita Sher-Gil, K.K. Hebbar, N.S. Bendre, M.T. Hassan, T.N. Sanyal, S.H. Raza, K.H. Ara, R.G. Subramanyam, SankuGoyal, J. Swaminathan, TyebMehta Sculptors - Pradipb Das Gupta, Dulu Prasad Roy Choudhary, RamkinkarBajaj, Dhony Bhagat, ShankuChoudhary, Anish Kapoor.
Unit - IX Indian Temples Architecture and Sculpture- Ellora, Elephanta, Mahabalipuram, Kanak Temple, Khajuraho Temples and Maandakh Temple, Temple Sculptures of Rajasthan- Kinakh Temple-Bharmer, Harsh Temple-Sikar, Ambika Temple-Jaipur (Shaher), Artura-Banswara, Dewvara-Sirohi, Kankpur-Pali, Akshara- Jaipur.
Unit - IX History of Western Modern Art- Neo-Classicism, Romanticism, Realism, Impressionism, Neo-impressionism, Post-impressionism, Fauvism, Cubism, Expressionism, Futurism, Constructivism, Metaphysical Painting, Dadaism, Surrealism, Abstract Art. Op-Art, Pop-Art, Action Painting, Minimal art and Post-Modern Trends, etc.
Unit - X Western Concept of Artistry - Relevance of study of Aesthetics in Drawing and Painting. Theory of Imitation and Representation, Catharsis (Pity, Aristotle), Aesthetic view of Agassiz, Baumgarten, Heret, Schelling, Emanuel Kant, Sigmond Freud, Leo Tolstoy, Benedetto Croce, George Santanyam, Susanne Langer, L.A. Richards, Roger Fry and Clive Bell.

03. SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF TEACHING ASSOCIATE IN ECONOMICS

- UNIT-I Microeconomics Consumer Behaviour: Cardinal utility analysis, Nature of utility functions, Demand theory: Market Demand Curve, Elasticity of demand, ordinary and compensated demand curves, Network externalities- Bundling, Subo and Valian effect, Indifference curve analysis, Hicksian Equivalent Variation, Normal, inferior and Giffen goods, Consumer's Price effect, income and substitution effects, Slutsky theorem, Analysis of consumer behavior under risk and uncertainty, Asymmetric Information, Behaviour Economics. Law of Variable Proportions, Isoquant, Ridge lines, Optimum factor combination, Expansion path, Short run and long run production functions, Clark's Keynesian and Post-Keynesian theories of determination of income and output, Phillips curve theory of cost, Elasticity of substitution, Euler's theorem, Production function: Cobb-Douglas and CES, Technical progress, Economics of scale and Learning curve analysis. Determinants of price and output under different market structures, Factor pricing analysis, Peak load pricing, Game theory: Cooperative and non-cooperative games, Sequential games, Dominant strategy and Nash Equilibrium, Welfare economics - Pareto optimality, Market failure and externalities, New welfare economics, Social Welfare Function, First and Second Theorem of Welfare economics, Theory of second best, Arrow's Impossibility Theorem.
UNIT-2 Macroeconomics National income - concepts and measurement, flaws in conventional system of National Income Accounts, Latest changes in national income accounts in India, Green Accounting, Consumption hypothesis - Absolute, relative, life-cycle and permanent income hypothesis, Clark's Keynesian and Post-Keynesian theories of determination of income and output, Phillips curve theory, Post Keynesian Theories of demand for Money: Demand, Tobin, Friedman, Pankind and Real balance effect. Money supply and high powered money, Money Multiplier: The IS-LM model, the relative effectiveness of monetary and fiscal policies, Mundell-Fleming Model, Natural Rate of Unemployment, Inflation Expectations, Trade Cycle Theories: Multiplier-accelerator interaction model, Kaldor model, Modigliani-Franzini model, Monetarism: Monetarist-Fiscalist debate on Policy Activism. New classical approach to macroeconomics, Real Business Cycles, New Keynesian Macroeconomics- Sticky Price Theory, IS-LM Model, Efficiency Wage Hypothesis.
UNIT-3 Economic Growth and Development Economic development and growth: Growth change Measurement and indicators of development: PQLI, HDI, HPI and GDI, Gender and capability approach, Growth-Distribution Trade-off, Measurement of inequality- Lorenz curve and Gini Coefficient, Development and Growth models: Lewis, Fei-Ranis, Harrod-Domear, Solow, Kaldor, Endogenous Growth, Uzawa-Lucas Model, Golden Rule of Capital Accumulation, Technological progress, Endogenous and disembodied, Technical progress- Hicks and Harrod, Learning by doing, Cambridge criteria of Neo-classical Analysis of growth, Economic function of markets and institutions failure and government failure, Project evaluation and Cost-benefit analysis, Theory of Environment Regulation: Political Economy Model of Regulation, Pigovian taxes, Subsidies for Abatement of pollution, Property Rights and the Coase Theorem, Environmental Quality: Quantitative regulation, Command and Control: Standard setting, Tradable pollution permit, Methods of environmental valuation: Hedonic pricing, Contingent valuation and Travel cost method. Sustainable Development goals and their governance, Role of Multilateral Development Bodies, Causes and impact of Global financial crisis of 2008 and Euro Zone crisis.
UNIT-4 Indian Economy- Economic development and growth: Pattern and structure, Problems of Indian economy - poverty, unemployment, inflation, regional disparities, Characteristics of Indian Population and Population Policy, Food security in India: Inclusive growth, Agriculture development and policies, Agriculture Credit in India: Kisan Credit Card, Micro Finance Programme- SHG and Bank Linkage Programme, National Agricultural Insurance Scheme, Industrial development and policies, Service Sector Growth, Economic Reforms in India, Financial sector reforms- RFI and monetary policy, Demonetization, Impact of covid-19 on Indian Economy (Global economic recession and its impact on Indian economy, Foreign trade: Trends, Composition and Direction, India's Balance of Payment position in recent years, WTO issues and its impact on Indian economy, Evolution of NIM Ayegp, Major flagship programmes of Indian Government.
UNIT-5 International Trade and Trade Policy: Bilateral Trade agreement and their implications on India.
UNIT-6 Sustainable Technologies Diagrammatic, Graphical & tabular representation of data, Measures of Central Tendency, Dispersion, Skewness and Kurtosis, Simple and Multiple Correlation, Time Series, Components of Time Series, Regression Analysis, Probability: definition, theorem of addition and multiplication, conditional probability, Bayes Theorem, Binomial, Poisson and Normal distributions, Sampling techniques, Limitations: properties of good estimator, Point and Interval estimation, Type of errors, Level of significance and power of test, Hypothesis testing-Z, t, chi-square and F tests, Association of attributes, Analysis of Variance, Manova, Determinants, Differentiation, Simple and partial Differentiation: Integrations: their applications in Economics. Indefinite and definite integrations, Unconstrained and constrained optimization: Linear Programming, Game Theory, Input-Output analysis.
UNIT-6 Public Economics and International Economics Social, merit, mixed, state goods, Public expenditure: Wiseman-Pareto hypothesis, Levichian Hypothesis, Niskanen Model, Public Budget Theory, Public revenue - principle, offices, Taxation: incidence, impact and effects of taxation, Problem of double taxation, Elasticity and buoyancy of taxes, Problem of Tax Evasion and Parallel Imports in India, Tax reforms, GST and its impact on Indian economy, Government expenditure, Public debt: causes, burden, effects and its management, Centre-State financial relations, Fiscal policy: Fiscal, Monetary, and Functional Finance, Public Enterprises and Public Utilities, Concept of budget deficits.
UNIT-7 International trade- comparative cost, opportunity costs, Heckscher-Ohlin theory, Factor Price Equalization Theorem, Terms of trade, Double of payments.

04. SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF TEACHING ASSOCIATE IN ENGLISH

- Part A-1 (i) Critical Appreciation of a given poem or piece of prose.
(ii) English Language Usage and Grammar.
Spelling Errors
• Dictionaries & Articles
• Model Auxiliaries
• Prepositions & Prepositional verbs
• Tenses and Sequence of Tenses
• Idiomatic Expressions
Basic sentence patterns and transformations
• Simple Compound sentences
• Active/Passive
• Direct/Indirect
• Negative/Interrogative
Part B-1 - Literary Criticism
a) Elizabethan (Western and Indian)
b) Renaissance
c) Neo-Classical
d) Neo-Romantic and Romantic
e) Victorian and Post-Victorian
f) Early Modernists H.T.S. Eliot
Part C-1 Critical Theory
a) New Criticism
b) Structuralist and Post-Structuralist
c) Modernism and Post-Modernism
d) Post-Colonialism
e) Feminist Criticism
f) Psychoanalytical Criticism
g) New Historicism
Part D-1 British Literature through the Ages-
(i) Elizabethan
(ii) Jacobean
(iii) Neo-Classical
(iv) Romantic
(v) Victorian
(vi) Modern
Part E-1 American and Non-British English Literatures:
(i) American Literature: from Sixteenth Century to the Present Day
(ii) Afro-American Literature
(iii) Indian Literature
(iv) New Literature (Caribbean, Canadian & Australian)
Part F-1 Indian Writing in English-
(i) Critical Criticism
(ii) Post-colonial
(iii) Dalit
(iv) Diaspora

05. SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF TEACHING ASSOCIATE IN GEOGRAPHY

Unit - 1. History of Geographic Thought: Development of geographical knowledge during ancient and medieval period; Contributions of Greek, Roman and Arab geographers. Foundations of modern geography; Contributions of German, French, British and American schools. Development of geographical knowledge in India. Conceptual and methodological developments during the 20th century with changing paradigms: determinism and possibilism, quantitative revolution and impact of positivism, behaviouralism, humanism, radicalism and welfare approach in geography. Concepts of chorological science, areal differentiation, system analysis and spatial organization.

Unit - 2. Research Methodology: Meaning, types and significance of Research, Research approaches; deductive and inductive, Concept of qualitative and quantitative research, Identification of research problem, Research design, Types of data, Data collection; questionnaire and schedule, Research methodology and research methods, Bi-variate and multivariate analysis, Sampling fundamentals and sampling design, Data analysis, Interpretation and report-writing, Plagiarism, Research ethics, Citing of references.

Unit - 3. Geomorphology: Fundamental Concepts of Geomorphology, Geological time scale, Processes of development of land forms; Endogenic and exogenic forces, Orogenesis and important phases of mountain building, Mountain building theories, Continental drift and plate tectonics, Denudation processes; weathering and erosion, Concept of geomorphic cycles; Davis and Penck, Landforms associated with fluvial, glacial, arid, coastal and karst cycles, Slope forms and concepts of slope evolution, Environmental and Applied geomorphology and Geomorphic hazards.

Unit - 4. Climatology: Composition and structure of atmosphere, Insolation, Heat budget, Distribution of temperature, atmospheric pressure and general circulation of winds; Monsoons and jet streams, Stability and instability of atmosphere, Air-masses and fronts, Temperate and tropical cyclones, Types and distribution of precipitation, Classification of world climates; Koppen's and Thornthwaite's schemes and the Hydrological cycle.

Unit - 5. Oceanography: Relief of Oceans; hypsometric curve, Bottom relief of Indian, Atlantic and Pacific oceans, Ocean deposits, Coral reefs, Temperature, density and salinity of oceans, Ocean circulations; tides and ocean currents, Sea-level changes, Marine resources and their utilization.

Unit - 6. Environment Geography: Components of environment and ecology, Physical factors influencing world distribution of plants and animals, Types, forms and functions of ecosystem: forest, grassland, marine, desert and mountain ecosystems, Bio-diversity; depletion and conservation, Environmental pollution; types, causes, effects and solutions, Climate change; global warming and ozone depletion, Environmental hazards and disasters; types, effects and management and Environmental Impact Assessment (EIA).

Unit - 7. Cartography: Types of maps and their interpretation, single purpose and composite maps, choropleth, isopleth and chorochromatic maps, Statistical diagrams: one, two and three dimensional diagrams, Climatic graphs, climograph, hyther graph and climograph, Map projections; classification and their specific uses and Toposheets; Traditional and Open Series Maps (OSM).

Unit - 08. Geospatial Techniques: Remote sensing and computer application in mapping; digital mapping, electro-magnetic radiations, Remote sensing systems; platforms, sensors, resolution and radiometric characteristics, Digital Elevation Model, Application of remote sensing in the study of land use, land cover and resource planning, Introduction to Geographic Information System (GIS), Fundamentals of GIS; geo-spatial databases, data capture, Raster and vector data, Implications of integration of remote sensing and GIS and Global Positioning System (GPS).

Unit - 09. Statistical Method: Data tabulation, Study of frequency distribution, Measures of central tendency, Selection of class intervals for mapping, Measures of dispersion and concentration, standard deviation, Lorenz curve and Gini's coefficient; Methods of measuring association, simple and multiple correlation and regression, Measurement of spatial patterns of distribution; nearest-neighbour analysis, Scaling techniques; rank score and weighted score; Sampling techniques for geographical analysis and Models in geography; Simulation model, Gravity model.

Unit - 10. Economic Geography: Spatial organization and classification of economies, Factors affecting spatial organization of economic activities; primary, secondary, tertiary and quaternary, Classification of resources, Forest, power and mineral resources, Conservation of resources, World energy crisis, Globalisation and its impact on world economy and Major regional trade blocks and their economic integration.

Unit - 11. Agricultural Geography: Nature, scope and development of agriculture geography, Agriculture typology; agricultural systems of the world, Selected agricultural concepts and their measurements; agricultural productivity and efficiency, cropping pattern, crop concentration, crop diversification, cropping intensity and degree of commercialization, Concept and techniques of delimitation of agricultural regions, Von Thunen's model of land use planning and Green Revolution.

Unit - 12. Industrial and Transport Geography: Nature, scope and development in industrial geography, Factors of localization of manufacturing industries, Classification of industries; Resource based and footloose industries, Theories of industrial location: A. Weber, August Losch, D. M. Smith, TodPalander and E. M. Hoover, Industrial regions of the world and Major industrial hazards, Models of transport development, Structural analysis of transport network, Measure of accessibility and connectivity, Transport cost and spatial patterns of flow.

Unit - 13. Regional Planning: Typology of Regions, Regional concept in geography and its application to planning, Concept of planning region, Conceptual and theoretical framework of regional planning, Regional hierarchy, Methods of regional delimitation, Theories of Regional Development, Concept of development, Indicators of development and Regional imbalances.

Unit - 14. Population Geography: Nature, scope and development of population geography, Population components and characteristics, Patterns of world population distribution, growth and density, Policy issues, Migration; types, causes and consequences, Patterns and processes of migration, Population theories; Malthus, Marx, Staller and Ricardo, Demographic transition model, Population-resource regions, Gender discrimination and empowerment of women.

Unit - 15. Settlements Geography: Site, situation, types, size, spacing and internal morphology of rural and urban settlements, Ecological processes of urban growth, Spatial pattern and distribution of urban centres, Rural-urban fringe, City-region, Settlement systems, Prime city, Rank-size rule, Settlement hierarchy, Christaller's central place theory; August Losch's theory of market centres and Concepts of smart city.

Unit - 16. Socio-Cultural Geography: Nature and scope of social geography, Social structure and social processes, Elements of social geography; ethnicity, tribe, dialect, language, caste and religion and Concept of social well-being, Nature and scope of cultural geography, Concept of culture-areas and cultural regions, Cultural regions of the world, Theories of tribal groups, Environment impact on dwelling places as cultural expressions and Problems arising due to cultural diffusion, racism and terrorism.

Unit - 17. Political Geography: Definition and scope of political geography, Geopolitics, Global strategic views, Concept of nation, state and nation-state, Boundaries and frontiers, Capital cities and core areas, Politics of world resources, Geography of federalism, Geo-political significance of Indian Ocean and Development of Electoral geography.

Unit - 18. Geography of India: Physiographic divisions, Climate, Vegetation, Drainage, Major soil types, Water resources, Irrigation, Agriculture, major food and commercial crops, Green revolution and food security, Agro-climatic regions, Mineral and power resources, Major industries and industrial regions, Population distribution and growth, Population problems and policies, Tribes, Tribal areas and their problems, Regional disparities in social and economic development, Regional planning in India and planning regions, Development of road, rail and inland water ways and Natural disasters in India; earthquakes, floods, droughts, cyclones and tsunami.

Unit - 19. Geography of Rajasthan: Physiographic divisions, Climate, Rivers and lakes, Soils and vegetation, Minerals and power resources, Agriculture and irrigation, Agro-climatic regions, Livestock, Major industries and industrial regions, Sites of geo-tourism, Population; distribution, density, growth, sex-ratio, literacy, SC and ST population, Environmental problems; desertification, deforestation and soil erosion, Bio-diversity and its conservation and Development programmes.

06. SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF TEACHING ASSOCIATE IN HINDI

इकाई-1 - हिन्दी भाषा तथा व्याकरण
• हिन्दी भाषा का उद्भव एवं विकास, हिन्दी भाषा की प्रमुख बोलियाँ- राजस्थानी, ब्रज, छत्ती बेली, अवधी, भोजपुरी। राजस्थानी भाषा का प्राचीन चरित्र- हिंगल राजस्थानी भाषा की प्रमुख बोलियाँ, नायकी, मेवली, डूंगरी, हावेली, मेवड़ी, वनही।
• राजभाषा से रूप में हिन्दी की पर्यायिक स्थिति तथा नामक हिन्दी। देवनागरी लिपि की विशेषताएँ तथा मानकीकरण।
• हिन्दी व्याकरण- नामक वर्गगत, शब्द तथा शब्द निर्माण- उदाहरण, प्रत्यय, लिंग (स्त्री, अज्ञान), समास, वाक्य एवं वाक्य रूप, शब्द शुद्धि एवं वाक्य शुद्धि।
• शब्द के व्याकरणिक प्रकार- संज्ञा, सर्वनाम, विशेषण, क्रिया, क्रियाविशेषण, सम्बन्ध सूचक अव्यय, सन्बन्ध सूचक अव्यय।

इकाई-2 - भारतीय काव्यशास्त्र
• काव्य- परिभाषा, काव्य लक्षण, काव्य हेतु और काव्य योजन, साहित्य का स्वरूप।
• भारतीय काव्यशास्त्र- रस सिद्धांत तथा सामाग्रीकरण, रस निष्कर्ष, रस सिद्धांत, इकोनिक सिद्धांत, अलंकार सिद्धांत।
• अलंकार- अनुप्रास, यमक, स्तंभ, वक्रोक्ति, उपास, उपमा, रूपक, सौंदर्य, ध्वनि, ध्वनिमान, विभावना, वराणस, अक्षुब्ध।
• छन्द- दोहा, चौपद, सोपद, उल्लास, छमय, कुंडलियाँ, गीतिका, हरिगीतिका, मदाकाता, दुर्गावलि, कविता।

इकाई-3 - भारतीय काव्यशास्त्र
• दोहा का काव्य सिद्धांत।
• अलंकार का काव्य सिद्धांत- अनुप्रास, विरेण और त्रयस्त्री लोकावधान- उदाहरण, जोषे- अविभावना सिद्धांत, कोलरिज- कल्याण सिद्धांत, टी.एच. एलियट- पारसा एवं निर्विकल्पा सिद्धांत, मार्क्सवादी साहित्य विमर्श, उत्तर आधुनिकवाद तथा विशिष्टतावाद।

इकाई-4 - आदिकाल एवं नव्यकाल निर्धारित पाठ
• प्रबुधराज रासो (पद्मवती समर)- चंद्रकाव्य, नागरी प्रचारिणी सभा, वाराणसी
• कबीर शब्दावली- (सं. स्वयंस्वरूप दास) - आधुनिक 20 पद, साहित्य - मुद्रा की ओर एवं विश्व की ओर (प्रकाशना- नागरी प्रचारिणी सभा- वाराणसी)
• मीरा पदाली- (सं. डॉ. राममूर्ति नन्दा) (प्रकाशना- पब्लिकेशन, जयपुर)
• अमरीत सर- (सं. रामचंद्र शुक्ल) - 21 से 50 पद (प्रकाशना- नागरी प्रचारिणी सभा- वाराणसी)
• वापसी शब्दावली- नागरी विद्यालय खंड (सं. रामचंद्र शुक्ल) (प्रकाशना- नागरी प्रचारिणी सभा- वाराणसी)
• कवितावली- तुलसीदास-पद संग्रह 88 से 110 (नाम- विश्वास, कवि-जान, राम-जान-मीरा) (प्रकाशना-गीता प्रेस, गोरखपुर)
• विश्वी रत्नाकर- (सं. जगन्नाथ दास रत्नाकर) - आधुनिक 25 चोरे (प्रकाशना- मुद्रा प्रकाशना, वाराणसी)
• पद्मनाभ कविते - (सं. विश्वनाथ प्रसाद मिश्र) - 1 से 25 तक छंद (प्रकाशना- कविता प्रकाशन, वाराणसी)

इकाई-5 - आधुनिक काल निर्धारित पाठ
• कामायनी-जयशंकर प्रसाद (मिठाया तथा शब्दावली)
• राम की शक्ति- प्रकाशना- विद्यार्थी प्रकाशना
• अंधेरी - नजमान नाथ मुक्ति बोध
• गोदान- प्रेमचंद
• महाभारत (अध्यास)- मनु मन्गरी
• अंधे-अंधे- मोहन राकेश
• निबंध- शब्दा और मति (लोकप्रिय मुद्रा) नाथ की बहने हैं (हजारी प्रसाद द्विवेदी), राधा करुणे रा: (कुलेन्द्र राय)।
• कवितावली - सने कला था (शंकर राय मुन्शी), कल्प (प्रेमचंद), मुस्कर (जयशंकर प्रसाद), रोज (अंधेरी), गदान (मोहन राय), मनी प्यार का रसक (अनवरत खान), सलाम (अनवरत खान/मिठाया), आकाशी छोटी लड़की (मनज कविता)।
• यात्रा वृत्त- सौंदर्य की नदी नर्मदा- अमृतलाल मेहता

इकाई-6 - हिन्दी साहित्यविद्यालय लेखन की परंपरा और आदिकाल
• हिन्दी साहित्य के इतिहास लेखन की परंपरा। काल विभाजन और नामकरण। प्रमुख साहित्यिक विद्यालयों का परिचय।
• आदिकाल- सामाजिक-सांस्कृतिक प्रभुत्व, आदिकाल की साहित्यिक प्रभुत्व-विद्या, भाषा एवं लेखन, रसक काव्य परंपरा एवं तत्कालीन प्रभावितता का ज्ञान, प्रमुख कवि एवं उनकी रचनाएँ (सूरदास, गोस्वामी, चंद्रकाव्य, मरुति, नाथ, अमी खुसरो, विद्यापति)।

इकाई-7-गीतिका
• गीतिका-मूलिक और सामाजिक-सांस्कृतिक अर्थ। मति आंदोलन का अर्थ भारतीय संस्कृति। मति आंदोलन की दार्शनिक प्रभुत्व, मति आंदोलन के प्रमुख संचालक एवं नाम। मति आंदोलन का क्षेत्र, विचार और राजस्थान में मति आंदोलन। मति आंदोलन एवं सामाजिक समस्या। मति आंदोलन प्रभुत्व - निर्णय मति साहित्य (कबीर, रसक, दादू), सूफी काव्य (बाबरी, खडक, और मीरा), कृष्ण मति साहित्य (सूरदास, नन्ददास और मीरा) और मति साहित्य (तुलसीदास)।

इकाई-7-गीतिका
• गीतिका- सामाजिक-सांस्कृतिक प्रभुत्व। गीतिकावली काव्यशास्त्र। गीतिकावली साहित्य की ओर सामग्री। गीतिका- गीतिका, गीतिका और गीतिका। प्रमुख कवि और उनकी रचनाएँ (कैफावत, मीरा, मनु, देव, विद्यादास, विद्या, पद्मनाभ, सेवामती, आला और पद्मनाभ)।

इकाई-8-आधुनिककाल काव्य
• आधुनिककाल- ऐतिहासिक और सामाजिक-सांस्कृतिक प्रभुत्व- 1857 का स्वाधीनता संग्राम, हिन्दी नवजागरण, मारुति और उल्लास मंडल। राष्ट्रिय - सांस्कृतिक काव्यशास्त्र (मिथिलेश्वर मुं, नाथलाल कुंवर, रामचंद्र शुक्ल, रामचंद्र शुक्ल, सुभाष कुमारी बोधना)। काव्यशास्त्र-प्रभुत्व, कविता, प्रमुख कवि और रचनाएँ (जयशंकरदास सूर्यवंश शिवाजी मिठाया, तुलसीदास पं और मारुती बोध)। प्राकृतिक काव्य - कंदलनाथ अग्रवाल, नागज, सनकर, मुक्तिबोध। प्रयोगवाद और नई कविता- खंडे, पद्मिनी नाथ, नरेक मंडल, रमणीय साय, विद्यादेव नारायण शर्मा और लक्ष्मीप्रभु।
• समाजवादी कविता- उद्योग काव्य, अरुण कर्कर, आलोक धना, लीलावत लक्ष्मी, देवगंगावत, अनामिका, अनुज लुण, नर चतुर्वेदी और हरिण भावनी।

इकाई-9-आधुनिककाल काव्य
• हिन्दी भाषा का विकास और वारुण्ड। मारुतिप्रभुत्व हिन्दी परभावितता, हिन्दी भाषा- सारस्वती और महावीर प्रसाद द्विवेदी की युक्ति। हिन्दी परभावितता का विकास और प्रमुख परभावितता। हिन्दी कविता का विकास और प्रमुख परभावितता। हिन्दी नाटक और रचना का विकास, प्रमुख परभावितता। हिन्दी कविता और आलोचना का विकास, प्रमुख परभावितता एवं आलोचना। हिन्दी की अर्थव्यवस्था का विकास- अर्थव्यवस्था, समास, रसा विद्या और वाक्यशास्त्र। हिन्दी की साहित्यिक परभावितता परभावितता और साहित्य (प्रकाशना)

**07. SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF TEACHING ASSOCIATE IN HISTORY****UNIT-A: Ancient India:**

1. Reconstructing Ancient India: Literary and Archaeological Sources.
2. Pre and Proto History of India
  - (a) Palaeolithic to Neolithic- Chalcolithic Transition – Major Sites, Tools and Culture.
  - (b) Saraswati-Sindhu River - Valley Civilization (Harappan Civilization) – Origin and Extent, Major sites and settlement pattern, trade and craft, religious practices, decline and significance of Later Harappan phase.
3. Vedic Age- Vedic Yagnayaga, Transformation from Rig Vedic period to the Later Vedic period; Political, Social and Economic life, Religion, ritual and philosophy. Significance of the Vedic Age.
4. State formation and the rise of Mahajanapadas: Republics and Monarchies; Rise of urban centres; Economic growth- craft, guild, money and trade; Emergence of Jainism, Buddhism and Ajivak sects; Rise of Magadha. Invasion of Alexander and its impact on India.
5. Mauryan Empire- Foundation of the Mauryan Empire, political achievements of Chandragupta, Bindusara and Ashoka; Ashoka and his Dhamma, Ashokan Edicts; Polity, Administration and Economy; Art and Architecture.
6. Post Mauryan Period: Shung and Kanyva; Contact with outside world-Indo-Greek, Sakas, Kushanas, Western Kshatrapas; growth of urban centres, trade and economy. Development of religious sects: Vaishnav, Shaiva, Mahayana; Art, Architecture, and Literature.
7. Early State and Society in Deccan and South India: Megalithic period, The Satravahatas, Tamil States of the Sangam Age; Administration, Economy, Sangam literature and culture; Art and Architecture.
8. Imperial Gupta- Political history, polity, society, economy, trade and commerce, literature and art.
9. Economy during Post-Gupta period- trade and commerce, banking & currency.
10. Harshvardhan- conquest, polity, religion, art and literature.
11. Rise of regional states- Chahalyas, Pallavas, Cholas, Rashtrakutas, Pratiharas and Palas.
12. India's contact with outside World- West Asia, Central Asia and East-Asia.
13. Pre-Medieval India (700A.D. to 1200A.D.)- Society and Economy, Feudalism and its impact on socio-political life, Development of regional cultural identities and regional political powers. Development of philosophy and religion during the period.
14. Development of diverse art, literature and culture in ancient India - Architecture, sculpture, music, literature of classical languages, Development of education, philosophy, science and technique.

**UNIT-B: Medieval Indian History**

1. Source of Medieval Indian History: Archaeological and Literary.
2. Foundation and Consolidation of Delhi Sultanate 1206 to 1290 A.D.
3. Territorial expansion of Sultanate during Khalji and Tughlaq period.
4. Rise of Provincial dynasties Vijayanagar, Bahamani and Jaunpur- Polity and Cultural contribution.
5. The Sayyid and the Lodis, the disintegration of Sultanate. Polity of the Sultanate.
6. Society, Culture and Economy during Sultanate period (from 13th century to the close of 15th century)-
  - (a) Composition of rural society, ruling classes, town dwellers, women, religious classes, caste and slavery under the Sultanate, Bhakti movement, Sufi movement.
  - (b) Persian literature, Literature in the regional languages of North India, Sultanate architecture and provincial variants, Development of music and paintings, Evolution of a Composite Culture, Cultural Synthesis in Medieval India.
  - (c) Economy: Agricultural Production, rise of urban economy and non-agricultural production, trade and commerce. Technology and craft during Sultanate period.
7. Mughal Empire, first phase: Babur, Humayan, the Sur Empire: Sher Shah's administration.
8. Portuguese colonial enterprise.
9. Territorial Expansion Akbar, Jahangir, Shahjahan and resistance of Indian powers.
10. Aurangzeb and Decline of Mughal Empire in 18th Century and emerging regional powers.
11. Period of cooperation and conflicts 1556-1707.
12. Policies of the Mughals-Deccan, religious, Rajputs and North-West Frontier policies.
13. Administrative System- Central, Provincial and Revenue administration, Mansabdari and Jagirdari system.
14. Art and Cultures- Architecture, Painting, Music and Literature
15. Economic Life- Agriculture, Industries, Trade and Commerce, Banking and Currency system.
16. Rise of the Marathas- Shivaji- conquests, civil and military administration, nature of Chauth and Sardeshmukhi, concept of Hindu Padshahi.
17. Expansion of Maratha power under Peshwas-Maratha Confederacy, civil and military administration under the Peshwas, Third battle of Panipat-1761.
18. Society and Culture in later Medieval India –
  - a) Composition of Society, Bhakti movement and Sufi movement.
  - b) Literary tradition of Persian, Sanskrit and regional languages, Mughal and Sur Architecture, Regional forms of Architecture, Music and Paintings during Mughal period
  - c) Economy: Agricultural production, rise of urban economy and non-agricultural production, trade and commerce, technology and craft, education, science & technique during the period.

**UNIT-C: Philosophy of History and Historiography****(A) Philosophy of History**

Analytical and Speculative Philosophy of History.  
Analytical Philosophy of History.  
Nature of historical evidence, inference and fact; Proof and sources of history; Literary-primary, secondary and tertiary and archaeological sources.  
Historical Explanation.  
General-laws model; historical objectivity; causation.  
The idealist tradition- Dilthey-Croce-Collingwood  
Postmodern 'End of History' - the postmodern challenge.  
Speculative Philosophy of History  
Brief survey of various Speculative philosophers of history- Vico, Herder, Hegel, Marx, Spengler, Тойнбі and Fukuyama.  
Indian Historians: Bani, Abul Fozal, R.C Majumdar, J.N. Sarkar, D.D. Kosambi and K.M. Ashraf.

**(B) Historiography**

A brief survey of various traditions of historiography: Indian (Ancient, Medieval and Modern); Chinese (Confucius), Graeco-Roman (Herodotus), Judeo-Christian, Islamic Historian (Ibn Khaldun), Ranke and scientific history, Marxist, Colonial, Nationalist, Cambridge, Subaltern and Postmodern.

**UNIT-D: Modern India**

1. 18th century transition: (a) Decline of Mughal Empire (b) Emergence of regional powers (c) Advent of European powers
2. Establishment and Expansion of British Rule-Bengal, Avadh, Mysore, Maratha and Sikhs.
3. Capitalism, Imperialism and Transition to colonial economy:
  - (a) Land revenue settlements in British India; Economic impact of the revenue arrangements; Commercialization of agriculture; decline of cottage industry; Rise of landless agrarian labourers; Impoverishment of the rural society.
  - (b) Dislocation of traditional trade and commerce; De-industrialisation, Drain of wealth, British capital investment, European business enterprise and its impact.
4. Early Structure of the British Raj: The Early administrative structure; From diarchy to direct control; The Regulating Act (1773); The Pitt's India Act (1784); The Charter Act (1833); The Voice of free trade and the changing character of British colonial rule; The English utilitarian and India.
5. Indian Response to British Rule I: Socio-culture changes:
  - (a) The introduction of western education in India; The rise of press, literature and public opinion; The evolution of modern Indian languages and literature; Progress of Science; Christian missionary activities in India.
  - (b) Social and Religious Reform Movements: The Brahmo Movement; Devendra Nath Tagore; Ishwarchandra Vidyasagar; The Young Bengal Movement; DayanadaSaraswati; Social reform movements of Maharashtra and other parts of India; The contribution of Indian renaissance to the growth of modern India; Sir Saiyad Ahmed Khan and Aligarh Movement. Islamic revivalism- the Feraizi and Wahabi Movements.
  - (c) Movements for the upliftment of Dalits and women.
6. Indian Response to British Rule II: Revolts and uprisings
  - (a) Peasant movement and tribal uprisings in the 18th and 19th centuries including the Rangpur Dhing (1783), the Kol Rebellion (1832), the Mopla Rebellion in Malabar (1841-1920), the Santal Hial (1855), Indigo Rebellion (1859-60), Deccan Uprising (1875) and the Munda Ulgulan (1899-1900); The Great Revolt of 1857 –Origin, character, causes of failure, the consequences; The shift in the character of peasant uprisings in the post-1857 period; the peasant movements of the 1920s and 1930s.
  - (b) Emergence of Indian Nationalism:
    - (a) Factors leading to the birth of Indian Nationalism; Politics of Association; The Foundation of the Indian National Congress; objectives of Early Congress; the Moderates and Extremists; The Partition of Bengal (1905); The Swadeshi Movement in Bengal; the economic and political aspects of Swadeshi Movement; The beginning of revolutionary extremism in India.
    - (b) Age of Gandhian Politics : Character of Gandhian nationalism; Gandhi's popular appeal; Rowlatt Satyagrah; the Khilafat Movement; the Non-cooperation Movement; National politics from the end of the Non-cooperation movement to the beginning of the Civil Disobedience Movement; the two phases of the Civil Disobedience Movement; Simon Commission; The Nehru Report; the Round Table Conferences; the election of 1937 and the formation of ministries; Cripps Mission; the Quit India Movement; the Wavell Plan; The Cabinet Mission.
    - (c) Other strands in the National Movement: Nationalism and the Peasant Movements; Nationalism and Working-class movements; The Revolutionaries; Bengal, the Punjab, Maharashtra, U.P. the Madras Presidency and outside India; Indian National Army (Azad Hind Fauz), The Left; The Left within the Congress: Jawaharlal Nehru, Subhas Chandra Bose, the Congress Socialist Party, the Communist Party of India, other left parties.
7. Constitutional Developments in the Colonial India between 1858 and 1935.
8. Growth of Muslim League and communalism in Indian Politics; Circumstances leading to partition of India.
9. Post-Independence Nation-building- the Linguistic reorganization of the states, Five-year planning, Institutional building during Nehruvian Era, development of science and technology.

**UNIT-E: History of Modern World**

1. Renaissance- Causes and Impact; Reformation- Causes, growth and significance; Counter Reformation and its impact, geographical discoveries of 15th-16th centuries.
2. Enlightenment and Modern outlook: Major Ideas of Enlightenment and development of scientific attitude, Industrial Revolution- Causes and Impact on Society.
3. Idea of Nation-States- Formation of French and British Nation state, American Revolution- Causes and effects.
4. French Revolution and Napoleonic Era- Causes, important events and impact, contribution of Napoleon Bonaparte.
5. Rise of Nationalism in 19th century and disintegration of empires. Nation building in Germany and Italy.
6. Growth of imperialism and colonialism in the 19th century-Asia and Africa. World War I: Causes and Consequences, The First World War and Paris Peace Conference.
7. Russian Revolution of 1917- Causes and significance.
8. The great depression and its impact, Rise of Fascism and Nazism.
9. Second World Wars- Causes, important events and impact.
10. World organization- League of Nations and U.N.O.
11. Liberation from Colonial Rule: Latin America, Arab World, South Asia and South-East Asia, Chinese Revolution of 1949.
12. Cold War- Emergence of two blocks.
13. Emergence of Third World and Non-alignment.
14. Dismantling Soviet Union and the End of Cold War.

**UNIT-F: Political and Cultural History of Rajasthan**

1. Source- Archaeological and Literary sources.
2. Pre and Proto History of Rajasthan- Palaeolithic to Chalcolithic Transition – Major Sites- Kalibanga, Ahir, Bagera, Ganswari, Bahelal, tools and culture.
3. Rajasthan in Early Historical Period – major sites, Republics in Post Mauryan period.
4. Gupta and Post Gupta period: Origin of the Rajput – Guhils, Garjar-Pratihara, Parmar, Rathore, Bhati, Tomar and Chauhan
5. Society, culture and polity in ancient Rajasthan.
6. Medieval Rajasthan- Political powers of Sultanate Age- Chauhan, Guhils, Rathore and Parmar
7. Rajput resistance- Prithviraj-II, Hamir of Ranthambhor, Rawal Ratan Singh and Kanhaddo.
8. Mughals and Rajput States-Rajput Resistance - Sangra, Maldeo, Chudsmen and Pratap.
9. Rajput Cooperation with the Central Power- Man Singh, Rai Singh, Mirza Raja Jai Singh, Jawant Singh.
10. Feudal System in Rajasthan.
11. Political and Cultural achievements of rulers in medieval Rajasthan.
12. Rajasthan in 18th century- Instability and origin of new political powers- Jai, Maratha and British.
13. Company Paramountcy and structural changes in the polity of Rajasthan.
14. Role of Rajasthan in the revolt of 1857.
15. Awakening in Rajasthan- Social changes and political awakening.
16. Tribal and Peasants movements in Rajasthan.
17. Freedom Struggle in Rajasthan.
18. Economic Life of Rajasthan (1818 to 1948 A.D.)- Agriculture, Industry, Trade and Commerce. Economic impact of British Rule- (Land Revenue, Agriculture, Industry, Mines, Salt, Opium, Trade and Commerce, Migration of Marwari Traders, Transport and Communication).
19. Integration of Rajasthan- its various stages.
20. Development of art- Architecture, Sculpture, Paintings, Music, Dance and Drama from pre-history to modern times.
21. Development of literature throughout the historical period in Rajasthan.

## 08. SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF TEACHING ASSOCIATE IN HOME SCIENCE

### Unit-01 Food and Nutrition-

1. Definition - Food, Nutrition, Nutrients, Functions of foods & Principal component of food, Food groups.
2. Properties of food, Balanced diet, Food pyramid, cooking methods, Effect of heat on nutrients, Food preservation techniques.
3. Calorific system & Emulsifiers in foods.
4. Food pigments & additives, Qualitative evaluation of foods.
5. Classification, Composition & Effect of heat on cereals, pulses, vegetables & fruits, fats & oils sugar, milk, meat & egg.
6. Food Standards, HACCP & Food packaging, Microbiology for safety of food.
7. Menu- Types, points to consider, Budget & Cost analysis, Dietary guidelines for proper nutrition.
8. Food service management of institutional level- hospital, educational institute, social & special institute, Role of dietitian.
9. Macro & micro nutrients - functions, requirement, deficiencies and effect of heat.

### Unit-02 Textiles -

1. Textiles Fibres and Yarns:
  - I. Textile terminologies- Fibre, yarn, weave, fabric etc.
  - II. Classification of fibres, Identification of fibres and weaves.
  - III. Manufacturing process of major natural and manmade fibres, properties and their end use.
  - IV. Blended fibres and yarns.
2. Different methods of yarns and fabric constructions:
  - I. Classification of yarns, yarn count, ply and twist.
  - II. Spinning – mechanical and chemical.
  - III. Types of yarns.
  - IV. Basic loom, part and operation, type of looms.
  - V. Different methods of fabric construction: weaving, type of weaves, knitted, braiding, non-woven fabrics, bonding and knitting.
3. Fabric Finishes: Textiles finishes- meaning, objectives, classification, processing and purposes of finishes. Dyeing and printing- classification, method of block printing, tie and dye, batik, roller printing, screen printing, discharge, heat transfer printing and digitized printing, Chemistry of Dyes and Pigments- composition, properties Affinity towards fibres method of application fixing, after treatment and fastness properties).
4. Traditional Textiles of India: embroidered textiles, printed textiles, woven textiles, dyed textiles of various regions in India. Identification on the basis of fibre content, technique, motif, colour and designed.
5. Textile Testing and Quality Control:
  - I. Textile Testing- need of testing, sampling method, techniques of testing fibres, yarn, fabrics and garments.
  - II. Quality Analysis- weaves, ends, picks, count, weight, thickness, porosity, air permeability, thermal conductivity and dimensional stability.
  - III. Fabric Properties and Analysis- abrasion and colour fastness, crease, recovery, stiffness, drapability, shrinkage, pilling and GSM of fabrics. Labeling- types of labels and purpose.
  - IV. Textile and Environment- banned dyes, eco-friendly textiles, contamination and effluent treatment, Eco-label and eco marks. Recent developments in textiles and apparel- nano textiles, technical textiles, occupational clothing, zero waste designing, up cycling and recycling.

### Unit-03 Resource Management and Consumer Issues -

1. Management- concept, approaches, management of time, energy, money, space, motivating factors, motivation theories, systems approach of management.
2. Functions of management- planning, supervision, controlling, organising, evaluation, family life cycle-stages, availability and use of resources.
3. Resources- classification, characteristics, factors affecting use, resource conservation, trends in Resource management.
4. Time management and Energy Management: work simplification techniques, classes of change, fatigue and its management.
5. Decision Making- importance, definition, decision making process, types of decision making.
6. Money management- family income, types, supplementation, budgeting, household accounts, family savings and investment, tax implications.
7. Consumer- definition, role, rights and responsibilities, consumer behavior, consumer problems, education and empowerment.
8. Consumer protection- consumer organization, cooperatives, alternative redressal, standardization, standard marks, quality control, buying aids, consumer legislation.
9. Entrepreneurship- concept, process, barriers, entrepreneurial motivation, challenges, enterprise setting, project planning and appraisal, enterprise management.

### Unit 04 Human Development

1. Meaning, definition & importance of Human Development
2. Principles of Development, growth and development, maturation and learning, heredity and environment.
3. Factors affecting Development
4. Prenatal Development- the period of the Zygote, embryo and Fetus, the "APGAR" scale, Fetal development- infancy and babyhood- Newborn Reflexes, changes in body size & proportions- Stages of Childhood- Characteristics and Developmental tasks of Childhood, Handicaps.
5. ECCE- Need, importance and Objectives of ECCE. ECCE centre - Kindergarten, Montessori, open type, play school, nursery and Balwadi etc.
6. Adolescence - Definition, stages, characteristics, physical changes, emotional life, socialization, problems and morality.
7. Adulthood, characteristics, changing role and responsibilities in early and middle adulthood.
8. Aging- physical and psychological changes, care and needs.
9. Theories of Human Development and behaviour - Jean Piaget, Kohlberg, Erickson, Freud, Skinner, Watson, Pavlov's theory.

### Unit 05 Extension Management and Community Development

1. Historical perspectives of extension- genesis of extension education and extension systems in India and other countries, objectives of extension education and extension service, philosophy and principles of extension programme development.
2. Programme management- need assessment, situation analysis, planning, organisation, implementation, monitoring and evaluation.
3. Extension methods and materials- interpersonal, small and large group methods, audio-visual aids- need, importance, planning, classification, preparation and field testing, use and evaluation of audio-visual materials.
4. Curriculum development and planning for extension education and development activities, Bloom's taxonomy of educational objectives and learning.
5. Non-Formal, adult and lifelong education- historical perspectives, concept, theories, approaches, scope, methods and materials used, challenges of implementation and evaluation, issues to be addressed.
6. Training- skill development and capacity building for human resource development- methods of training, entrepreneurship development.
7. Community development- concept, approaches, principles, historical perspective of community development in India. Leadership, support structures for community development- Pracharini Kij Institutions, NGOs and Community based organisations.
8. People's participation - concept, meaning, importance and types of peoples' participation, Historical Perspectives of Community development in India. Participatory Learning and Action (PLA) - methods, techniques and stakeholders' perspectives.
9. Development programmes in India for urban, rural and tribal population groups- programmes for nutrition, health, education, wage and self-employment, women's development, skill development, sanitation and infrastructure.

### Unit 06 Food & Nutrition-

1. Nutrition through lifespan- physiological changes, growth & development from conception till old age.
2. Therapeutic nutrition and diet counselling for weight management, diabetes, fever, disorders of gastro intestinal tract, gall bladder, surgery and burns.
3. Public health nutrition.
4. Physiology of circulatory system, respiratory system, reproductive system and excretory system.
5. Enzymes and metabolism of carbohydrate, protein and fats.
6. Microbial food spoilage and food borne diseases.
7. Community nutrition, sports nutrition, nutrition in emergencies and disasters.
8. Nutritional assessment methods and techniques.
9. Nutrition intervention, national nutrition policies and programs, food and nutrition security.

### Unit-07 Apparel Designing

1. Clothing construction Process-
  - I. Equipments and tools used for manufacturing garments- advancements and attachments used for sewing machine, Types of

- machines used and their parts.
  - II. Fabric Selection, preparation, layout, calculation of material for different garments.
  - III. Body measurements- procedure, need, figure types and anthropometry.
2. Apparel manufacturing
    - I. terminology used
    - II. seams and seam finishes, disposal of fulness, plackets, fasteners, yokes, necklines, collars, sleeves, trimming and pockets.
    - III. Elements and principles of design and its application to apparel- illustrations and parts of garments.
    - IV. Pattern making- drafting, draping and flat pattern making techniques, pattern alteration and dart manipulation techniques.
  3. Fashion-Terminologies, fashion cycle, fashion theories, fashion adoption, fashion forecasting and factors affecting fashions.
  4. Physiological, psychological and sociological aspects of clothing-
    - I. Origin and theories of clothing
    - II. Role of clothing in personality development and self-concept.
    - III. Factors affecting clothing selection
    - IV. Social impact of clothing in relation to occupation, occasion, nationality and income.
    - V. Selection of clothing for different age groups. Selection of fabrics for different uses.
  5. Apparel Quality testing- Quality standards and specification, Quality parameters and defects of fabrics and garments, Common fitting problems and their remedies. Care and maintenance of clothing- principles of washing, laundry agents, storage techniques care labels and symbols.

### Unit-08 Housing and Interior Design

1. Design fundamentals – design, importance and functions, elements of art, principles of design.
2. Colour - dimensions of colour, psychological effects of colour, colour schemes, factors affecting use of colour, colour theories, advancing and receding colours, Use of colour in interiors of residential and non residential buildings.
3. Lighting- Types of lights and lighting, fluxion, unit of measurement, lighting for different spaces, lighting fixtures.
4. Space planning and design- housing need and importance, principles of planning spaces, types of house plans, economy in construction, planning for different income groups.
5. Building regulations-norms and standards, zoning, housing for special groups and areas, housing finance.
6. Furniture and furnishing - architectural styles, contemporary trends, wall finishes, wall and window treatments, floor & floor coverings.
7. Housing and environment- building materials, impact on environment, green rating systems, energy efficiency in buildings, energy auditing, indices of indoor comfort, carbon foot prints.
8. Energy as a resource- conventional and non- conventional sources, renewable /non-renewable energy, advance energy management, National efforts on energy conservation.
9. Product design - design thinking process, diffusion and innovation, design communication, ergonomic consideration.
10. Ergonomics - significance, scope, anthropometry, man, machine, environment relationship, factors affecting physiological cost of work, body mechanics, functional design of work place. Occupation health and safety, Ergonomics and kitchen management.

### Unit 09 Family Studies and Exceptional Children -

1. Dynamics of marriage and family relationships –Meaning, definition, functions and types of marriage, Readiness of marriage, Mate selection, Alternatives to marriage, single hood, consensual unions and their socio emotional implications, Marital Harmony - Pre and post marital counseling and its importance.
2. Family- meaning, definition and types of family- Concept of family life cycle, changing needs of family at different stages of family life cycle beginning expanding & contracting.
3. Domestic violence, marital disharmony, conflict, resolution of conflict.
4. Parent education, positive parenting, community education.
5. Human rights, rights of children, rights of women, status of women, gender roles.
6. Guidance and counseling- across life span and for care givers.
7. Children with special needs- definition, classification, characteristics, identification, education and special considerations.
8. Organizations working for children with special needs.
9. Laws related to women and children.

### Unit 10 Communication for Development -

1. Basics of communication- nature, characteristics, functions, process, models, elements, principles, barriers, perception, persuasion and empathy, types of communication, levels (settings) of communication transactions, process of listening.
2. Communication Theories- human interaction theories, mass communication theories, message design theories.
3. Concept of development- theories, models, measurement and indicators of development.
4. Diffusion and adoption of innovation, adoption process, adopter categories.
5. Role of communication in development- concept, need and importance, development journalism, use of print, radio, television and internet in development.
6. Concerns of development communication- gender, health, environment, sustainability, human rights, population, literacy, rural and tribal development.
7. Behavioral change communication- concept, importance, principles, models and process of behaviour change.
8. Traditional, modern and new media for development - folk forms of songs, art, dance, theatre, puppetry, advertisement, cinema, ICTs for development- community radio, participatory video, social media and mobile phones.
9. Organization/agencies/institutes working for development communication- international/national/state and local.

### Unit 11 Research Methodology

1. Meaning of research, its significant and objective, Criteria of good research in Home science.
2. Role of statistics in research, type and methods of research.
3. Review of literature, Planning for research
4. Sampling method and tools of data collection.
5. Processing of data, Reliability and validity of data, Tabulation and presentation using graphs charts/diagrams.
6. Types of reports.
7. Principles of writing, Technical writing.
8. Bibliography, executive summary and footnotes writing, Referencing citation.
9. Report presentation.

## 09. SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF TEACHING ASSOCIATE IN POLITICAL SCIENCE

### 1. Indian Political Thought

- Munia & Kautilya, Traditions of Non-Violence in Buddhism & Jainism.
- Nature of State in Medieval India: Ziauddin Barani, Abul Fazal.
- Raja Ram Mohan Roy, Dayanand Saraswati, Sir Syed Ahmed Khan, E.V. Ramaswamy Naicker.
- Dadabhai Naoroji, Aurobindo Ghosh, M. K. Gandhi, Jawaharlal Nehru.
- Jai Prakash Narain, Ram Manohar Lohiya, B.R. Ambedkar, Kamala Devi Chattopadhyay.

### 2. Political Concepts and Ideologies

- Perspective of the State: Ideal, Liberal, Marxist, Post-Colonial and Sub-ahem.
- Sovereignty, Power, Authority, Legitimacy.
- Rights, Liberty, Equality, Justice, Citizenship.
- Concept of Democracy: Classical, Liberal & Marxist Theories; Models of Democracy: Representative, Participatory, Deliberative.
- Political Ideologies: Liberalism, Marxism, Conservatism.

### 3. Comparative Politics and Governments

(With Special Reference to Constitutional Frameworks of UK, USA, France, China & Canada)

- Constitution, Types of Constitutions, Constitutionalism in Theory and Practice.
- Classification of Government: Democracy and Dictatorship, Unitary and Federal, Parliamentary and Presidential.
- Organs of Government: Theory of Separation of Powers, Executive, Legislature and Judiciary—their interrelationship in comparative perspective.
- Theories of Political parties, Types and functions of Political parties, Pressure Groups and Interest Groups. (कमप्लीट)



- किरात-सुनीय (प्रथम सर्ग)
- सिधुवाखण्ड (प्रथम सर्ग)
- सुभारामचंद्र (प्रथम सर्ग)
- वादम्भी – (कव्यमुक्त बाग से जासकिआशम पर्यन्त)

**इकाई – 7 – राजस्थानी संस्कृत**

- राजस्थान के संस्कृत विद्वान एवं कवि तथा उनका साहित्यिक योगदान- पं. मधुसूदन जोशी, पं. मधुसूदन शर्मा, पं. विश्वराम शर्मा, पं. सुबोध शर्मा, पं. सुरेशचन्द्र शर्मा, पं. हरिचन्द्र शर्मा, पं. शिवराम शर्मा, पं. इन्द्रकिशोर शर्मा, पं. जयदीशचन्द्र शर्मा, पं. निरंजन शर्मा, पं. श्रीराम शर्मा, पं. विवेकानन्द शर्मा, पं. रामेश्वर शर्मा, पं. रामेश्वर शर्मा, पं. गणेश शर्मा, पं. गिरिधर शर्मा, पं. विश्वराम शर्मा, पं. चन्द्रशेखर शर्मा, पं. ब्रह्मचन्द्र शर्मा।

**12. SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF TEACHING ASSOCIATE IN SOCIOLOGY**

**Unit I: Basic concepts**

- Meaning, Definition, Subject-matter, Scope, Nature and Perspectives of Sociology, Sociology and Enlightenment.
- Society, Culture, Community, Norms and Values, Institutions, Associations and Social System.
- Social Groups: Meaning and Types, Status and Role, Norms and Values and types of membership.
- Social Control: Meaning, Types, Agencies and Theories.
- Socialization: Meaning, Stages and Theories, Sub concepts of Socialization.
- Status and Role, Meaning, Types, Interplay between Status and Role, Role Conflict, Norms and Values.
- Social Stratification: Meaning, Forms and Theories, Pattern of Inequalities.
- Social Processes- Assimilation, Competition, Conflict and Co-operation, Accommodation, associate and Disassociative process.
- Social Change and Social Mobility- Meaning, patterns, Factors and Theories.
- Social Deviance: Meaning, Types and Theories.
- Social Interaction: Meaning and Types.

**Unit II: Western Sociological Thinkers/Thought**

- **Auguste Comte:** Comte's views on Sociological Methods and Sociology, Law of Three Stages, Hierarchy of Sciences, Comte's views on Science, Religion of Humanity.
- **Herbert Spencer:** Classification of Social Systems or Society, Stages of Societal Evolution, Societal Institutions, Organic and Super-Organic Analogy, Principles of Sociology.
- **Emile Durkheim:** Division of Labour in society, Social facts and Rules of Sociological Method, Suicide and its types, The Elementary Forms of Religious Life, Durkheim of Education.
- **Max Weber:** Weber's Methodology, Study of Religions, Social Stratification and Types of Authority, Bureaucracy, Social Action.
- **Karl Marx:** Types of Society, Dialectical Materialism, Class Structures, Class Conflict and Social Change, Capital, Labour Theory of Value and Surplus Value.
- **Georg Simmel:** Problem Areas of Sociology, Group Affiliation, Social Differentiation, Conflict as Social Form, Exchanges as Social Form.
- **Vilfredo Pareto:** The Rise and Fall of the Elites, Theory of Sentiments, Pareto's views on General Sociology, The interface between Social, Economic and Political Phenomena, The Social System.

**Unit III: Indian Social System: Structure and Change**

- Characteristics of Indian Society, Unity Plurality and Diversity.
- Ancient Indian Social System: Varnashram System and Purusharthas, Samkhya, Karma and Education.
- Indian Social Institutions: Family, Marriage and Kinship, Education, Religion, Caste, Economy and Polity.
- Class Structure in India: Agrarian, Industrial.
- Dynamics in Caste and Class in Indian Society: Pattern of Mobility and Inequality.
- Gender Relations and Women Empowerment: Status of Women in India and Women Empowerment; Social Legislations for women, Domestic Violence, Dowry and issues of Divorce, Crime against Women.
- Deviance and Crime, Juvenile Delinquency, Cyber Crime, Crime against Children, White Collar Crime.
- Challenges before Indian Society: Poverty, Illiteracy, Unemployment, Regionalism, Communalism, Casteism, Corruption, Terrorism, Socio-Cultural Exclusion.
- Pathologies of Development: Problems of Weaker Sections and Minorities, Problems of SCs, STs, OBCs, Marginalized groups and Children.
- Planned change in India- Indian Society, Five Year Plans, Panchayati Raj, Welfare Policies and Sustainable Development.
- Globalization and its impact on Indian Society.

**Unit IV: Social Research**

- Social Survey and Social Research: Meaning and Types; Scientific Method.
- Issues of Objectivity/Value Neutrality, Biases, Subjectivity and issues of ethics in Social Research.
- Model, Paradigm and Theory building in Sociological Research.
- Research Design: Meaning and Types.
- Hypothesis: Meaning, Nature and Types.
- Sampling: Meaning and Types.
- Techniques of Data Collection: Observation, Interview, Schedule and Questionnaire.
- Methods of Data collection: Case Study Method, Content Analysis, Cultural study Approach, Discourse Analysis, Ethnography.

**Unit V: Perspectives on Indian Society**

- **Rural Studies:** M.N. Srinivas, S.C. Dube and Andre Beteille.
- **Urban Studies:** MSA Rao, V. S. D'Souza, Meera Kosambi.
- **Tribal Studies:** K.S. Singh, S. L. Doshi, Verghesekara.
- **Gender Studies:** Veera Desai, Dharmila Kage, Beena Agarwal.
- **Development of Sociology in India:** Indological and Textual Perspective, Structural- Functional Perspective, Marxist Perspective, Civilizational Perspective, Synthesis of Textual and Field Views, Subaltern Perspective.

**Unit VI: Classical Sociological Theories**

The meaning and nature of Sociological theory, Structural-Functionalism, Neo-Functionalism, Conflict Theory, Marxist Theory, Neo-Marxism, Phenomenology, Ethnomethodology, Symbolic-Interactionism, Feminism, Structuralism, Structuration, Post-Structuralism, Post-Modernism.

**13. SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF TEACHING ASSOCIATE IN URDU**

**Unit – I**

- (a) Various Theories of origin of Urdu Language.
- (b) Western Hindi and its dialects namely: Braj Bhasha, Haryanvi, Punjabi and Khari Boli.
- (c) Arabic & Persian elements in Urdu Language.

**Unit – II**

- (a) Classical genres of Urdu Poetry: Ghazal, Qasida, Marsiya, Masnawi.
- (b) Modern genres of Urdu Poetry and their development: Muzernazm, NasriNazm and Azad Nazm.
- (c) Sonnet, Geet and Doha.

**Unit – III**

- (a) Development of Urdu Language and Literature in Deccan.
- (b) Salient features of Deccani Language and Literature.
- (c) Role of Quli Qutubshah, Nurati, Wajbi, Ghawwas and Wali in the development of Deccani Language and Literature.

**Unit – IV**

- (a) Delhi School of Poetry and its salient features.
- (b) Lucknow School of Poetry and its salient features.
- (c) Important Poets of Delhi and Lucknow School: Ghazal: Meer, Dard, Atish, Nazki, Ghalib and Momin. Qasida: Sauda, Zauq and Muneer Shikohabadi. Marsiya: Meer Anis and Mirza Dabeer. Masnawi: Meer Hasan, Daya Shankar Naseem and Mirza Shauq.
- (d) Development of Jadeded Nazm in Urdu.

**Unit – V**

- (a) Development of Criticism and Tahqiq in Urdu.
- (b) Role of Rajasthan's Urdu Poets in Freedom movement.
- (c) Rhetorics.

**Unit – VI**

- Various kinds of Urdu Prose:
  - (a) Dastan, Novel and Drama.
  - (b) Short Story, Essays and Biography.
  - (c) Khutoot Nigari, InshaiyaTazkira Nigari and Khaka Nigari.

**Unit – VII**

- Urdu Prose in Northern India:
  - (a) Fort William College.
  - (b) Delhi College.
  - (c) Aligarh Movement.

**Unit – VIII**

- Socio-reformative aspect of Urdu Literature:
  - (a) 1857, Urdu Literature and Journalism.
  - (b) Role of Urdu Poetry in Freedom Movements.
  - (c) Progressive Movement.

**Unit – IX**

- Urdu Prose – Fictions:
  - (a) Dastan (1) Bagh-o-Bahar by Meer Amman (2) Fasaanai Ajab by Rajab Ali Baig Suroor
  - (b) Novel – (1) Tobatunnasooah by Nazir Ahmed. (2) Umrajvan by Mirza Hadi Ruswa (3) Godan by Prem Chand
  - (c) Short Story
    - (1) Wardat by Prem Chand
    - (2) Annadata by Krishna Chander
    - (3) Manto Ke Numainda Afsane (S.H. Manto) Edited by Athar Parvez

**Unit – X**

- Urdu Prose – Non-Fictions:
  - (a) Nairange-Khayal by M.H. Azad.
  - (b) Intekhab-e-Mehdi Ifadi published by U.P. Urdu Academy.
  - (c) Mazameen-e-Sir Sayed by Ale Ahmed Suroor.
  - (d) Yadgar-e-Ghalib by Hali.
  - (e) Ghuabar-e-Khatir by Abul Kalam Azad.
  - (f) Mazameen-e-Rasheed by Rasheed Ahmed Siddiqui.
  - (g) Abe Gum by Mushtaq Yusufi.

**14. SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF TEACHING ASSOCIATE IN BOTANY**

1. **Archaeobacteria, eubacteria and cyanobacteria** - ultra-structure and reproduction, L-Form Bacteria, Prions, Virioid, Virusoids; Characteristics and ultrastructure of viruses; Mycoplasma, Spiroplasma and Phytoplasma - General characters and role in causing plant diseases; Microbiology of water, air and soil.
2. **General account of diseases caused by plant pathogens;** molecular basis of host parasite interaction, pathogen attack and defense mechanism; etiology of red rot of sugarcane, rust of wheat, covered smut of wheat, loose smut of wheat, green ear disease of bajra, leaf spot and smut of jowar, ergot and smut of bajra, root knot and root diseases of vegetables; disease control and the role of information technology in disease management.
3. **Algae of diversified habitats** (Terrestrial, Fresh water, Marine); Thallus organization, cell structure and reproduction in different classes/groups; Criteria of classification of algae; Economic importance of algae.
4. **General characteristics of different classes/groups of fungi,** cell ultrastructure, cell wall composition, reproduction, heterothallic, plus sexuality, recent trends in classification, economic importance of fungi; General account and economic importance of mycorrhizas and lichens.
5. **General characters, structure, reproduction, evolution and inter-relationships** of bryophytes, pteridophytes and gymnosperms. Evolution of stete, heterospory and seed habit; Principles of palaeobotany.
6. **Taxonomic hierarchy, principles of nomenclature, taxonomic tools,** important systems of classification (Bentham and Hooker, Engler and Prantl; Hutchinson and Takhtajan). Role of morphology, anatomy, embryology, palynology, cytology, phytochemistry, genome analysis and nucleic acid hybridization in taxonomy. Taxonomy of some selected families (Leguminosae, Cucurbitaceae, Asteraceae, Ascladiaceae, Solanaceae, Euphorbiaceae and Poaceae). Phylogeny of angiosperms.
7. **General concepts of plant morphology, origin and evolution of flower** - Primitive living angiosperms, foliar stemens, open carpels. Plant anatomy - types of tissue; Organization of root and shoot apical meristems; Secondary growth (normal and anomalous) and Anomalous primary structures of root and stem.
8. **Development of male and female gametophytes,** pollination, pollen pistil interaction, fertilization, endosperm development and embryogenesis; seed development and fruit formation; polyembryony, apomixis, embryo culture; biochemistry and molecular biology of fruit maturation.
9. **Basic concepts of ecology, ecological factors affecting the plants,** Principle of limiting factors; population characteristics, population interaction, r and K selection, geneecology and range extinctions, community characteristics, community classification, continuum concept, ecological niche, plant succession in various habitats; concept of climax. Structure and function of ecosystems, energy flow and biogeochemical cycles (N, P, C, S), primary production, plant indicators, major biomes of the world. Phytogeographical regions of India, vegetation of Rajasthan, Ecosystem services.
10. **Environmental pollution-** air, water, noise and soil; Greenhouse effect, Ozone layer depletion, Acid rain; Concept of biodiversity with special reference to India. Hot spots, Rare, Endangered and Endemic plant species of Rajasthan, strategies for conservation of the flora, Bio-monitoring, Environmental Impact Assessment.
11. **Plant civilization, centers of diversity/origin of crop plants,** gene diversity Utilization, cultivation and improvement of food plants (rice, wheat, bajra, pulses, green gram, mung and beans), Oil seeds (mustard, soybean and ground nut), drugs (Rauwolfia, Ephedra, Papaver, Atropa, Cinchona and Withania), fibre (cotton, jute and coir) and plants of industrial value (Tobacco, sugarcane, tea and coffee). Ethnobotany, under-exploited plants of potential medicinal and food value with special reference to Rajasthan.
12. **Bright field Microscopy, Electron microscopy (TEM & SEM),** Confocal microscopy, phase contrast microscopy; Fixation (of lower and higher plant groups) and staining techniques (for bright field microscopy, cytology and bacterial staining); Chromatography, Electrophoresis, ELISA, Spectrophotometry, centrifugation.
13. **Plant-water relation,** membrane transport and translocation of water and solutes,
14. **Enzymes** - General characteristics, Classification, mechanism of action, kinetics of enzymatic catalysis, regulation of enzyme activity, active sites, coenzymes, activators and inhibitors, isozymes.
15. **Photosynthesis-** Pigments, photophosphorylation, Mechanism of photosynthesis, photorespiration, photosynthesis in C4 plants, CAM.

16. **Nitrogen fixation and Nitrogen metabolism.** Fatty acid metabolism. Signal transduction: overview, receptors and G-proteins, phospholipid signaling, second messengers, two-component sensor-regulator system in bacteria and plants.
17. **Respiration-** Glycolysis, TCA cycle, Oxidative phosphorylation, Glycogen breakdown, inter conversion of hexoses and pentoses.
18. **Seed dormancy and germination.** Concept of growth and development. Physiological effects and mechanism of action of auxins, gibberellins, cytokinins, ethylene, abscisic acid and jasmonic acid. Plant rhythms and biological clock. Secondary metabolites. Plant responses to biotic and abiotic stresses. Physiology of flowering. Photoperiodism and Vernalization.
19. **Ultrastructure of prokaryotic and eukaryotic cells.** Cell membrane- structure and function. Cell organelles- structure and function; Ultrastructure of nucleus; DNA: Structure, A, B and Z forms, replication, damage and repair; Cells cycle; Structure of chromatin and its organization; Special types of chromosomes; Banding patterns; Chromosomal aberrations and numerical chromosome abnormalities.
20. **Genetics of prokaryotes and eukaryotic organisms;** Mapping of bacteriophage genome; Genetic transformation, Conjugation and Transduction in bacteria; Cytoplasmic male sterility; Mendelian, Allelic and non-allelic gene interactions.
21. **Techniques in cell biology-** *in situ* hybridization, FISH, GISH. Genetic code, transcription and translation, RNA processing; Termination; Regulation of gene expression in prokaryotes and eukaryotes; Genetic mapping; Independent assortment and crossing over, molecular mechanism of recombination; genetic markers, Mutations, molecular basis of spontaneous and induced mutations and their role in evolution. Principles of plant breeding, important conventional methods of self and cross pollinated and vegetatively propagated crops; Mutation breeding.
22. **Basic concepts, principles and scope of Biotechnology,** plant cell and tissue culture. Concept of biotransformation; Micropropagation by axillary bud proliferation and adventitious shoot bud differentiation; Embryogenesis and organogenesis; Somatic hybridization, protoplast- isolation, fusion and culture, Artificial seeds; Somaclones and somatic hybrids; *in-vitro* production of secondary metabolites and bioactive compounds.
23. **Recombinant DNA Technology:** Restriction enzymes, Gene cloning- principles and techniques; construction of gene library (genomic and cDNA library); DNA sequencing, polymerase chain reaction, RT-PCR, DNA finger printing. Genetic engineering of plants: Aims and strategies for development of transgenics; Methods of gene transfer in plants, intellectual property rights and possible ecological risks and ethical concerns. Microbial genetic manipulation. Structural and functional genomics, microarray, genome sequencing projects (with special reference to rice, wheat, chick pea and tomato) and proteomics.
24. **Principles and practices of statistical methods in biological research,** samples and population, Data collection and processing in research; Basic statistics (averages, statistics of dispersion, coefficient of variation, standard error and deviation). Confidence limits, Probability, Distribution (Binomial, Poisson and Normal), Tests of statistical significance, Simple Correlation and Regression, Analysis of Variance.

#### 15. SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF TEACHING ASSOCIATE IN CHEMISTRY

- Chemical Periodicity:** Periodic Table, Electronic Configuration of Various Group Elements. Periodicity in properties of  $s$ ,  $p$ ,  $d$  and  $f$ - block elements and their trends.
- Chemical Bonding:** Concept of hybridization VBT, LCAO, MOT of homo and heteronuclear diatomic and polyatomic molecules, Coulomb diagrams, Valence Shell Electron Pair Repulsion Theory, Hydrogen bonding, Fujans Rule and Polarity in Covalent Compounds.
- Transition Metal Chemistry:** Properties with special reference to variable oxidation state, magnetic colour and complexation behaviour. Metal to Ligand and Ligand to Metal charge transfer spectra, Metal atom clusters, Nonchelation and Isomerism in co-ordination compounds. Ligand field theory, high spin and low spin complexes, CFT, CFSE and Jahn-Teller effect.
- Green Chemistry and Nano Chemistry:** Principles of Green Chemistry and Sustainable Development, Green Reagents and Green Synthesis, Introduction to Nano particles, Nano Science and Nano Technology, Optical and Magnetic properties of Nano material, Characterization of Nano materials by TEM, SEM, SPMT, AFM, X-Ray Diffraction and ASCA.
- Environmental Chemistry:**
  - Air Pollution-** Pollution due to SO<sub>2</sub>, NO<sub>x</sub>, Ozone Depletion and Green House Effect, photochemical smog, reaction of hydroxyl radical with CH<sub>4</sub>, SO<sub>2</sub> and NO<sub>x</sub>.
  - Water Pollution:** International Standards of drinking water, water quality parameters COD, BOD, TDS, pH etc, Treatment of potable and sewage waste water.
  - Soil-** Types of soil, soil profile and analysis of physical and chemical parameters.
- Nomenclature of Organic Compounds:** Common and IUPAC nomenclature of Aliphatic, Aromatic, Heteroaromatic, Bicyclic Compounds and Spinanes.
- Isomerism:** Structural Isomerism, Stereoisomerism both geometrical and optical with E/Z and R/S systems respectively. Conformational analysis of alkanes and cyclo alkanes, Asymmetric Synthesis Stereoselective and Stereospecific reactions.
- Basic principles of Organic Chemistry and Reaction Mechanism:** Inductive, Electromeric, Mesomeric, Hyperconjugative and Resonance effects. Reactive Intermediate species i.e. carbocation (classical and non classical), Carbanion, Carbenes, free Radicals, Nitrene and Benzene. Types of reagents- electrophiles and nucleophiles. Basic reaction mechanism - Addition, Substitution, Elimination and Rearrangements.
- Name Reactions and Mechanisms:** Aldol, Benzoin, Cannizzaro's, Perkin's, Stobbe, Dieckmann Condensations, Pinacol - Pinacolone, Wagner- Meerwein, Hoffmann, Schmidt, Lossen, Curtius, Beckmann, Fries, Bayier Villiger, Wittig, Reformatsky Rearrangements.
- Aromatics Heteroaromatics, annulenes and heteroannulenes:** Basics of Aromaticity and anti-aromaticity, Synthesis and reactions of anthracene, phenanthrene, biphenyl, furan, thiophene, pyrrole, pyridine, quinoline, isoquinoline and indole. UV, IR, NMR and mass spectroscopy of organic compounds.
- (a) Chemical kinetics:** Ionic Reactions, Kinetic salt effect, Steady State Kinetics, Kinetic and Thermodynamic Control of reactions, Dynamic chain, photochemical reaction, acid base and enzyme catalysis, fast reaction: study by stop flow method. **(b) Acid-bases and Non-aqueous Solvents:** Basic theories, HSAB concept, Non aqueous solvents: DMSO, THF and Liquid NH<sub>3</sub> their reactions and solvent action.
- Electrochemistry:** Electrochemistry and Ionic Equilibrium, Theory of strong and weak electrolytes pH, Buffer and Buffer action, Electrolysis and electrolytic Cell, Electrochemical cells and reactions, Nernst equation, emf measurement, Calculation of Gibbs free energy and equilibrium constants, Primary and Secondary cells, fuel cell, corrosion and its prevention.
- Nuclear and Radio Chemistry:** Nuclear Models, Radioactive decay, mass defect, binding energy, fission and fusion, Isotopes, Isobars, isotaphers and application of isotopes in medicinal Science.
- Solution and Colligative Properties:** Types of Solutions Concentration measurement methods: Normality, Molarity, Molality etc. Raoult's law (deviation from ideal behaviour), Nernst law, Henry law, Relative lowering of Vapour Pressure, Elevation in Boiling Point, Depression in Freezing Point, Osmosis and Osmotic Pressure.
- Thermodynamics:** First law: relation between Cp and Cv, enthalpies of physical and chemical changes, temperature dependence of enthalpies, Joules Law, Joules Thomson coefficient, Second law: entropy, Criteria of Spontaneity Gibbs and Helmholtz functions, evaluation of entropy and Gibbs function, Gibbs-Helmholtz equation, Maxwell relations. Thermodynamics of ideal and non-ideal gases and solutions. Third Law of Thermodynamics.
- Chemistry of Non-Transition and Inner Transition Elements:**
  - Preparation, properties and bonding in diborane and higher boranes, polyalkyl borate anions and carboranes, borazines, borane nitrile. Silicones and silicates, phosphonitrilic compounds, interhalogen Xenon compounds.
  - Lanthanides and actinides Complexation, oxidation states, super heavy elements, analytical and Medicinal applications.
- Organometallic Compounds:** Synthesis, structure, bonding, reactions and reactivity, Applications in homogeneous catalysis, Cage and Cluster Compounds.
- Bioinorganic and Supra Molecular Chemistry:** Iron storage and transport, oxygen carriers and transport, electron transfer reactions, Metalloenzymes, Zinc Iron and Copper enzymes, Vita B12 Co-enzyme. Metal deficiency and disease. Supra molecular reactions and Catalysis, supra molecular devices.
- Group Theory:** Symmetry elements and operations, point groups, Mulliken symbol, GMT and character Table, Great Orthogonality Theorem and application hybridization and vibrational Spectroscopy. Concepts of inorganic ESR, Mass and IR Spectroscopy.
- Statistical Data Analysis and Analytical Technique:** Mean, Mode, Median, Standard Deviation, Regression analysis and Correlation principles and applications of AAS, DTA, TGA, Partition and adsorption chromatography.
- Pericyclic Reactions:** Molecular orbital symmetry, Frontier orbitals of ethylene, buta-1,3-diene, hexa-1,3,5-triene. Classification of pericyclic reactions. Woodward Hoffmann correlation diagrams. Electrocyclic and cycloaddition reactions and sigmatropic rearrangements, eg. Cope, Claisen, Aza-Cope, Sommelet-Hauser rearrangements.
- Organic Transformation and Reagents:** Functional group interconversions, oxidative and reductive processes. Common catalyst and reagents (organic, inorganic organometallic and enzymatic like LiAlH<sub>4</sub>, NaBH<sub>4</sub>, isobutene dicarboxylate, thallium (III) nitrate RaO<sub>4</sub>, OsO<sub>4</sub>, CH<sub>3</sub>Li, (CH<sub>3</sub>)<sub>2</sub>Hg, (CH<sub>3</sub>)<sub>2</sub>Zn etc.
- Synthetic Application of Organometallics and Reactive Methylene Compounds:** Grignard reagent, Organo lithium compounds, Aceto acetic ester and Malonic ester. Their Synthesis, identification, estimation and important applications in the Synthesis of organic compounds.
- Organic Photochemistry:** Jablonski diagram, photochemistry of alkenes, carbonyl compounds and aromatic compounds, photodegradation of polymers, singlet molecular oxygen reactions. Paterno-Buchi reaction, Norrish Type I and II reactions and Barton reaction.
- Natural Products and Medicinal Chemistry:** Classification and structure of Carbohydrates, proteins, nucleic acids and fatty acids, Classification, Nomenclature and isolation techniques of Terpenoids, Carotenoids, Alkaloids and terpenes. Drug design and introduction to pharmacodynamics, Some Cardio Vascular Psychotic and Antipsychotic drugs.
- Quantum Chemistry:** Basic principles and application of quantum mechanics. Schrodinger equation, hydrogen atom, hydrogen molecule ion and angular momentum. Variational and Perturbational method, term symbols and spectroscopic status. Atomic structure and its theoretical treatment.
- Solid State:** Types of solids, Bravais lattices, determination of unit cell parameters, defects in solids- Frenkel, Schottky, Point, Line and Plane defects. Structural classification of binary and ternary compounds, diffraction techniques, bonding, thermal, electrical and magnetic properties. Insulators, Semiconductors and Super conductors.
- Statistical Thermodynamics and Phase equilibria:** Boltzmann distribution law, kinetic theory of gases, partition function: vibrational, rotational, translational and electronic properties and applications of partition functions and the relation with thermodynamic quantities. Basic principles of phase equilibria.
- Physical Chemistry of Polymers:** Molecular weight determination of polymers: Number average and Weight average molecular weights, End-group analysis, Sedimentation, Light scattering and Viscosity methods. Stereochemistry and mechanism of polymerization. Crystallisation and melting in polymers. Relation between Tm and Tg.
- Colloids and Surface Chemistry:** Absorption and Adsorption, Adsorption isotherms and surface area analysis, Types and properties of colloids, Micelles, Micelle action and Critical Micelle Concentration. Applications of colloids.

#### 16. SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF TEACHING ASSOCIATE IN MATHEMATICS

- Differential and Integral Calculus:**
  - Partial Differentiation, Euler's Theorem for homogeneous functions, Total Differentiation, Maxima and Minima of two and three variables, Lagrange's Multiplier Method, Curvature, Asymptotes, Envelopes and Evolutes, Singular Points, Rectification, Multiple Integral, volume and surface of revolution of curves. Beta and Gamma functions.
- Two Dimensional Coordinate Geometry (Cartesian and Polar coordinates):**
  - Polar equation of circles. Polar equation of tangent, normal, asymptotes and chord of contact, Auxiliary and Director circle. Second degree equation of General Conic. Centre, Asymptotes, eccentricity, foci, directrix axes and latus rectum of a conic, Co-ordinate of center, equation of conic referred to center as origin, lengths and position of axes of a standard conic.
- Three Dimensional Coordinate Geometry:**
  - Straight Line, Sphere, Cylinder, Cone and their properties (Rectangular Coordinates only), Central Conicoids and their properties (Referred to principal axes only).
- Vector Calculus:**
  - Differentiation of Vector, Del operator, Gradient, divergent, Curl and directional derivative, their identities and related theorems. Integration of Vectors, line, Surface and Volume integration of vectors, Gauss Divergence, Stokes and Green theorem.
- Ordinary Differential Equations:**
  - First order non-linear differential equation, singular solutions and extraneous Loci, Second order linear differential equation with constant and variable coefficients, Simultaneous and Total Differential Equations.
- Partial Differential Equations:**
  - Linear and Non-linear Partial differential equation of first order. Linear Partial Differential Equations of Second Order. Solution of Partial Differential Equations by Lagrange's, Charpit's and Monge's Method.
- Mechanics:**
  - Equilibrium of coplanar forces, Moments, Friction, Catenary. Simple harmonic motion, Rectilinear motion under variable laws, Motion in resisting medium, Projectile.
- Abstract Algebra:**
  - Groups- Normal Sub-groups, Quotient groups, Homomorphism, isomorphism of groups. Classification of finite groups. Cauchy's Theorem for finite abelian groups, Permutation groups, Solvable groups and their properties. Rings, Morphism, Principal Ideal domain, Euclidean Rings, Polynomial Rings, Irreducibility criteria, Fields, Finite fields, Field extensions; Integral domain.
- Linear Algebra:**
  - Vector Spaces, Linear dependence and independence, Bases, Dimensions, Linear transformations, Matrix representation of Linear transformations, Change of bases. Inner product spaces, Orthonormal basis, Quadratic forms, reduction and classification of quadratic forms. Algebra of Matrices, Eigenvalues and Eigenvectors, Cayley-Hamilton theorem. Canonical, Diagonal, Triangular and Jordan forms, Rank of Matrix.
- Complex Analysis:**
  - Analytic Functions, Cauchy's Theorem, Cauchy's Integral Formulae, Power Series, Laurent's Series, Singularities, Theory of Residues, Complex Transformations, Contour Integration.
- Special Functions:**
  - Hypergeometric, Confluent Hypergeometric Functions and their properties. Bessel, Legendre Function/Polynomial of first kind and their properties. Hermite, Laguerre Polynomials and their properties.
- Integral Transforms:**
  - Laplace, Inverse Laplace transform and their properties. Fourier transform, Inverse Fourier transform and their properties, Hankel, Mellin transform and their properties.
- Differential and Integral Equations:**
  - Classification of Second Order Partial Differential Equations. Green's Functions, Sturm-Liouville Boundary Value Problems, Cauchy's Problems and Characteristics. Calculus of variations- Variation of a functional, Euler-Lagrange's equation, Necessary and sufficient condition for extrema. Variational method for Boundary Value Problems in ordinary and partial differential equations. Integral Equations of first and second kind of Fredholm and Volterra type, solution by successive substitutions and successive approximations.
- Metric spaces and Topology:**
  - Metric spaces, compactness, Connectedness, Topological spaces, closed sets, closure, Dense set, Neighbourhood, Interior, exterior and boundary points, Accumulation points and derived sets. Bases and sub-bases. First and Second Countable spaces, Separable spaces, Separation axioms, compactness, continuous functions and compact sets, connected spaces.
- Differential Geometry:**
  - Curves in space (osculating, Normal and rectifying planes, Serret-Frenet formulae, curvature, torsion, circle of curvature and sphere of curvature), Envelopes, curves on surfaces.
- Tensors:**
  - Covariant, Contravariant and Mixed tensors, Invariants and algebraic properties of tensors. Contraction of tensors, Quotient Law of tensors. Fundamental and Associated tensors, Christoffel symbols, Covariant differentiation of tensors.
- Mechanics:**
  - D'Alembert's Principle, Moment and Product of inertia, Motion in two-dimensions, Lagrange's equations of Motion, Euler's Equations of Motion, Motion of a top.

**18. Numerical Analysis:**

Interpolation, Difference schemes, Lagrange's interpolation, Numerical differentiation and integration, Numerical solution by Bisection, Secant, Regula-Falsi and Newton's Methods, Roots of polynomial. Linear Equation – Direct Methods (Jacobi, Gauss and Seidel Method).

**19. Operations Research:**

Simplex methods, Duality, Degeneracy, Revised Simplex Method, Integer Programming Problems, Assignment and Transportation Problems, Game Theory- Two person zero sum game, Inventory- Single item deterministic inventory models with finite replacement, simple probabilistic models.

**20. Mathematical Statistics:**

Probability, Conditional Probability, Addition and Multiplication theorems of probability, Baye's Theorem, Expectations, Moment Generating Function, Probability Distributions: Binomial, Poisson, Uniform and Normal, Correlation and Regression, Line of Regressions.

**17. SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF TEACHING ASSOCIATE IN PHYSICS****I: Electromagnetic Theory-**

Electrostatics: Gauss's Law and its applications; Laplace and Poisson equations, boundary value problems; Magnetostatics: Biot-Savart law, Ampere's theorem, electromagnetic induction; Maxwell's equations in free space and linear isotropic media; boundary conditions on fields at interfaces; Scalar and vector potentials; Gauge invariance; Electromagnetic waves in free space, dielectrics, and conductors; Reflection and refraction, polarization, Fresnel's Law, interference, coherence, and diffraction; Dispersion relations in plasma; Lorentz invariance of Maxwell's equations; Dynamics of charged particles in static and uniform electromagnetic fields; Radiation from moving charges, dipoles and retarded potentials.

**II: Electronics-**

Physics of P-N junction, Diode as a circuit element, clipping and clamping, Rectification, Zener regulated power supply Transistor as a circuit element, CC, CB and CE configuration, Transistor as a switch, Feedback in amplifiers, Oscillators, FET, MOSFET and their applications, Operational amplifiers and its applications, inverting and non-inverting amplifiers, adder, integrator differentiator, wave form generator, multivibrators, comparator, Schmidt trigger, Boolean Algebra, Digital integrated circuits: Logic gates, NAND and NOR gates as building blocks, X-OR gate, Half and Full adder circuits, Karnaugh map, Flip – Flops, counters and registers.

**III: Circuit Analysis-**

Energy sources, Active and Passive elements, Kirchhoff's laws and their applications, Four terminal networks, Z, Y and h parameters, Thevenin's and Norton's Theorem, Maximum Power Transfer Theorem, Superposition Theorem, Reciprocity Theorem, Miller Theorem, T and Pi Network, Mean and rms values in AC circuits, LR, CR and LCR circuits-series and parallel resonance, Quality factor, Principal of transformer.

**IV: Atomic & Molecular Physics-**

Quantum states of an electron in an atom; Electron spin; Stern-Gerlach experiment; Spectrum of Hydrogen, helium and alkali atoms; Relativistic corrections for energy levels of hydrogen; Hyperfine structure and isotopic shift; width of spectral lines; LS & JJ coupling; Zeeman, Paschen Back & Stark effect; X-ray spectroscopy; Electron spin resonance; Nuclear magnetic resonance, chemical shift; Raman, vibrational, electronic, and Raman spectra of diatomic molecules; Franck-Condon principle and selection rules; Spontaneous and stimulated emission, Einstein A & B coefficients; Lasers, optical pumping, population inversion, rate equation.

**V: Condensed Matter Physics-**

Crystal structure, Miller indices, Bravais lattices; Reciprocal lattice, diffraction and the structure factor; Bonding of solids; Elastic properties, phonons, lattice specific heat; Free electron theory and electronic specific heat; Einstein and Debye model, Response and relaxation phenomena; Drude model of electrical and thermal conductivity; Boltzmann transport equation, Sommerfeld theory of electrical conductivity, Matthiessen's rule, Hall effect and thermoelectric power; Origin of Atomic Magnetism, Diamagnetism, paramagnetism, and ferromagnetism; Curie, Langevin and Quantum theories of magnetism, Electron motion in a periodic potential, band theory of metals, Kohn-Penny model, Effective mass, concept of holes, insulators and semiconductors; Superconductivity, type-I and type-II superconductors, BCS theory, DC and AC Josephson Effects, Semiconductor: laws of mass action, Impurity conductivity, Recombination mechanism, Photo conductivity and Photo Resistance.

**VI. Mathematical Methods of Physics-**

Dimensional analysis; Vector algebra and vector calculus; Linear algebra, matrices, Cayley Hamilton theorem, eigen value problems, Linear differential equations; Special functions (Bessel, Legendre and Legendre); Fourier series, Fourier and Laplace transforms; Elements of complex analysis; Elementary ideas about tensors; Introductory group theory; Elements of computational techniques; roots of functions, interpolation, extrapolation, integration by trapezoid and Simpson's rule, solution of first order differential equations using Runge-Kutta method; Finite difference methods; Elementary probability theory, random variables, binomial, Poisson and normal distributions.

**VII. Classical Mechanics-**

Newton's laws, Phase space dynamics, stability analysis; Central-force motion; Kepler's laws, Gravitational field and potentials; Two-body collisions, scattering in laboratory and centre-of-mass frames; Rigid body dynamics, Angular momentum, moment of inertia tensor, non-inertial frames and pseudo-forces; Variational principle, Lagrangian and Hamiltonian formalisms and equations of motion; Poisson brackets and canonical transformations; Symmetry, invariance and conservation laws, cyclic coordinates; Periodic motion, small oscillations and normal modes; Damped harmonic oscillations, Driven harmonic oscillations; Waves in media, Superposition of waves; Special theory of relativity, Lorentz transformation, relativistic kinematics and mass-energy equivalence; Kinematics of moving fluids; Bernoulli's theorem, Viscosity, Surface tension.

**VIII. Quantum Mechanics-**

Wave-particle duality; Wave functions in coordinate and momentum representations; Commutators and Heisenberg's uncertainty principle; Matrix representation; Dirac's bra and ket notation; Schrodinger equation (time-dependent and time-independent); Eigen value problems such as particle-in-a-box, harmonic oscillator, etc.; Tunneling through a barrier; Motion in a central potential; Orbital angular momentum, Angular momentum algebra, spin; Addition of angular momenta; Hydrogen atom, spin-orbit coupling, fine structure; Time-independent perturbation theory and applications; Variational method, WKB approximation; Time dependent perturbation theory and Fermi's Golden Rule; Selection rules; Semi-classical theory of radiation; Elementary theory of scattering, phase shifts, partial waves, Born approximation; Identical particles, Pauli's exclusion principle, spin-statistics connection; Relativistic quantum mechanics: Klein Gordon and Dirac equations.

**IX. Thermodynamic and Statistical Physics-**

Laws of thermodynamics and their consequences; Thermodynamic potentials, Production of low temperature and its applications; Maxwell relations; Chemical potential, phase equilibria; Phase space, micro- and macro states; Micro canonical, canonical and grand-canonical ensembles and partition functions; Free Energy and connection with thermodynamic quantities; First and second-order phase transitions; Classical and quantum statistics, ideal Fermi and Bose gases; Principle of detailed balance; Blackbody radiation and Planck's distribution law; Bose-Einstein condensation; Random walk and Brownian motion; Introduction to non-equilibrium processes; Diffusion equation.

**X. Nuclear and Particle Physics-**

Basic nuclear properties: size, shape, charge distribution, spin and parity; Binding energy, semi-empirical mass formula; Liquid drop model; Fission and fusion; Nature of the nuclear force, form of nucleon-nucleon potential; Charge-independence and charge-symmetry of nuclear forces; Isospin; Deuteron problem; Evidence of shell structure, single-particle shell model, its validity and limitations; Rotational spectra; Elementary ideas of alpha, beta and gamma decays and their selection rules; Nuclear reactions, reaction mechanisms, compound nuclei and direct reactions; Classification of fundamental forces; Elementary particles (quarks, baryons, mesons, leptons); Spin and parity assignments, isospin, strangeness; Gell-Mann-Nishijima formula; C, P, and T invariance and applications of symmetry arguments to particle reactions, parity non-conservation in weak interaction; Particle accelerators and detectors.

**18. SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF TEACHING ASSOCIATE IN ZOOLOGY****UNIT-I: Taxonomy:**

- Principles, rules and basis of Taxonomy and classification.
- Binomial system of nomenclature.
- General survey of animal kingdom, classification up to order and inter-relationship of the various phyla.

**UNIT-II: Diversity of Life-Forms:**

- Structure and functions of the invertebrates (Protozoa to Echinodermata) and their economic importance.
- Levels of structural organizations- Unicellular, colonial and multicellular forms, Coelom, segmentation and metamerism.
  - Locomotory organs and their mechanisms.
  - Food, feeding and digestion.
  - Respiration.
  - Excretory and osmoregulatory organs.
  - Primitive and advanced nervous systems.
  - Reproduction: Asexual, sexual and parthenogenesis.
  - Larval forms.

**UNIT-III: Structural organization of Chordates:**

- Protochordates, Balanoglossus, Herdmania, Branchiostoma.
- Comparative anatomy of integument, skeletal, digestive, respiratory, circulatory, urinogenital & nervous systems of vertebrates.
- Adaptation in vertebrates (fishes, amphibians, reptiles, birds and mammals).
- Economic importance of chordates.

**UNIT-IV: Developmental Biology:**

- Gametogenesis.
- Fertilization.
- Early embryonic developments (Cleavage, Blastulation, Fate maps, Morphogenetic movements, Gastrulation).
- Organisms and Organogenesis.
- Development of Frog and Chick including Metamorphosis.
- Formation of extra embryonic membranes in Chick.
- Function and types of placenta in mammals, gestation and Parturition.
- Cell differentiation and teratogenesis.
- Sex differentiation in humans.

**UNIT-V: Genetics:**

- Mendelian laws of inheritance, recombination, linkage, linkage maps and crossing over, Multiple alleles, gene interaction.
- Mutation – Natural and induced mutations. Chromosome number and forms, structural rearrangements; Polyploidy.
- Cytoplasmic inheritance.
- Human genetics – normal and abnormal, pedigree analysis, karyotypes, genes and diseases, eugenics.
- Sex chromosomes and sex determination.
- Quantitative genetics- polygenic inheritance, heritability and its measurements, QTL mapping.

**UNIT-VI: Evolution:**

- Origin of life, history of evolutionary thoughts.
- Lamarckism and Darwinism: Sources and nature of variations. Natural selection. Hardy-Weinberg law, Causes of speciation.
- Concept of species and sub-species.
- Fossils and their studies, outline of Geological eras, Origin and evolution of man.
- Principles and theories of continental distribution of animals.
- Zoogeographical realms of the world.

**UNIT-VII: Ethology:**

- Approaches and methods in study of behaviour.
- Proximate and ultimate causation, altruism and evolution- Group selection, kin selection, reciprocal altruism.
- Neural basis of learning, memory, cognition, sleep and arousal.
- Biological clocks, Development of behaviour, Social communication; Social dominance; Use of space and territoriality. Aggressive behaviour.
- Parental investment and Reproductive success; Parental care, Mating systems.
- Habitat selection and optimality in foraging; Migration, orientation and navigation; Domestication and behavioural changes.

**UNIT-VIII: Cellular Organization and Molecular Biology**

- Structure and function of cell and cytoplasmic constituents: Structure of nucleus, mitochondria, Golgi bodies, endoplasmic reticulum, lysosomes and ribosomes. Cell cycle and cell division.
- Membrane structure and function: Structure of model membrane, Lipid bilayer and membrane protein, diffusion, osmosis, ion channels, Active transport membrane pumps, mechanism of solving and regulations of intracellular transport, Electrical properties of membrane.
- Structure and types of nucleic acids.
- DNA replication, repair and recombination (Unit of replication, enzymes involved, replication origin and replication fork, fidelity of replication, extra chromosomal replicons, DNA damage and repair mechanisms, homologous and site-specific recombination).
- RNA synthesis and processing (transcription factors and machinery, formation of initiation complex, transcription activator and repressor, RNA polymerases, capping, elongation, and termination, RNA processing, RNA editing, splicing, and polyadenylation, structure and function of different types of RNA, RNA transport).
- Protein synthesis and processing (Ribosome, formation of initiation complex, initiation factors and their regulation, elongation and elongation factors, termination, genetic code, aminoacylation of tRNA, tRNA-identity, aminoacyl tRNA synthetase, and translational proof-reading, translational inhibitors, Post-translational modification of proteins).
- Control of gene expression at transcription and translation level (regulating the expression of phages, viases, prokaryotic and eukaryotic genes, role of chromatin in gene expression and gene silencing).

**UNIT-IX: Cell Cell Communication**

- Cellular communication: Regulation of hematopoiesis, general principles of cell communication, cell adhesion and roles of different adhesion molecules, gap junctions, extracellular matrix, integrins, neurotransmission and its regulation.
- Cell signaling: Hormones and their receptors, cell surface receptor, signaling through G-protein coupled receptors, signal transduction pathways, second messengers; regulation of signaling pathways, bacterial and plant two-component systems, light signaling in plants, bacterial chemotaxis and quorum sensing.
- Cancer: Changes in progenitor cells, oncogenes, tumor suppressor genes, cancer and the cell cycle, virus-induced cancer, metastasis, interaction of cancer cells with normal cells, apoptosis, therapeutic interventions of uncontrolled cell growth.

**UNIT-X: Biological Techniques and Biotechnology**

- Microscopic techniques: Light microscopy, Confocal, Fluorescence, Phase contrast, Electron and Atomic force microscopes and image processing methods in microscopy.
- Histochemical staining of Nucleic acids and Enzymes. Antibody generation, ELISA, RIA, Blotting techniques, Immunocytochemical techniques, FISH, GISH.
- Radio labelling Techniques: Types and properties of Radio isotopes, Tracer techniques, Autoradiography and safety guidelines.
- Electrophoresis, Centrifugation, Chromatography, Colorimetry, Spectrophotometry.
- Isolation and purification of RNA, DNA (genomic and plasmid) and proteins. Different separation methods.
- Analysis of RNA, DNA and proteins by one and two dimensional gel electrophoresis, Isoelectric focusing gels.
- Molecular cloning of DNA & RNA fragments in bacterial and eukaryotic systems.
- Expression of recombinant proteins using bacterial, animal and plant vectors.
- Isolation of specific nucleic acid sequences, Generation of genomic and cDNA libraries.
- Plasmid, phage, cosmid, BAC and YAC vectors.
- In vitro mutagenesis and deletion techniques, gene knock out in bacterial and eukaryotic organisms.
- Protein sequencing methods, detection of post translational modification of proteins, DNA sequencing methods, strategies for genome sequencing.
- Methods for analysis of gene expression at RNA and protein level, large scale expression, such as micro array based techniques.
- Isolation, separation and analysis of carbohydrate and lipid molecules.
- RFLP, RAPD and AFLP techniques.

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p. Statistical applications in Biology – Mean, Median, Mode, Student's 't' test, Chi square test, Standard Deviation, Correlation and Regression, Variance and Analysis of Variance. Computer applications in biology – fundamentals of computers.

#### UNIT- XI: Animal Ecology Biodiversity and Wildlife Studies

- Environment – Biotic and Abiotic Components, Population and its Ecology: Characteristics of population, growth curves, regulation, Life history strategies, concept of meta population, density and dispersal, intrademic, extrademic, age structured population.
- Population, interspecific and intraspecific relationships.
- Community ecology and succession, concept of ecosystem.
- Biogeochemical cycles. Limiting factors. Concepts of habitat and ecological niche.
- Major biomes and their communities and Biogeography.
- Pollution - its control and management, Biodegradation and Bioremediation
- Concepts, principles and types of biodiversity.
- Major Biodiversity areas and hotspot in India.
- Conservation and major wild life sanctuaries in Rajasthan.
- Rare, Endangered species or Threatened species and their conservation strategies.

#### UNIT- XII: Human Physiology

- Chemistry of carbohydrates, proteins, lipids and nucleic acids. Enzymes and hormones. Biological oxidation. Metabolism of carbohydrates, proteins and lipids.
- Cell Physiology- Structure, types and mechanism of muscle contraction. Structure of neuron and transmission of axonic and synaptic nerve impulses.
- Functions of sensory organs concerned with vision, sound perception, taste, smell and touch.
- Physiology of Gastrointestinal tract: Contractility, Secretion of digestive juices, GI hormones, Mechanism of digestion and absorption.
- Physiology of Respiration: Pulmonary ventilation and gaseous exchange.
- Structure and Circulation of Blood: Blood structure and functions, blood groups, clotting of blood, elementary idea of immunology. Structure and functions of the heart, Cardiac Cycle, Heart Beat, and its chemical regulation.
- Physiology of Excretion: Kidney structure, urine formation, counter current mechanism, regulation of electrolyte and water balance of the body.
- Endocrine Physiology: Structure, functions of Pituitary, Thyroid, Parathyroid, Adrenal, Islets of Langerhans and pineal gland.
- Physiology of Reproduction: Structure and hormones of Ovary & Testis. Hormonal control of gametogenesis and menstrual cycle.

### 19. SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF TEACHING ASSOCIATE IN ACCOUNTANCY AND BUSINESS STATISTICS

#### A- Financial Accounting

Introduction, meaning of Book-keeping, Accounting and Accountancy, Distinction between Book-keeping and Accounting, Accounting Process, Objectives of Accounting, Various users of Accounting information, Limitations of Accounting, Accounting Terminologies, Accounting Concepts, Principles and Conventions, Accounting Standards (Indian Accounting Standards), International Financial Reporting Standards (IFRS), Recording of Transactions Secondary Books, Trial Balance and Rectification of Errors, Final Accounts with adjustment entries, Closing entries, Financial Statements: Bank Reconciliation Statement, Bills of Exchange, Partnership Accounts- Admission of a Partner, Retirement of a Partner, Death of a Partner, Proportional Distribution of Cash and Amalgamation of firms, Depreciation Accounting, Price Level Changes Accounting, Hire Purchase and Instalment Payment Methods, Voyage Accounts, Accounting from Incomplete Records, Accounting Methods for Non-Profit making organisations.

#### B - Corporate Accounting

Introduction to Company Accounts, Kinds of Companies, Formation of Companies, Share Capital, Issue of Shares, Under Subscription and Over Subscription, Issue of shares at premium and discount, Buy-back of shares and Treasury stock, Accounting treatment and Ledger Preparation, Issue of Bonus and Right shares, Consolidation and split of shares, Redemption of Preference shares and Issue and Redemption of debentures, Preparation of final accounts with calculation of Managerial Remuneration, Disposal of Company profits and Distribution of Dividend, Accounts of Banking and Insurance Companies, Valuation of Goodwill, Valuation of shares, Amalgamation of Companies, Internal and External Reconstruction of companies (including scheme of Reconstruction) Accounts of Holding and subsidiary companies Liquidation of a Company, Double Account system (Accounting for public utilities companies Problems of merger and acquisition, Accounting for agricultural forms, Government Accounting, corporate social Accounting Accounts of Solicitors, Accounts of Hospitals, Forensic Accounting, Accounting for tour and travel agencies, Basic financial and Accounting System for MFIS.

#### C - Cost Accounting

Concept of Cost and Cost Control, Cost Accounting methods (Job costing, Batch costing, Contract costing or Terminal costing, process costing including inter process profit, Single output or unit costing, Operating costing, Operation costing, Multiple or composite costing, Departmental costing and uniform costing), Non-Integrated and Integrated cost Accounting system, Marginal Costing and Break-Even Analysis, Decisions based on Marginal Costing techniques, Budgetary Control and Preparation of various types of Budgets, Standard Costing and Ascertainment of Material, Labour, Overhead and Sales Variances, Activity Based Costing, Transfer Pricing, Life Cycle Costing, Strategic Cost and Performance Evaluation, Mechanic Accounting and E.D.P., Productivity Accounting and Implication of Computers for Cost Control and Cost reduction, Programmes and Planning, Employee's Participation in cost reduction programmes.

#### D - Management Accounting

Objectives and Scope of Management Accounting, Ratio Analysis, Preparation of Fund Flow Statement and Cash Flow Statement, Capital Structure- Theories and Decisions, Cost of Capital, Working Capital Management, Capital Budgeting and Expenditure Decisions, Dividend Decisions, Balance Score Card, Measurement and Performance - ROI, MVA, EVA and Risk Analysis, Value added Accounting, Human Resource Accounting, Responsibility Accounting, Operating and Financial Leverages, Trading on Equity, Lease Financing, Inventory management.

#### E. Taxation: Direct Tax

Income Tax Law and Rules with reference to assessment of Individuals, HUF, Firm, AOP and Companies, Assessment Procedure and types of Assessment, Advance payment of tax, Tax deduction at source, Refund of tax, Double taxation, Tax Avoidance and Tax Evasion. Introductory part of Tax Planning with special reference to salaried employees and individuals. Minimum Alternate Tax Net.

#### Indirect Tax

Custom duty - Role of custom in International Trade, Important Terms and definitions under the custom Act, 1962, Assessable value, Baggage, Bill of entry, Dutiable goods, Duty Exempted, Foreign going Vessel, Aircraft goods, Import Manifest, Import, prohibited goods, Shipping Bill, Stores, Bill of lading, Export manifest, Letter of credit, Kind of Duties, Prohibition of Export and Import of Goods and Provisions regarding notified and specified goods, Import of Goods- Free Import and Restricted Import, Types of Import- Import of cargo, Import of personal Baggage, Import of stores, Tax Liability and Valuation of goods, computation of custom duty, Appeals and revisions.

#### CGST/SGST

Important terms and definitions under Central Goods and Service Tax Act 2017 and State and Service Tax Act 2017. Basics of GST. Meaning and scope of Supply, Levy and collection of Tax, Time and value of supply of goods and/or Services, Input Tax Credit, Transitional Provisions, Registration under CGST/SGST Act, Filing of Returns and Assessment, Payment of Tax including payment of tax on reverse charge basis, Refund under the Act, Maintenance of Accounts and Records, Composition Scheme, Job work and its Procedure, Various Exemptions Under GST, Demand and recovery under GST, Miscellaneous provisions, RST-Scope of IGST, important terms and definitions for determining the place of supply and place of supply of goods and services, Zero rated supply.

#### F. Auditing:

Meaning, Objectives and Types of Audit, Internal Control, Vouching and Verification of Assets and Liabilities, Assurance and Audit standards, Audit Programme, Working Papers, Documentation, Audit Reports Audit of Companies Appointment, Removal, Rights, Duties and Liabilities of Auditor, Audit of Banks, Insurance Companies, Charitable Trust and Educational Institutions,

Management Audit, Efficiency Audit, Cost Audit, EDP Audit, Environmental Audit, Social Audit, Performance Audit, Tax Audit and Audit of Accounting Information System.

#### G. Business Statistics and Operation Research:

Introduction, Definition and Functions of Statistics, Measures of Central Tendency, Dispersion, Skewness, Moments, Kurtosis, Sheppard's Correction and Conditions for applying it, Index Numbers, Analysis of Time Series, Interpolation and Extrapolation, Vital Statistics, Correlation and Regression Analysis, Multiple Regression, Association of Attributes, Statistical Decision Theory, Sampling, Test of Hypothesis, Sampling and Non-Sampling errors, Sampling distributions and Standard Error, Sampling Methods, Large and Small Sample Analysis, Sampling of Attributes and Variables, Test of Significance: Z-Test, T-Test, F-Test, Theoretical Frequency Distributions, Probability, Analysis of Variance and Design of Experiments, Linear Programming, Network Analysis- PERT and CPM, Game Theory, Replacement Theory, Statistical Quality Control Discriminant Analysis.

### 20. SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF TEACHING ASSOCIATE IN BUSINESS ADMINISTRATION

#### 1: Theory and Practice of Management-

- Nature and Importance of Management, Process of Management, Managerial Roles, Functions of Management, Skills of Effective Manager, Schools of Management Thought.
- Planning, Managerial Decision making, MBO, Departmentalization, Power and Distribution of Authority.
- Leadership styles, Group Behavior and Team Building, Effective Communication System, Designing Control System, MIS.
- Motivation: Concepts, Contemporary Views on Motivation, Management of Change, Conflict Management, Management of Stress, Time Management, Total Quality Management.
- Global Environment of Management, Ethics in Management, Corporate Social Responsibility, Corporate Culture.
- Strategic Management: Role and functions of Strategic Management, Process of Strategic Management, Organizational Mission, Vision and Objectives, strategy and structure.
- Emerging trends in Management.

#### 2: Organization Behavior-

- Organization Behavior: Definition, Scope, Importance, Concepts of organizational behavior, Models of organizational behavior.
- Individual behavior: Perception, Attribution, Personality, Attitude, Learning, Values, Motivation, Job satisfaction.
- Group Dynamics and Team Building: Theories of group formation, formal and informal groups, Importance of team building, Conflict: Definition, Traditional Vs Modern view of Conflict, Types of conflict- Intra personal, Interpersonal, Organizational, Constructive and Destructive Conflict, Conflict Management.
- Stress Management: Definition, causes, types, Management of stress, Interpersonal Relations.
- Personality: Development of personality attributes of personality, Ego state, Transactional Analysis.
- Organization Cultures and climate; Organization effectiveness.

#### 3: Human Resource Management-

- Human Resource Management: Concept, Objectives, Scope and Importance of Human Resource Management, Human Resource Environment in India, Changing Role of HRM, Organization of Human Resource Department.
- Job Analysis and Job Design: Human Resource Planning, Job Analysis, Job Description and Specifications, Job Design Approaches.
- Recruitment and Selection: Factors affecting Recruitment, Sources of Recruitment (Internal and External) Selection Process, Psychological tests for selection, Requirement of a good test for selection, Interviewing, Placement and Induction.
- Human Resource Development: Theories of Learning, Learning interventions, Transfer of learning, Coaching and Mentoring.
- Performance Appraisal: Concept and Objectives, Traditional and Modern Methods, Promotion, Transfer, Separation.
- Compensation Management, Job Evaluation, Base Compensation and Supplementary Compensation, Innovations in Compensation Management.
- Career Planning, Succession Planning.
- Grievances Redressal: Mechanism and Procedure of grievance redressal.
- Trade Unions: Status, Regulations, Union and Management Relations.

#### 4: Legal Aspects of Business-

- The Indian Contract Act, 1872- Essentials of valid contract, Offer and Acceptance, Consideration, Free consent, Void and Voidable agreements, Discharge of contract.
- The Sale of Goods Act, 1930- Sale and Agreement to sell, Conditions and Warranties, Transfer of ownership in goods, Performance of Contract.
- The Companies Act, 2013- Formation of company, Memorandum of Association, Articles of Association, Prospectus, Raising capital, Raising debt- funds, Book building, Management of companies, Board of Directors, Key management personnel; Dividend payment; Accounts and Audit; Winding up.
- Secretarial Practice- Board and Shareholder's meetings, drafting notices, Proposals, Conducting meetings, Recording minutes, corporate reports, Compliance reports.
- The Indian Trade Union Act, 1926.
- The Payment of Wages Act, 1936.
- The Minimum Wages Act, 1948.
- The Factories Act, 1948.
- The Industrial Disputes Act, 1947.
- The Consumer Protection Act, 1986.

#### 5: Marketing Management-

- Marketing Management: Concept, Importance, Scope, Approaches to Marketing, Marketing process, Marketing Environment, Social, Legal and Ethical Issues in Marketing.
- Product Planning: Product Policy, Decisions, Brands and Trade Marks, Packaging, Product Planning in India, Brand Equity.
- Pricing: Factors to be considered in Pricing, Pricing Objectives and Strategy, Break-even Analysis, Price Maintenance, Discount Policy, Special Selling Terms, Credit Terms.
- Channels of Distribution: Types of Channels, Evaluating the Major Channel Alternatives, Channels of Distribution in India.
- Advertising and Sales Promotion: Advertising Programmes, Advertising strategies, Media management, Impact assessment, Sales Promotion Tools and Techniques, Sales Forecasting, Direct Marketing, Event Management, Integrated Marketing Communication, Customer Relationship Management.
- Market Segmentation, Market Analysis, Market Research.
- Trends in Marketing: Service Marketing, Green Marketing, Digital Marketing, Rural Marketing, Social Media Marketing.
- Sales Management: Sales Planning and Organization, Salesmanship, Sales Evaluation and Control.
- Consumer Behavior: Buying Process, Buying Decision, Making Process, Perception, Attitude, Consumer involvement, Consumerism.
- Supply Chain Management: Logistic activities, Logistic mix, and Logistic organization.
- Export marketing: Regulation, Facilitation and Documentation.
- International Marketing: Nature, Importance, Scope, Domestic and international marketing, International marketing environment.

#### 6: Corporate Governance and Business Environment-

- Social and Cultural environment of business- Company and Stakeholders, Ownership and Control, Shareholder activism, Diversity, Foreign Institutional Investors.

- Corporate Governance, Board of Directors- Composition, Independence, Board Committees- Role and functions.
- Social Responsibility of Business- CSR Strategies, CSR Activities.
- Business and Corporate Ethics- Code of ethics, Ethical dilemmas, Crony Capitalism, Whistle Blower Policy, Insider trading.
- Legal Environment of Business, Changing Dimensions of Legal Environment, Intellectual Property Rights.
- Environment Protection, Government Policy on Environment, Water (Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution) Act, 1981, Environment (Protection and Control of Pollution) Act, 1988.
- Globalization: Its implications, Competition Act, 2002.
- Spirituality and Management: Concept of spirituality, Indian Ethos and Values, Application of Yoga in Management, Meditation and Management of Stress.
- Concept of Entrepreneurship, Characteristics, Role of Entrepreneurship in Economic Development, Competence and Qualities of Entrepreneur Small Business Management: Characteristics.
- Ecommerce: Characteristics, Process, Key drivers of Ecommerce, Elements, Standards, Technologies, Ecommerce Models, Mobile Commerce.

## 21. SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF TEACHING ASSOCIATE IN ECONOMIC ADMINISTRATION & FINANCIAL MANAGEMENT (E.A.F.M.)

### Unit – I – Theory of Economics & Growth:

- Concept, Nature and Scope of Micro and Macro Economics.
- Consumer Behaviour, Demand Analysis, Indifference Curve Analysis.
- Pricing under Various Market Conditions.
- Production Function and Theories of Production.
- Theory of Distribution - Theory of Rent, Wage, Profit and Interest.
- National Income- Concept, Methods, Components, Importance and Limitations.
- Consumption and Investment Function.
- Concept of Economic Growth and Development, Concept of Knowledge Economy (K-Economy).

### Unit – II – Indian Economy:

- Problems of Indian Economy- Poverty, Population and Unemployment.
- Industrial and Agricultural Development, Industrial Policy.
- Privatisation and Globalisation.
- Public Private Partnership in Infrastructure Management.
- NITI Aayog.
- Rural Development in India.
- Cooperative Movement in India.
- Demonetisation and its Impact on Indian Economy.

### Unit – III – Public Finance:

- Nature, Concept, Features and Importance of Public Finance.
- Cannons of Taxation.
- Direct and Indirect Taxes, Goods and Services Tax (GST).
- Impact and Incidence of Tax, Tax Evasion and Tax Avoidance.
- Theory of Maximum Social Advantage.
- Public Revenue, Public Expenditure, Public Debt and Deficit Financing.
- Union (Central) Budget: its Components and Major Challenges.
- Business Cycles: Concepts, Causes and Phases.

### Unit – IV – Monetary Economics:

- Concept, Scope, Importance and Components of Money.
- Determinants of Demand for Money and Supply of Money.
- Monetary Policy – Concept, Objectives and Limitations.
- Techniques of Monetary Control.
- Monetary Policy in India.
- Inflation and Deflation – Concept, Kinds, Causes, Effects and Remedies.
- Money and Capital Market in India.
- Multiplier and Accelerator.

### Unit – V – Economy of Rajasthan:

- Basic Features of Economy of Rajasthan.
- Economic Problems in Rajasthan.
- Agriculture – Problems, Prospects and Challenges.
- Industries – Problems, Prospects and Challenges.
- Tourism Development in Rajasthan.
- Economic Planning in Rajasthan.
- Special Area Development Programmes in Rajasthan.
- Environment Pollution and the Problems of Sustainable Development.

### Unit – VI – Banking and Financial Institutions:

- Banks: Types, Functions and Importance.
- Reserve Bank of India, NABARD, Rural Banking.
- Banking Sector Reforms in India.
- E-Banking.
- Development Banking: IDBI, IFCI, SFCs, UTI, SIDBI.
- Challenges before Commercial Banks in 21st Century.
- Problems of Banking Sector in India.
- Financial Sector Reforms in India.

### Unit – VII – International Finance and Foreign Exchange:

- Nature and Scope of International Finance.
- Foreign Direct Investment and Foreign Institutional Investors.
- International Capital Markets, GDRs and ADRs.
- Balance of Payment & Balance of Trade.
- W.T.O. and India.
- International Financial Institutions- IMF, IBRD, ADB, EXIM BANK and ECGC.
- Foreign Exchange Rate - Mechanism, Risk and its Management.
- Convertibility of Rupee, Devaluation of Currency.

### Unit – VIII – Security Analysis and Portfolio Management:

- Management of Securities.
- Investment Spectrum.
- Primary and Secondary Market Operations.
- Credit Ratings in India.
- Government Securities Market.
- Theories of Portfolio Management.
- Mutual Funds, Investors' Protection.
- Regulation of Capital Market.

- Securities and Exchange Board of India (SEBI): Objectives, Functions and Role.

### Unit – IX – Financial Management:

- Meaning, Nature and Scope of Financial Management, Concept of Financial Technology (FinTech).
- Capital Budgeting – Concept, Techniques and Importance.
- Cost of Capital.
- Capital Structure, Leverage.
- Ratio Analysis.
- Fund Flow and Cash Flow Analysis.
- Working Capital Management.
- Marginal Cost Analysis, Dividend Policy, Bonus Issue.

### Unit – X – Quantitative Techniques:

- Correlation and Regression for Business Decisions.
- Probability – Basic Concepts, Different Approaches.
- Index Numbers, Time Series Analysis.
- Hypothesis: Definition, Types, Objectives, Steps in Hypothesis Testing.
- Sampling, Probability and Non-Probability Sampling, Sampling Methods.
- Chi-Square Test, Goodness of Fit.
- ANOVA (Analysis of Variance).
- Linear Programming, Queuing Theory, Game Theory, PERT and CPM

## 22. SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF TEACHING ASSOCIATE IN LAW

### UNIT-I: Constitutional Law:

Preamble, Fundamental Rights and Duties, Directive Principles of State Policy, President and his Powers, The Union & the State, Judiciary, Parliamentary Privileges, Legislative Relations between the Union and the States, Services under the Union and States, Emergency Provisions and Amendment of the Constitution.

### UNIT-II: Jurisprudence:

Meaning, Nature, Scope, Sources, Schools and Concepts.

### UNIT-III: Public International Law:

Nature and Sources of International Law, Relation between International Law and Municipal Law, Subjects of International Law, Acquisition and Loss of State Territory, Recognition, Extradition, Asylum, Intervention, Diplomatic Agents, Treaties, United Nations Organization and its Organs.

### UNIT-IV: Human Rights:

Human Rights: Nature, Concept, Origin and Development, Classification, Protection of Human Rights under the Indian Constitution and Other Laws, Enforcement of Human Rights, The Protection of Human Rights Act, 1993.

### UNIT-V: Environmental Law:

The Environment (Protection) Act, 1986, The Air (Prevention & Control of Pollution) Act, 1981, The Water (Prevention & Control of Pollution) Act, 1974, The Wild Life Protection Act, 1972.

### UNIT-VI: Law of Torts

Torts: Nature, General Exceptions, Vicarious Liability, State Liability, Strict Liability, Negligence, Nuisance, Defamation, Malicious Prosecution and False Imprisonment.

### UNIT-VII: Law of Crimes

Crimes: Mens Rea, Actus Reus, Preparation and Attempts, Abetment, General Explanations, General Exceptions, Joint and Constructive Liability, Offences against Public Tranquility, Offences against Human Body, Offences against Women, Offences against Property, Offences under The Information Technology Act, 2000.

### UNIT-VIII: Law of Contract, Transfer of Property and Intellectual Property Rights

- **Contract:** General Principles of Law of Contract (Sections 1 to 75 of Indian Contract Act, 1872).
- **Transfer of Property:** General Principles of Transfer of Property (Sections 1 to 53 A of The Transfer of Property Act, 1882), Sale, Mortgage, Lease, Exchange and Gifts.
- **Intellectual Property Rights:** Meaning and Scope of Intellectual Property Rights, International and Regional Influence, TRIPS and Intellectual Property Rights in India.

### UNIT-IX: Family Law

- **Hindu Law:** Relating to Marriage, Divorce, Adoption, Maintenance, Guardianship, Hindu Joint Family, Coparcenary and Succession.
- **Muslim Law:** Relating to Marriage, Dower, Divorce, Hiba, Pre-emption, Will and Wakf.

### UNIT-X: Research Methodology

Research Methods, Formulation of Research Problem, Hypothesis, Data Collection and Report Writing.

## 23. SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF TEACHING ASSOCIATE IN HORTICULTURE

### 1. Fruit Production-

Importance, scope and constraints of horticulture with especial reference to Rajasthan, Climate change and fruit production, biodiversity and conservation of fruits, export-oriented fruit production and cropping system of fruit production. Overview of commercial varieties of regional, national and international importance, soil & climate, recent trends in propagation, rootstock influence, planting systems, root zone and canopy management, High Density and Meadow orcharding, Training & pruning, nutrient and water management, fertigation, role/physio-regulators, abiotic factors limiting, physiological disorders- caused and their remedies, plant protection measures, maturity indices, harvesting, grading, packing, storage and ripening techniques of-

A. Mango, banana, papaya, sapota, jackfruit, aonla, pomegranate, phalsa, ber, date/palm and other minor fruits viz. lasoda, mulberry, fig, tamarind and karonda.

B. Apple, plum, litchi, strawberry, grapes, guava, citrus, custard apple and other minor fruits viz. baer, jamun, keer, Pile and khejri.

### 2. Propagation and Nursery Management-

Importance and scope of plant propagation and nursery management. Sexual propagation, cellular basis for propagation, apomixis, polyembryony, chimeras, principal factors influencing seed germination of horticultural crops, dormancy, hormonal regulation of germination and plant growth, seed quality, treatment, packing, storage, certification. Asexual propagation- rooting of cuttings, physiological, anatomical and bio chemical aspects of root induction in cuttings, layering-its principles and methods. Budding and grafting-selection of elite mother plants, methods, establishment of bud wood bank, stock and inter stock relationship. Role of PGAs in propagation, rejuvenation of old orchards through topworking, progeny orchard and scion bank. Micro propagation-principles and concepts. Techniques-in vitro clonal propagation, direct organogenesis, embryogenesis, micro grafting, meristem culture, shoot tip grafting/micro grafting. Nursery-types, structures, components, planning and layout. Nursery management and practices for healthy propagate production and recent trends in propagation.

### 3. Breeding and Physiology of Fruit Crops-

History, development and importance of fruit breeding. Genetics of diversity, distributions and domestication of fruit species. Problems in fruit breeding Polyploidy, heterozygosity, polyembryony, parthenocarpy and seedlessness etc. Incompatibility and sterility system, Apomixis, Variability,

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genoplasm and its selection. Breeding strategies - clonal selection, bud mutation and chimeras, mutagenesis and its application. Hybridization, resistance breeding for biotic and abiotic stresses. Role of genetic engineering and biotechnology in important fruits. Parameters of growth and development, morphogenesis, effect of light, temperature, photosynthesis & photoperiodism, vernalization. Physiology of flowering, pollination, fruit set and development.

**4 Post-Harvest Technology for Horticultural Crops**

Importance and scope of PHT & preservation. Maturity indices, harvesting, minimal processing, practices for specific market requirements; Influence of post-harvest processes, enzymatic and non-enzymatic changes, respiration, transpiration of fruits & vegetables, physiology and biochemistry of fruit ripening factors leading to post harvest losses, pre-cooling, methods of storage-ventilated, refrigerated, MA & CA storage, physical injuries and disorders, packaging methods and transportation, principles and methods of preservation/food processing, canning, fruit juice beverages, pickles, jam, jellies, sauces and ketchup, candies, preserves, dried and dehydrated products. Nutritionally rich products, fermented fruits and beverages and processing of waste management. Recent trends in food preservation and value addition, food additives, ripening of fruits and vegetables. Food safety standards and food laws.

**5 Vegetable Production**

Importance and scope of Vegetables. Classification of vegetables. Types of vegetable gardening, hydroponic, roof top vegetable gardening and protected cultivation of vegetable crops (In-Each horticulture). Introduction of organic vegetable farming. Brief about underutilized vegetable crops. General constraints in vegetable production, climatic and soil requirements, commercial varieties/hybrids, sowing/planting time and methods, seed rate and seed treatment, Plant Growth regulators, nutritional and irrigation requirements, inter cultural operations, weed control, mulching, physiological disorders, harvesting, post-harvest management, post-harvest measures and economics of crop production. A. Tomato: botanical, bot and sweet peppers, potato, okra, vegetable cowpea, vegetable cluster bean, cucurbitaceous crops, colocasia, sweet potato and green leafy vegetables. B. Cabbage, cauliflower, knol-khol, sprouting broccoli, exotic vegetables, carrot, radish, onion, garlic and peas.

**6 Floriculture and Ornamental Gardening**

Importance and scope of floriculture in India. Varietal wealth and diversity, propagation, nursery management, pre-tray nursery under shade nets, transplanting techniques, soil and climatic requirements, precision farming techniques, water and nutrient management, weed management, training and pruning, pinching and disbudding, special horticultural practices, use of growth regulators, physiological disorders, AEM and IPM and IDM, bio-fencing and year round flowering, harvesting techniques, post harvest handling and grading, packing and storage, value addition, concrete and essential oil extraction of outcrossed roses, chrysanthemum, gerbera, gladiolus, tuberosa, carnation, dahlias, zinnia, marigold, gallardia, usara, lilies, aster and cut flowers. Landscape gardening, styles of gardening, different features of garden, arboretum, shrubbery, lawn, palmarium, arches and pergolas, edges and hedges, climbers and creepers, cacti and succulents, herbs, annuals and flower borders and beds, ground covers, carpet beds, establishment and maintenance of lawn. Bio-aesthetic planning. Eco-tourism and its relationship with landscaping, theme parks, indoor garden, well-being, landscaping, water-scaping and non-plant components.

**7 Breeding and Seed Production of Vegetable Crops**

Origin, botany, taxonomy, cytogenetics, breeding objectives, breeding methods (introduction, selection, hybridization, mutation), varieties and varietal characterization, resistance breeding for biotic and abiotic stress, quality improvement, biotechnology and their use in breeding in Solanaceous, cucurbitaceous, cool crop, legume, bulb and root crops etc. Scope of vegetable seed industry in India. Use of growth regulators and chemicals in vegetable seed production, methods of hybrid seed production, categorization of seed, seed certification, seed standards, physiological maturity, seed harvesting and extracting, curing, drying, grading, seed processing, seed coating & pelleting, packaging and storage of seeds.

**8 Spice, Plantation, Medicinal and Aromatic Crops**

National and international importance of spice, medicinal and aromatic crops. Climatic and soil requirement, commercial varieties, hybrids, sowing, planting time and methods, seed rate and seed treatment, nutritional and irrigation requirements, inter-cultural operations, weed control, mulching, physiological disorders, harvesting and post harvest management, plant protection measures, organic resource management, organic certification, quality control and customer care.

**Spices:** Clove, black pepper, cardamom, cinnamon, turmeric, ginger, coriander, fenugreek, cumin, fennel, ajwain, feni, celery, vanilla.

**Medicinal crops:** aloe, yohimbine, ashwagandha, guggul, sena, safed musli and opium poppy.

**Aromatic crops:** lemon grass, vetiver, basil, citronella, mint etc. Salient production techniques of coconut, cashew nut, tea, coffee, areca nut and rubber.

**24. SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF TEACHING ASSOCIATE IN AGRICULTURAL ENGINEERING**

**Unit 1: Soil and Water Conservation Engineering**

Hydrological cycle and measurement of its components: Precipitation-analysis of precipitation data; runoff estimation; Hydrograph analysis; Unit hydrograph infiltration - indices and equations; drought and it's classification. Mechanics of soil erosion - wind and water erosion; soil assessment; factors affecting erosion; Soil loss measurement techniques; biological and engineering measures to control erosion; terraces and bunds; vegetative waterways; gully control structures; drop, drop inlet and chute spillways; earthen dams. Water harvesting and its techniques. Universal Soil Loss Equation. Watershed Management, watershed characterization and land use capability classification; water budgeting in watershed, rainwater harvesting, check dams and farm ponds; Darcy's Law, steady and unsteady flow in confined and unconfined aquifers.

**Unit 2: Irrigation and Drainage Engineering**

Water requirement of crops; consumptive use and evapotranspiration; measurement of infiltration, soil moisture & water requirement. Design of irrigation channels and underground pipelines; irrigation scheduling; surface, sprinkler and micro irrigation methods; designed evaluation of irrigation methods; irrigation efficiencies. Measurement of irrigation water. Classification of pumps; pump characteristics; pump selection and installation. Planning, design and layout of surface and sub-surface drainage systems; Drainage coefficient; leaching requirement.

**Unit 3: Agricultural Structures and Process Engineering**

Site selection, design and construction of farm steps - farm house, cattle shed, dairy barn, poultry house, goat housing, machinery and implement sheds, storage structure for food grains, feed and forage, construction of silos. Green house technology: Introduction of green and net house. Types of Green Houses: Planning and design of greenhouses. Design criteria: green house for cooling and heating purposes. Green house equipment, materials of construction for traditional and low cost green houses. Importance of engineering properties such as physical, thermal, rheological and aero & hydrodynamic properties of cereals, pulses and oilseed, their application in PHT equipment design and operation. Basic concepts of cleaning & grading, drying and dehydration: drying theory, various drying method, commercial grain dryer (deep bed dryer, flat bed dryer, tray dryer, fluidized bed dryer, circular/dryer and solar dryer), Material handling equipment; conveyor and elevators; their principle, working and selection.

**Unit 4: Dairy Processing Engineering**

Dairy development in India, Engineering, thermal and chemical properties of milk and milk products. Process flow charts for product manufacture. Unit operation of various dairy and food processing systems. Cleaning of dairy utensils, Principles and equipment related to receiving of milk, concentration, sterilization, homogenization, centrifugation and cream separation. Preparation methods and equipment for manufacture of cheese, paneer, shrikhand, butter and ice cream. Filling and packaging of milk and milk products. Spray and roller drying. Dairy plant design and layout, Plant utilities.

**Unit 5: Farm Power**

Sources of farm power; Status of farm mechanization in India. Thermodynamic principles of I.C. engines: I.C. engine cycles. Engine components, diesel vs petrol ignition engines, two stroke & four stroke engines, various systems of diesel and petrol engines- fuel supply, cooling, lubrication, ignition, power transmission. Clutch & Brake: Calculation of power, Torque heat load & power losses. Power tiller, farm tractors and types, design, mechanical and power steering, tractor chassis mechanics, hitching systems and hydraulic control, for tractors, automatic position control, draft control system used in tractors, types of dynamometers, tractor testing.

**Unit 6: Farm Machinery**

Animal and power operated equipments - design, construction, operation & maintenance of tillage, seeding, land development, weeding, cultivation of seed drills, zero till- drills, inter-cultivation, planters - cum plowers, potato planters, sugarcane planters, rice trans planters, vegetable trans planters, Plant protection equipment - manual and power operated sprayers and dusters, calibration of sprayer, harvesting equipment - reaper, mower, combine harvester, potato harvester; threshers- different types, installation, operation and safety considerations, calculation of field capacity, field efficiency and cost analysis of implements.

**Unit 7: Renewable Energy**

Classification of energy sources, contribution of these sources in agricultural sector, biomass, agro-waste plants - design, construction, operation and maintenance; gasifier, biogas, bio alcohol, biodiesel and bio oil production and their utilization, bio-waste, bio-waste, introduction of solar energy, collection and their application, solar energy pumps: solar cooler, solar water heater, application of solar energy, solar drying, solar panel, solar distillation, solar photo voltaic system and their applications. Solar radiation and its measurements. Introduction of wind energy and their applications. Construction and working of wind mill, applications of wind energy in irrigation.

**Unit 8: Surveying and Levelling**

Measurement of distance and area, Instruments for surveying and levelling; chain surveying, Compass Survey, method of traversing; measurement of angles and bearings; plane table surveying; Levelling: theodolite, levelling; contouring; total station; introduction to GPS survey.

**Unit 9: Computer Application in Agriculture engineering**

Application of microprocessors in data acquisition and control of agricultural engineering processes: Computer introduction, input / output devices, central processing unit, memory devices, operating systems, processors, keyboards and printers. Use of ICT in agricultural engineering. Done operated analytical tool.

**25. SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF TEACHING ASSOCIATE IN AGRICULTURAL ECONOMICS**

**Unit 1: Economic Theory**

Basic concepts of micro and macroeconomics; economic theory, nature and tools of economic analysis; theory of consumer behaviour; production theory, costs theory; theory of firm; price determination under different market forms; price discrimination, effects of taxation and subsidies under different market conditions; monopoly, duopoly, Cournot model, oligopoly; welfare economics; market failure; nature of macroeconomic analysis; national income; consumption; saving and investment; employment, theory of business cycle, functions and demand for money; inflation; income and interest determination; IS-LM functions; general equilibrium analysis; monetary and fiscal policies; economic reforms.

**Unit 2: Agricultural Development and Policy**

Role of agriculture in economic development; economic growth and development; present development challenges; theories of development; role of economic, technological, social, political and environmental factors. Green GDP, nature, sources and impact of technological change; theories of agricultural development; growth models - Harrod-Domar, New- Classical, Rostow's growth stages, five-year plans and agriculture; land reforms; institutions and development; agricultural growth analysis; determinants of agricultural growth and their measurements; factors of planning in capitalism, socialist and mixed economies; role of infrastructure and technological change; agricultural policy analysis and reforms - input and output price policy, credit policy etc. policies and programmes for development of agro-industry, dairy and fisheries; policy options for sustainable agriculture development, measurement of poverty and poverty alleviation programmes.

**Unit 3: Natural Resource and Environmental Economics**

Characteristics and classification of natural resources, sustainability issues in natural resources, sources and types of pollution - air, water, solid waste, land degradation environmental and economic impacts; property rights, externalities, transaction costs, remedial collective action, role of economics in natural resources accounting, planning, management and policy formulation; social welfare function; allocation of renewable and non-renewable resources (forests, fisheries, minerals, water, land etc.) under various market structure; valuation of non-market resources; government programmes for conservation and development of natural resources; environmental regulations.

**Unit 4: Production Economics**

Concepts of production economics; basic principles of farm management; marginal returns, opportunity cost, input-output, output-output and input-input relationships; time comparison and comparative advantage, cost principles, farm efficiency measures and financial analysis; farm planning and budgeting; farm records; management of risk and uncertainty in agriculture; diversification and insurance in agriculture and allied sectors; yield gap analysis, farms, characteristics and applications of production functions - linear, quadratic, square root, spillover, Cobb-Douglas and Constant Elasticity of Substitution (CES), Variable Elasticity Of Substitution (VES) etc.; cost and profit functions; derivation of supply and factor demand functions from production and profit functions; optimization of resource allocation, resource-use efficiency and returns to scale; frontier production function; total factor productivity; decision making under risk and uncertainties.

**Unit 5: Agricultural Finance**

Importance of agricultural finance; objectives, functions and principles of agricultural finance; sources of capital acquisition; rural credit structure- demand, supply, credit gap; classification of agricultural credit - sources and forms; cost of credit/ capital; credit appraisal- 3R's, 3C's and 7P's of credit, evaluation of credit requirement; reforms in agricultural credit policy. Financial system - NABARD, commercial banks, cooperative- cooperative movement in India- organization, structure and development of different types of cooperatives in India, RRBs, Micro-Finance Institutions (MFIs), NGOs, and SHs; innovations in agricultural financing microfinance, Kisan credit cards, e-banking.

**Unit 6: Project Management**

Definition and characteristics of projects, need for project approach for agricultural development; SWOT analysis and project identification, project life cycle, project feasibility technical, financial and economic feasibility; social cost-benefit analysis; project identification, project scheduling and resource allocation, financial and economic appraisal/measures, choice of discount rate, Net Present Value (NPV), Internal Rate of Return (IRR), Benefit-Cost Ratio (BCR); network analysis - PERT & CPM; fundamental of accounting and book-keeping; analysis of financial statements- balance sheet, income statement, cash flow statement, etc.

**Unit 7: Agricultural Marketing and Price Analysis**

Concepts of agricultural marketing; marketing functions- buying and selling, processing, transportation, financing, grading, market information, storage and warehousing; channels of marketing agricultural produce-price spread and efficiency, structure, conduct and performance analysis; market integration marketing institutions- role and functions; government interventions in building administered price policy; regulated markets, farmer producer companies, market segmentation, supply chain and value chain analysis in agricultural commodities, buffer stock operations, price stabilization measures and policies etc. use of information technology and market intelligence; price forecasting, marketing of agricultural inputs, role of private sector in input and output marketing; forward trading and futures markets; e-NAM and marketing under e-NAM, commodity boards and contract farming, marketed surplus models; competitive and comparative advantage in trade, trade policies, models and agreements; regulations and reforms for marketing and trade, WTO, SPI measures and competitiveness; ecological concerns and marketing ethics.

**Unit 8: Operations Research and Research Methods**

Importance and scope of research in agricultural economics, objective, types and process of research; role and uses of quantitative technique in business decision making; sampling techniques and sample size determination; sampling and non-sampling errors; index numbers; hypothesis testing; types and testing: Data analysis, ANOVA, factor analysis, measures of central tendency, skewness and kurtosis; correlation and regression, discriminant and dummy variable analysis, DLS, MLE estimation- assumptions and their relations, properties; simultaneous equation system- identification and estimation; Linear programming objective, assumptions, formulation of linear programming problem; simple method- primal and dual method; role of business decision making nodes.

**Unit 9: Econometrics**

Nature and scope of econometrics: relationship between economic theory, mathematical economics, models and econometrics, methodology of econometrics; regression analysis, two variable regression- assumptions, estimation and interpretation; assumptions and estimation of OLS and their properties - extensions to multi-variable models; multiple regression, estimation and interpretation; violation of assumptions- Identification, consequences and remedies for multi-collinearity, heteroscedasticity, autocorrelation; data problems and remedial approaches; model mis-specification; use of dummy variables; types and estimation of simultaneous equation models; identification problem.

**26. SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF TEACHING ASSOCIATE IN AGRICULTURAL EXTENSION AND COMMUNICATION**

**Unit 1: Fundamentals of Extension Education and Communication**

Extension Education - concept, principles and approaches; extension education, adult education and continuing/distance education; Community Development, MGNREGA and Visit Brand-GAM G Act; Role of agricultural extension in different sectors of agriculture and rural development, National Agricultural Extension System and Reforms; Public extension systems: ATMA and KVIC, National Mission on Agricultural Extension and Technology; Private extension system. Position in extension: Research-Extension-Farmer Interface- Farming System Research; Agricultural Knowledge and Information System (AKIS); Farmers Field School, Technology Assessment and Refinement Programmes and schemes for agriculture, animal husbandry, dairy, fisheries, and rural development implemented by Govt. of India; Concept, elements and models of communication; Credibility, flexibility, empathy and feedback in communication; Problems and barriers in communication; Group and mass communication; Interpersonal and intrapersonal communication, social networks in communication; Public speaking, Human behavioural dimensions in extension education- perception, attitude and emotions/Personality and motivation; Understanding of basic rural institutions, culture and norms; Social change process.

**Unit 2: Extension Methods & Agricultural Journalism**

Human behavioural dimensions in extension-behaviour, cognition, construction; Factors influencing human behaviour; Domains of learning- cognitive, affective and psychomotor; Learning theories; Experiential learning; Concepts and elements of teaching and learning processes; Principles and types of learning; Edgar Dale's Cone of experience; Classification and features of different extension methods; Selection, planning and use of Extension methods like - demonstration, exhibition, farm/field, field days, tours, extension literature, etc.; Presentation and presentation of different projects and non-projected media-visual aids. Basics of agricultural journalism; Types of publications-bulletins; Folklore, leaflets, booklets, newsletters, popular and scientific articles; Basics of writing, readability and index; Preparation of radio/ video script; Principles of photography and its use in extension; traditional media for communication.

**Unit 3: Information Communication Technologies**

Concept of ICT and its role in agriculture; ICT tools-print and electronic media, community/ internet radio, e-mail, internet, use of multimedia, use of mobile apps, video and teleconferencing, touch screens, micro-computers, web technologies and information tools; Social media- Features and applications: Weibster, portals, expert system, Decision Support Systems (DSS) and apps related to agriculture, aqua, veterinary, fishery, and engineering, etc.; e-learning, e-learning platforms- MOOC, OER, etc.; Digital agriculture-applications of artificial intelligence (AI), IoT, GS, GIS, Blockchain

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Technology; Market intelligence and information systems in agriculture; networking system of information and challenges in the use of ICT; Types of network-PAN, LAN, WAN, human computer interactions-meeting basic principles of multimedia learning.

**Unit 4: Training & Human Resource Development**

Concept of human resource management and its importance in agricultural development; Training Need Assessment-concept, methods and impact assessment; Training types; training process-different phases of training; Models of training; Designing training curriculum; Training strategies-academic strategy, laboratory strategy, activity strategy, personal development strategy, organizational development strategy; Training methods: Lectures determining selection of methods; Need principles and process of capacity development; Levels of capacity individual, organization, enabling environment; Human resource development- manpower planning, role analysis, role efficacy, induction training, job enrichment, self-learning mechanisms, counseling, mentorship, performance appraisal and feedback; Evaluation of training.

**Unit 5: Research Methodology in Extension Education**

Types of social research. Hypothesis, Variables-concept and types; Research design- MAMMINON Principle; Types of research designs-experimental, quasi-experimental, cross-sectional, longitudinal, case study, comparative; Mixed methods design; Levels of measurement; Reliability and Validity of instruments; Sampling designs- probability and non-probability sampling; Methods of observation- interviews and interviews schedules, semi-structured interviews, sociometry, semantic differential, Q methodology ; Focus group discussion; Participant and non-participant observation; Techniques of scale construction-paired-comparison, equal appearing interval, summated rating; Item analysis; Scalogram analysis; Development of knowledge test; Methods of constructing indexes; Qualitative research; Parametric and non-parametric statistics for data analysis in social research; Tests of significance; Processing of data, coding tabulation; Analysis and interpretation; Report writing. (Ethics in social research).

**Unit-6: Program planning, evaluation and impact assessment**

Program planning and development-concepts, steps and principles; Logic framework approach (LFA) Program Evaluation- concept, objectives, steps, principles and criteria ; Types of Evaluation: Objective oriented, management oriented; Content evaluation, input evaluation, process evaluation, product evaluation, consumer oriented evaluation, expertise oriented evaluation, adversary oriented evaluation, naturalistic and principal oriented evaluation, Goal free evaluation and meta evaluation; Evaluation methods- Logic model, Kirkpatrick's model, Stufflebeam's model; Programme management techniques- SWOT analysis, Bar Charts, Programme Evaluation and Review Technique (PERT), Critical Path Method (CPM), Differences between PERT and Impact assessment vs Impact evaluation; Social impact assessment stages and approaches; Quantitative and qualitative techniques for impact assessment.

**Unit 7: Extension Management and Organizational behaviour**

Concept and principles of administration and management, classical and modern theories; Functions of management-planning, organizing, staffing, directing and leading, controlling, coordinating, reporting and budgeting; Leadership-identification, styles and theories; Decision-making/organization; Organizational efficiency, organizational climate, organizational development, job satisfaction and morale; Time management; Performance appraisal; methods of organization; Management by Objective (MBO) and Total Quality Management (TQM); Project Management Techniques; Organizational Communication; Organizational climate; Characteristics of organizational culture, creating and maintaining organizational culture; Organizational change, individual and group behavior in organizations; Team building process; Problem solving techniques, & negotiation, motivational theories & techniques, Transactional analysis; Managing Stress, conflict and Innovation; Creativity-concept and process, mobilization and empowerment skills; Concept and strategies in mobilization, concentration and empowerment of rural people.

**Unit 8: Entrepreneurial Development**

Entrepreneurship- concepts, traits, classification and characteristics; Entrepreneurial motivation- need for power, Achievement, affiliation and concept; Simulation games and exercises for developing entrepreneurial competencies- risk taking, self-efficacy, creativity, achievement planning, influencing process, problem solving; Entrepreneurship development cycle; Entrepreneurial environment- internal and external factors influencing emergence of entrepreneurship; Barriers to entrepreneurship; Women Entrepreneurship, social entrepreneurship; Programmes and agencies promoting entrepreneurship for youth; Agri-preneurship-appi-clinic, agribusiness centers and agritourism; Micro Finance, start-ups, SHGs, PPO, cooperatives.

**Unit 9: Agricultural Innovation System and extension approaches**

Innovation-concepts and attributes, Innovation generation process, Role of innovation brokers, scaling up knowledge for innovation, Identification, characterization, documentation, validation and upscaling of ITG and grassroots innovations. Diffusion of innovations-concept, elements, models, and theories. Innovation development process (technology generation and promotion), Adoption concept, process, models, adopter categories and their characteristics, Factors influencing adoption, Change agents, Stages of innovation-decision-making, Consequences of innovations, New approaches and domains of extension demand driven extension, market led extension (value chain extension), farmers led extension, group led extension, public-private partnership based extension system, Engagement of voluntary and farmers' organizations in extension, Privatization of extension, Multi-sensitive agriculture, and urban and peri-urban agriculture, Extension and Sustainable Development Goals (SDGs).

**Unit 10: Gender Sensitization and Empowerment**

Concepts of Gender- gender roles, gender equality, gender equity, Gender relations, gender balance, gender bias, gender blindness, gender need-based and strategic, Gender mainstreaming; approaches and methods/Gender empowerment measures; Gender impact assessment; Gender budgeting; Gender specific technologies; Gender dimensions in food and nutritional security; Women's empowerment- principles, framework and dimensions; Strategies and barriers for women empowerment; Empowerment through SHS, financial inclusion, micro-finance, internet and education; Public-private partnership for the economic empowerment of women; Digital women rights, constitutional provisions; Global and national policies and mission for empowerment of women; Government programmes and schemes for women.

**27. SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF TEACHING ASSOCIATE IN AGRONOMY**

**Unit 1: Crop Ecology and Agrometeorology**

Principles of crop ecology; Ecosystem concept and determinants of productivity of ecosystems; Physiological limits of crop yield and variability in relation to ecological optima; Crop adaptation; Climate shift and its ecological implication; Agro-ecology and agro-climatic regions of India and Rajasthan; Geographical distribution of cereals, legumes, oilseeds, vegetables, fodders and forages, commercial crops, seed species, medicinal and aromatic plants; Adverse climatic factors and crop production; Photosynthesis, respiration, net assimilation, solar energy conversion efficiency and relative water content, light intensity, water and CO<sub>2</sub> in relation to photosynthetic rates and efficiency; Physiological stress crops; Remote sensing; Spectral indices and their application in agriculture; Atmospheric weather variables; Atmospheric pressure, Wind, types of wind, daily and seasonal variations/ wind speed, cyclones, anticyclones, land breeze and sea breeze; solar radiation, short wave, long wave and thermal radiation, net radiation, albedo; Atmospheric temperature, Air-moisture, Humidity, process of condensation, Precipitation, process and types of precipitation ; Artificial rain; Monsoon-impacts in Indian agriculture; Weather hazards - Agriculture and weather relations; Weather forecasting-types and theories; Climate/Change, global warming; Greenhouse effect.

**Unit 2: Weed Management**

Scope and principles of weed management; Weeds classification, biology, ecology and allelopathy; Crop weed competition, weed threshold; Herbicides classification, formulations, mode of action, selectivity and resistance; Persistence of herbicides in soils and plants; Fate of herbicides, advantages, herbicidal resistance, Application methods and equipment; Biological weed control; Bio-herbicides: Integrated weed management; Special weeds, parasitic and aquatic weeds and their management in cropped and non-cropped lands; weed control schedules in field crops, vegetables and plantation crops; Role of GM crops in weed management.

**Unit 3: Soil Fertility and Nutrient Management**

Soil fertility and productivity - factors affecting, history of soil fertility and fertilizer use; Concept of essentiality of plant nutrients, their critical concentrations in plants, nutrient interactions, diagnostic techniques with special emphasis on emerging deficiencies of secondary and micro-nutrients; Fertilizer materials including liquid fertilizers, their composition, mineralization, availability and reaction products in soils; Water solubility of phosphate fertilizers; Slow release fertilizers, nitrification inhibitors and their use for crop production; Principles and methods of fertilizer application; Integrated nutrient management and bio-fertilizers; Agronomic and physiological efficiency and recovery of applied plant nutrients; Criteria for determining fertilizer schedules for cropping systems; Rest, residual and cumulative effects; Fertilizer related environmental problems including ground water pollution; Site-specific nutrient management.

**Unit 4: Dryland Farming and Watershed Management**

Concept of dry land farming, dryland farming vs irrigated farming; history, development, significance and constraints of dryland agriculture in India; Climate classification and delineation of dry land tracts; Characterization of agro-climatic environments of drylands; Rainfall analysis and length of growing season; Typical drought, drought symptoms, effect on plant growth, drought resistance, drought avoidance, drought management, Mulches, water-savings; Crop Planning including contingency, crop diversification, varieties, cropping systems, conservation cropping and risk-assess corrections for adverse weather conditions; Techniques of moisture conservation in-situ to reduce evapotranspiration, runoff and to increase infiltration; Rain water harvesting and recycling concept, techniques and sources; Timeliness and precision key factors for timely sowing, precision in seeding, weed control; Fertilizer placement, top dressing and foliar application, aqua-fertilizer; Concept and importance of watershed management in dryland areas.

**Unit 5: Sustainable Land Use Systems**

Concept of sustainability, Sustainability parameters and indicators; Conservation agriculture, Alternate land use systems, Types, extent and causes of wastelands, Shifting cultivation; Agro forestry systems; Agricultural and agro-industrial residues and its recycling, safe disposal, Allelopathy/allelochemicals production; Farming System scope, importance and concept; Types and systems of farming system and factors affecting types of farming; Farming system components and their maintenance; Cropping system and patterns, multiple cropping system, crop diversification, Integrated farming system-historical background, objectives and characteristics, components of IS and its advantages.

**Unit 6: Agricultural Statistics**

Frequency distribution, standard error and deviation, correlation and regression analyses, co-efficient of variation; Tests of significance; F and chi-square; Data transformation; Designed experiments and their basic principles, completely randomized block, split plot, strip-plot, factorial and simple confounding designs; Efficiency of designs; Methods of statistical analysis for cropping systems including intercropping; Pooled analysis.

**Unit 7: Crop Production**

Crop production techniques for cereals, millets, legumes, oilseeds, fiber crops, sugarcane, tobacco, fodder and pasture crops including origin, history, distribution, adaptation, climate, soil, season, modern varieties, fertilizer requirements, intercropping approaches, water requirement, weed management, quality components, industrial use, economics and post-harvest technology.

**Unit 8: Soil Water Relationship**

Soil and water as vital resources for agricultural production; Occurrence of groundwater, groundwater aquifers, exploitation of groundwater; Hydrological cycle; Soil-plant water relationship; Fate of rain water received at the soil surface, run off and infiltration; factors affecting infiltration; means to enhance infiltration; cultural, mechanical and biological means to reduce runoff and soil loss; Cropping patterns, alternate land use and crop diversification in eroded areas; Soil water relations, water retention by soil, soil moisture characteristics, field capacity, permanent wilting point, plant available water and extractable water; Soil irrigability, classifications, factors affecting soil water storage; Determination of soil water content, constitution of soil water depletion, soil water- potential and its components; Movement of soil water under saturated and unsaturated water flow; Fieldwater budget, water gains and water losses from soil, deep percolation beyond root zone, capillary rise, Evapotranspiration (ET), scope for conserving water, measures for reducing direct evaporation from soil and crop canopies; Soil physical properties in relation to plant growth and development; Feasibility of soils and their prevention.

**Unit 9: Plant Water Relationship**

Plant water relations; Concept of plant water potential, cell water relations, plant water potential and its components; Significance of osmotic adjustment, leaf diffusion resistance, canopy temperature; Water movement through soil - plant-atmosphere systems; uptake and transport of water by roots; Development of crop water deficit, crop adaptation to water deficit, morpho-physiological effect of water deficit; Drought tolerance, mechanisms of drought tolerance, potential drought tolerance traits and their measurement, management and strategies to improve crop productivity under different patterns of drought situations of limited water supplies; Effect of excess water on plant growth and production; Types of droughts, drought indices.

**Unit 10: Irrigation Water Management**

History of irrigation in India; Major irrigation projects in India; Water resource development; Crop water requirements; Concepts of irrigation scheduling, different approaches of irrigation scheduling; Soil water depletion, plant indices and climatic parameters; Concept of critical stages of crop growth in relation to water supplies; Crop modeling, crop coefficients, water production functions; Methods of irrigation viz. surface methods, overhead methods, drip irrigation and air conditioning irrigation, merits and demerits of various methods, design and evaluation of irrigation methods; Measurement of irrigation water, application and distribution efficiencies; Management of water resources (rain, canal and ground water) for agricultural production; Irrigation legislation; Water quality, judicious use of water, irrigation strategies under different situations of water availability, optimum crop plans and cropping patterns in canal command areas; Socio-economic aspects of on-farm water management; Irrigation water distribution, irrigation efficiencies; Interaction between irrigation and fertilizers.

**Unit 11: Management of Problematic Soils and Water**

Problem soils and their distribution in India and Rajasthan; Salt-affected, acidic, water logged soils; Ground water resources, water quality criteria and use of brackish waters in agriculture; Reclamation of problem soils, role of amendments and drainage; Crop production techniques in problem soils, crops, varieties, cropping system and agronomic practices; Excess salt and salt tolerant crops; Drainage for improving water logged soils for crop production; quality of irrigation water, Crop production and alternate use of problematic soils and poor quality water for agricultural production; Amelioration of salt affected soils.

**Unit 12: Organic Farming**

Natural farming, Zero budget natural farming- concept, components, principle, Organic farming - concept, definition, relevance and future prospects; principles, organics and farming standards; selection and conversion of land, soil and water management - land use; Organic farming and water use efficiency, soil fertility, nutrient recycling, organic residues, organic manures, composting, soil beds and decomposition of organic residues, earthworms and vermicompost, green manures, bio-fertilizers and Farming systems; Control of weeds, diseases and insect pest management, biological agents and pheromones, bio-pesticides, inspection, certification, labeling and accreditation procedures, organic farming and national economy.

**Unit 13: Modern Concepts in Crop Production**

Crop growth and development, growth curves, Quantitative agro-biological principles and inverse yield nitrogen law; Mitscherlich equation, Basic unit, physiology of grain yield in cereals; plant population and planting geometry in relation to different resources, ideal plant type; Scientific principles of crop production; soil plant relations; yield and environmental stress, use of growth hormones and regulators for better adaptation in stressed condition; modern concept of tillage; approaching the nutrient needs for yield potentiality of crop plants; precision agriculture, use of GIS, GPS and remote sensing in modern agriculture.

**28. SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF TEACHING ASSOCIATE IN ANIMAL SCIENCE**

**Unit 1 : General**

Present status and future prospects of livestock and poultry development in India and special focus on Rajasthan. Effect of industrialization and mechanization of agriculture in livestock sector.

Breed study on the aspect of phenotype appearance, lactation length, milk production and adaptation of following breeds -

Cattle- Gir, Sahiwal, Haryana, Murrah, Tharparkar, Nagori and other common breeds. Buffalo- Murrah, Isirowadi, Bhatawali, Surti and Mehsana.

Sheep- Malpura, Chakla, Magra, Bilaneri and Pugal.

Goat- Beetal, Jamunspati, Black Bengal, Pathania Kashmiri, Camels-Bikaneri, Jasrahneri, Kutubi, Mevani and Jaktari.

Poultry- W-11, Rhode Island Red, Sussex, Cornish Windotter, Mevnaria, Australorp, Asotic breed Asi, Kadaknath, Oratpou, exotic and other famous breeds like Holstein Friesian, Jersey, Red Shinki, exotic sheep breed, Rambouillet, Merino etc. Various management programmes conducted by ICAR in India and Rajasthan. Domestication and behavior of animals; Mating behavior of animals and poultry, Social order in farm animals; Adaptation of different breeds of livestock and poultry cloning in animal and advances in Embryo Transfer Technology (ET) in cattle.

**Unit 2: Feeding Management**

Nutrients and their functions. Nutritional requirements and feeding management of different categories of livestock and poultry. Feed additives including antibiotic and probiotic feeding in farm animals and poultry. Formulation and compounding of rations for various categories of livestock and poultry. Least cost ration formulation. Systems of feeding livestock and poultry. Feeding standards for livestock and poultry. Feed conversion efficiency of various categories of livestock and poultry. Processing and storage of conventional and non-conventional feed ingredients. Agri-industrial by-products in animal and poultry feeds. Feeding of various categories of animals on TDN/CP & Energy based.

**Unit 3 : Reproduction Management-**

Reproductive systems of farm animals and poultry. Climate and nutrition affecting reproductive performance in farm animals, importance of early pregnancy diagnosis. Methods of heat detection. Artificial insemination. Oestrus prediction and synchronization. Causes of disturbed fertility and its prevention in farm animals. Factors affecting reproductive efficiency. Summer and winter management problems and their solutions.

**Unit 4: Shelter Management-**

Housing systems, selection of site and lay out of animal and poultry houses. Space requirement for livestock and poultry. Housing designs in different agro-climatic regions. Macro and micro-climate changes affecting designs of animal and poultry houses. Construction of cheap animal and poultry housing utilizing local resources. Automation in livestock farming. Disposal of animal wastes under urban and rural conditions. Disposal of carcasses. Open and close housing TST and FST system with merits and demerits.

**Unit 5: Health Management-**

General approach to livestock health programmes. Prevention of diseases. Hygiene and sanitation on animal and poultry farms. Symptoms of (health), important infectious diseases of livestock and poultry and their control. Vaccination schedules in animals and poultry. Internal and external parasites and their control. Accidental health disorders and their control. Common disinfectants used on animal farms. Concept of first aid at farms. Segregation and quarantine management for large animals and birds. Quarantine Act, Zoonotic Diseases, labour health programme.

**Unit 6: Animal Husbandry and Management of farm animals-**

Role of livestock in Indian economy with special reference to Rajasthan. Animal Husbandry in India - present and future, Cattle, Buffalo, sheep, goat, camel production trends and factors affecting them. Identification, castration, dehorning, ageing, handling and restraining of farm animals, milk and its composition, clean milk production, hormonal regulation of lactation. Care of the cow and calf during and after parturition. Management strategies for reducing mortality in farm animals. Management to improve productive and reproductive efficiency in livestock.

**Unit 7: Production and Management of Poultry-**

Brooding of chicks. Management of growing, laying and breeding flocks. Shelter management, Biosecurity and environmental considerations. Cage layer management and well being of poultry. Light management in poultry sheds. Hatchery business management. Duck, turkeys, Chick rearing.

Maintenance of poultry farm records. Health and sanitation problems. Prevention and disease control. Poultry shows. Handling care of table eggs and processing of birds for meat. Moulting in Poultry and effect of lighting on Production.

**Unit 8: Animal Nutrition and Conservation-**

Composition and classification feed stuffs, roughages. Nutritive value of feeds and feeders, conservation and preservation of feeds and feeders, annual and perennial fodder crops, pasture development and management. The digestive organs, digestive process of Ruminants. Desirable characteristics of ration, composition of ration for cattle and buffaloes, balanced ration. Strategies for round the year fodder production.

**Unit 9: Breeding Management-**

Basic principles of inheritance. Concept of heritability, repeatability and selection. Important methods of selection and systems of breeding in farm animals and poultry. Importance of maintaining breeding records and their scientific interpretation.

**Unit 10: Economics and Marketing of Livestock and Poultry and their products**

Economic principles as applied to livestock and poultry production. Production functions. Farm size, resources and product combinations. Cost concepts. Effect criteria in use of resources in livestock production. Maintenance of evaluation of different production records. Insurance and financing of livestock enterprises. Project formulation for setting up livestock and poultry farms. Different approaches to marketing of livestock and poultry products. Present status of cattle fairs and methods of selling livestock in India and Rajasthan. Market news and information. Determination of prices of livestock and poultry products. Vertical integration in livestock products industries. Basic principles of inheritance. Concept of heritability, repeatability and selection. Important methods of selection and systems of breeding in farm animals and poultry. Importance of maintaining breeding records and their scientific interpretation.

**29. SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF TEACHING ASSOCIATE IN ENTOMOLOGY**

**Unit 1: Systematics-**

History and development of Entomology, evolution of insects, position of insects in the animal world, insect dominance. Characteristics of phylum Arthropoda, structural features of important arthropod groups such as Tribolita, Chelicerata and Mandibulata, structural features of important classes of phylum Arthropod viz. Anasimida, Crustacea, Chilopoda, Diplopoda and Hexapoda. Classification of insects upto order level, habits, habitats and distinguishing features of different order and important families of economic importance.

**Unit 2: Morphology-**

Walls, its structure. Head and head appendages, types of mouth parts, antennae, their structure and types. Thorax structure, thoracic appendages; legs and their modification. Wing, their modification and venation. Abdomen, structure, abdominal appendages. External genitalia. General structure and modification.

**Unit 3: Embryology, Internal Anatomy and Physiology-**

Embryonic and post embryonic development, physiology of ectopys, growth and metamorphosis, general features and types of larva and pupae. Structure, function and physiology of digestive, circulatory, respiratory, reproductive, nervous and excretory systems. Sense organs; structure and types. Insect food and nutrition, minerals, carbohydrates, proteins and amino acids, lipids, vitamins and their role in growth and development, intra and extra cellular macromolecules and their role in digestion, artificial diets.

**Unit 4: Ecology-**

Concept of ecology. Environment and its components- biotic and abiotic factors and their effects on growth, development, population dynamics, distribution migration and dispersal. Principles of biogeography and insects biodiversity. Biotic potential, carrying capacity and environmental resistance. Ecotones, agroecosystems analysis, their characteristics and functioning. Intra and inter specific relationships; competition, predator-prey and host-parasite interactions, ecological niche and habitat. Life table studies, population models. Trophic level, food chain and food web. Food pyramids. Arthropod population monitoring, surveillance and pest forecasting. Disjunct and causes of pest out breaks, pest risk analysis.

**Unit 5: Arthropod Vector or Plant Diseases-**

Common arthropod vectors viz. aphids, leaf hoppers, plant hoppers, whiteflies, thrips, psyllids, beetles, weevils, flies, bees and mites and their relationship with the plant pathogenic fungi, bacteria, viruses, mycoplasma. Mechanism of pathogen transmission: Active mechanical transmission, biological transmission. Toxicogenic insects, microbial phytotoxins. Some important arthropod vector transmitted diseases and their epidemiology in India. Management of vector and its effect on control of diseases.

**Unit 6: Beneficial Insects-**

**Honey Bees-** history bees and their economic importance. Bee species, their behaviour, habit and habitats. Bee keeping; bee pasturage, hives and equipment, seasonal management. Bee enemies including diseases and their management. Bee poisoning.

**Silkworms-** Silkworm species, their systematic position and salient features. Rearing techniques of mulberry-mulberry and tasar silkworms. Nutritional requirements of silkworms. Sericulture: rearing house and appliances, silkworm breeds, principles of selection and reselection, seed production and its economics. Diseases and diseases of silkworms and their management. Sericulture organization in India.

**Lac Insect-** Lac insect, its biology, habit and habitats. Host trees: pruning, inoculation, lac cropping techniques, and harvesting. Enemies of lac insect and their management.

**Other Useful Insects-** Pollinators, biocontrol agents of weeds, soil fertility improving agents, scavengers. Use of insects and insect products in medicines. Usefulness of insects in scientific investigation, insects as food.

**Unit 7: Pest/soil Field Crops-**

Distribution, host range, biology and bionomics, nature of damage and management of arthropod pests (beetles), mites, silver, podagras, fungus, fibre crops, sugarcane and tobacco. Polyphagous pests: borers, termites, hairy caterpillars, cut worms, fall armyworm and white grubs.

**Unit 8: Pests of Horticultural Crops-**

Distribution, host range, biology and bionomics, nature of damage and management of arthropod pests of vegetables, fruits and plantation crops, viruses, nematodes, medicinal plants and ornamentals.

**Unit 9: Pests of Stored Products-**

Fundamentals of storage of grains and grain products. Storage losses, sources of infestation/infestation, factors influencing losses. Microflora in storage environment and their control. Storage structures, bulk storage and bag storage, their relative efficacy and merits. Grain drying methods and aeration. Non-insect pests (rodents, birds, mites) of stored products and their control. Stored grain pests and integrated approach for their management.

**Unit 10: Biological Control-**

Importance and scope of biological control, history of biological control. Important biocontrol agents-Parasites, predators and insect pathogens. Important entomophilous insect orders and families. Ecological, biological, taxonomic, legal and economic aspects of biological control, phenomena of parasitism, its types and their applied importance.

Principles and procedures of using exotic biocontrol agents. Utilization of natural biocontrol agents: conservation, habitat management and augmentation. Mass multiplication techniques of important bioagents. Effective evaluation techniques. Biocontrol organizations in world and India. Successful cases of biological control of pests. Entomophilic pathogens: bacterial, fungal, viruses, protozoan and nematodes; modes of transmission, methods of uses, symptoms of infection. Microbial insecticides and their formulation. Merits and demerits of microbial control. Role of biocontrol agents and microbial insecticides in integrated Pest Management.

**Unit 11: Chemical Control and Toxicology-**

History, scope and principles of chemical control. Insecticides and their classification. Formulations of insecticides, physical, chemical and toxicological properties of different groups of insecticides: chlorinated hydrocarbons, organophosphates, carbamates, synthetic pyrethroids, diurethrinem, chitin synthesis inhibitors, avermectins, nitroquinoline, phenylpyrazoles, benzoxazinol (natural pyrethroids), rotenone, neem products, neonicotinoids, pangama etc. Conformation insecticides. Problems of pesticide hazards and environmental pollution. Pesticide risk analysis. Safe use of pesticides, precautions and first-aid treatments. Insecticides Act 1961, registration and quality control of insecticides. Evaluation of toxicity, methods of bioassaying, determination of LD 50, LT 50, RL 50 etc. Pesticides residues in the environment and their dynamics of movement, methods of residue. Pharmacology of insect pesticides. Mode of action of different groups of insecticides: neurotoxic (central and synaptic junctions, respiratory poisons, chitin synthesis inhibitors. Metabolism of insecticides; absorptive and degradative metabolism; detoxification enzymes and their role in metabolism. Selectivity of insecticidal action; insecticide resistance: mechanism, genetics and management of insecticide resistance.

**Unit 12: Host Plant Resistance-**

Chemical ecology: mediators and chemoreceptors. Host plant selection by phytophagous insects. Secondary plant substances and their defenses against phytophagous insect. Book of resistance (Antibiosis, Antibiosis, Tolerance). Biotypes development and its remedial measures. Trophic interactions, induced resistance. Breeding for insect resistant plant varieties. Resistance development and evaluation techniques. Genetics of resistance: vertical resistance, horizontal resistance, oligogenic resistance, polygenic resistance. Role of biotechnology in development of transgenic insect resistant plants, its advantages and limitations. Case histories. Insect resistance to transgenic plants and its management.

**Unit 13: Innovative Approaches in Pest Management-**

Behavioral control: pheromones: types and uses, advantages and limitations. Hormonal control: types and functions of insect hormones, insect hormone mimics, advantages and limitations. Chemosterilants, antifeedants, attractants, repellents their types, method of applications, advantages and limitations. Genetic control: concepts and methods, advantages and limitations. Phototaxis in IPM.

**Unit 14: Integrated Pest Management-**

History, concept and principles of IPM. Components of IPM. Cultural, mechanical and physical methods, chemical methods, biocontrol agents utilization, genetic and behavioral control strategy etc. IPM strategies for field and horticultural crops. IPM case histories. Concept of damage levels- Economic Threshold Levels (ETL), Economic Injury Levels (EIL) and their determination. System approach, Agro ecosystem and cropping systems vs. IPM. Constraints and Strategies of IPM implementation.

**Unit 15: Pesticide Application Equipments-**

Types of applicators: sprayers, dusters, fog generators, smoke generators, soil injecting guns, seed treating drums and flame throwers, etc. Power operated sprayers and dusters. Types of nozzles and their uses. Maintenance of appliances. Aerial application of pesticides, principles of aerial application, factors affecting the effectiveness of aerial application. Equipments for aerial applications. Advantages and disadvantages of aerial application.

**30. SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF TEACHING ASSOCIATE IN GENETICS AND PLANT BREEDING**

**Unit 1: Basic Genetics and Plant Breeding**

Cell structure and division. Mendel's laws, modifications of Medellan ratios. Gene concept, allelism and fine structure of gene. Extra chromosomal inheritance. DNA structure, function, replication and repair. Genetic code: Gene-enzyme relationship. Replication, Transcription and Translation. Gene regulation in prokaryotes and eukaryotes. Spontaneous and induced mutations and their molecular mechanisms. Multiple alleles, sex determination, sex linkage, sex-influenced and sex limited traits. Crop domestication, evolution of crops and centres of diversity. Gametogenesis and fertilization. Modes of reproduction; apomixis, self incompatibility and male sterility systems and their use in plant breeding.

Breeding methods for self-pollinated, cross-pollinated and clonally propagated crops. Mutagenesis and mutation breeding. Population improvement, hybrid breeding, heterosis and genetic basis of heterosis.

Origin, distribution, classification, botanical description and floral biology of cereals (wheat, rice, maize, sorghum, pearl millet, minor millets), pulses (pigeonpea, chickpea), block gram, green gram, cowpea, soyabean, pea, lentil), horse gram, lab-lab, rice bean, winged bean, lathyrus, Lima bean, oilseeds (groundnut, sesamum, castor, rapeseed/mustard, sunflower, Niger, linseed), fibers and sugar crops, fodder and green manures.

**Unit 2: Genome organization and Cytogenetics of Crop Plants**

Chromosome structure, functions and applications. Linkage and crossing over- Karyotype analysis, banding techniques and in situ hybridization. Special types of chromosomes. Chromosomal aberrations and their utility. Wide hybridization and chromosomal manipulations for alien gene transfer. Pre-and post-fertilization barriers in wide hybridization. Genome organization and cytogenetics of important crop species- wheat, maize, rice, brassica, cotton, bajra, sorghum, vigna, potato and sugarcane. Cytogenetic techniques for gene location and gene transfer.

**Unit 3: Quantitative Genetics**

Quantitative characters, Additive-G dominance Model. Genetic advance and types of selection and correlated response. Hardy Weinberg law, Linkage disequilibrium, Genetic load, Polymorphism, Breeding value, heritability. Response to selection, correlated response, genetic divergence analysis. Estimates of variance components and covariance among relatives. Multiple factor inheritance. Genetic control of polygenic characters. Mating designs with random and inbred parents. Estimation of gene effects and combining ability. Effects of linkage and epistasis on estimation of genetic parameters. Maternal effects. Mating designs- classification, diallel, partial diallel, line x tester, North Carolina designs and triple test cross analysis, approaches to estimate and exploit component of self and cross-pollinated crops. Genotype x environment interaction and stability analysis.

**Unit 4: Biotechnology and Bio-informatics in Plant Breeding**

Somatic hybridization, micropropagation, somaclonal variation, in vitro mutagenesis. Artificial synthesis of gene. Genetic and molecular markers, generations of molecular markers and their application in genetic analysis and breeding. Molecular markers in genetic diversity analysis and breeding for complex characters. Multiple factor inheritance. Genetic control of polygenic characters. Tissue culture and it's application in crop improvement. Gene tagging, QTL mapping and marker aided selection. Genome projects and utilization of sequence formation. Yectors, DNA libraries, DNA fingerprinting, DNA sequencing. Nucleic acid hybridization and immunochemical detection. Chromosome walking. Recombinant DNA technology. Gene cloning strategies. Genetic transformation and transgenic. Antisense RNA, RNAi and micro-RNA techniques in crop improvement. Bio-informatics tools, biological data bases (primary and secondary) and their implications in crop improvement.

**Unit 5: Plant Breeding for Stress Resistance, Nutritional Quality and Climate Change**

Genetic basis and breeding for resistance to diseases and insect pests. Breeding for vertical and horizontal resistance to diseases. Genetic and physiological basis of abiotic stress tolerance. Breeding for resistance to heat, frost, flood, drought and soil stresses. Important quality parameters in various crops, their genetic basis and breeding forth strategies. Role of molecular markers in stress resistance breeding. MAS, MARS and MABS.

**Unit 6: Plant Genetic Resources, IPR, Seed Science and Technology**

Plant exploration, germplasm introduction, exchange, conservation, evaluation and utilization of plant genetic resources. Convention on Biological Diversity and International Treaty on Plant Genetic Resources for Food and Agriculture. Intellectual Property Rights (IPR), Biodiversity Act. Plant Variety Protection and Farmers' Rights Act. Varietal development, release, notification and maintenance breeding. Seed, it's types and seed chain. Seed production, processing, storage, certification and marketing. Seed quality control.

**Unit 7: Statistical Methods and Field Plot Techniques**

Frequency distribution, Measures of central tendency, probability the ory and its application in genetics. Probability distribution and tests of significance. Correlation, linear, partial and multiple regression. Genetic divergence. Multivariate analysis. Design of experiments- basic principles, completely randomized design, randomized block design and split plot design. Complete and incomplete block designs. Augmented design, Grid and honeycomb design, Hill plots, an replicated evaluation. Data collection and interpretation.

**31. SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF TEACHING ASSOCIATE IN PLANT PATHOLOGY**

**Unit-1: Fundamentals of Plant Pathology –**

History of Plant Pathology, importance of plant diseases, factors affecting plant diseases, classification of plant diseases, causes of plant diseases, general characters of fungi, bacteria, fastidious vesicular bacteria, phytoplasmas, Spiro plasmas, viruses, viroids, algae, protozoa, rickettsia, phanerozoic zoarites and nematodes. Disease triangle and tetrahedron, pathogenesis, symptoms & signs of plant diseases.

**Unit-2: Diseases of Field and Horticultural Crops and their Management–**

Symptoms, etiology, disease cycle and management of major diseases of rice, maize, bajra, groundnut, soybean, pigeonpea, finger millet, green gram, castor, wheat, gram, mustard, sugarcane, sunflower, cucurbits, onion, garlic, chilies, turmeric, coriander, cabbage, cauliflower, brinjal, tomato, okra, beans, ginger, asoka, bet, guava, banana, papaya, pomegranate, mango, rose, tea and coffee. Types of phanerozoic parasites, important plant diseases caused by stem and root parasites of phanerozoic, Environmental factors and nutritional deficiency, primary and secondary air pollutants, methods of management.

**Unit-3: Mycology–**

Introduction, terminology and history of mycology, general characters of fungi, types of fungal thall, reproduction in fungi (Sexual and asexual), classification of fungi, comparative morphology and characters of different groups of fungi upto generic level, lichens and its importance.

**Unit-4: Plant Bacteriology–**

Introduction, terminology and history of plant bacteriology, cell structure of bacterial cell, chemical composition of prokaryotes viz. MLOs/phytoplasmas, spiroplasmas and other fastidious prokaryotes. Importance of phytopathogenic bacteria, classification and nomenclature of phytopathogenic prokaryotes, important plant diseases caused by bacteria and MLOs, reproduction of bacteria, general biology of bacteriophage, L-form bacteria, plasmids and bacteriokine.

**Unit-5: Plant Virology–**

History of plant viruses, composition and structure of viruses, symptomatology of important plant viral diseases, chemical and physical properties of viruses, virus-vector relationship, classification, replication and movement of viruses, isolation and purification of viruses, myoviruses, tobac and baculoviruses, satellite viruses, viroids and prions.

**Unit-6: Laboratory and Analytical Techniques–**

Preparation and sterilization of media, methods of isolation, methods of purification and preservation in pure culture, methods of inoculation, molecular detection of pathogenic seeds and other planting material. ELISA, ISEM and PCR. Laboratory equipments and their uses: Autoclave, hot air oven, Laminar air flow, spectrophotometer, light microscope, lighted electron microscopy.

**Unit-7: Principles of Plant Pathology –**

Plant disease complex, Survival and dispersal of plant pathogens, Role of environment and host nutrition on disease development, Host-parasite interaction, infection process, Disease development: role of enzymes, toxins, growth regulators, Defense mechanisms. Effect of plant pathogens on host metabolism. Genetics of resistance, 'R' genes, Variation and variability of plant pathogens.

**Unit-8: Principles of Integrated Disease Management (IDM)–**

Introduction, history, importance, concepts and principles of Integrated Disease Management (IDM), Methods of control: host plant resistance, cultural, mechanical, physical, legislative, biological and chemical control methods, constraints and strategies of IDM implementation.

**Unit-9: Epidemiology and Forecasting of Plant Diseases–**

Basic concepts of plant disease epidemiology, factors affecting epidemic development (Influence of pathogen, host and environment on disease development), crop loss assessment, disease forecasting, Epidemic analysis and prediction models, Survey and surveillance (including through remote sensing), disease severity and disease intensity.

**Unit-10: Physiological and Molecular Plant Pathology–**

Molecular mechanisms of pathogenesis, mechanism of resistance, PR proteins, Phytoalexins, Antimicrobial proteins, SAR, HR and active oxygen radicals, Tissue culture, Elementary genetic engineering, Management of pathogens through satellite, Antisense RNA, Ribozymes, coat protein, hypovirulence cross protection/auxin genes and promoter technology, bioassay and bioassays.

**Unit-11: Post-Harvest Plant Pathology –**

Concept of post-harvest diseases, principles of plant disease management as preharvest and post-harvest. Types of post-harvest diseases, Factors governing postharvest diseases, Role of bio-control agents and chemicals in controlling post-harvest diseases, Role of different storage structures, control of aflatoxigenic and mycotoxigenic fungi.

**Unit-12: Mushroom Production Technology-**  
History and importance of mushroom, edible and poisonous mushroom, cultivation technology of Pleurotus, Agaricus and Volvariella species. Maintenance of pure culture of mushroom fungi. Equipment's required for establishment of Mushroom unit, Nutritive value and uses of mushroom, economic aspects of mushroom cultivation and diseases of cultivate mushroom.

**32. SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF TEACHING ASSOCIATE IN SOIL SCIENCE & AGRICULTURAL CHEMISTRY**

**Unit1: Soil Genesis and Classification-**

Concept of soil, soil and soil science. Composition of earth crust and its relationship with rocks, rocks, minerals and other soil forming materials; Weathering of rocks and minerals; Factors of soil formation; Pedogenic processes and their relationship with soil properties; Soil development; Soil horizons and their nomenclature, subsurface horizons and other diagnostic characteristics, soil moisture and temperature regimes; Assessment of soil profile development by morphological, mineralogical and chemical analysis. Concept of Soil individual, Soil classification systems- historical development and modern systems of soil classification with special emphasis on soil taxonomy; application of soil taxonomy.

**Unit 2: Soil Physics-**

Soil physical constraints affecting crop production. Soil texture-textural classes, soil structure-classification, soil aggregation and significance, soil consistency, soil wetting, bulk density and particle density of soils and porosity, their significance and manipulation. Soil water- retention and potentials. Soil moisture content, Movement of soil water- infiltration, percolation, permeability, drainage and methods of determination of soil moisture. Thermal properties of soils, soil temperature, Soil air- composition, gaseous exchange, influence of soil temperature and air on plant growth. Soil erosion by water and wind, their types, effects, mechanics, runoff- methods of measurement, factors and management, runoff farming. Soil conservation measures.

**Unit 3: Soil Fertility-**

Essential elements in plant nutrition; Soil fertility & soil productivity. Nutrient cycles in soil; Transformation and transport of nutrients (Macro and micro nutrients) in soil. Manures and Fertilizers: Fate and reactions of fertilizers in soil; Chemistry of different fertilizers; Slow release fertilizers and nitrification inhibitors; Quality control of fertilizers. Soil fertility evaluation - soil testing, plant and tissue tests and biological methods. Common soil test methods for fertilizer recommendation. Soil test-crop response correlations; Integrated nutrient management. Use of isotopic tracers in soil research; Fertility status of major soil groups of the world. A concept of soil health and soil quality; causes of deterioration of soil health; chemical, physical and biological symptoms of soil health indicators. Methods to improve soil health for sustainable agriculture production. Organic residue management.

**Unit 4: Soil Microbiology-**

Soil biota, soil microbial ecology, types of organisms. Soil microbial biomass, microbial interactions, unstable soil biota. Microbiology and biochemistry at soil-soil interface. Phyllosphere. Soil enzymes, origin, activities and importance. Soil characteristics influencing growth and activity of microflora. Microbial transformation of N, P, K, S, Fe and Zn in soil.

Biochemical composition and biodegradation of soil organic matter and crop residues. Humus formation. Cycles of important organic nutrients. Biodegradation of pesticides, organic wastes and their use for production of biogas and manures. Bio-fertilizers - definition, classification, specifications, method of production and role in crop production.

**Unit 5: Soil Pollution-**

Pollutants types, causes, methods of measurement, standards and management. Heavy metal toxicity and soil pollution; Chemical and bio-remediation of contaminated soils. Soil factors in emission of greenhouse gases. Carbon sequestration in mitigating greenhouse effects; Radio active contamination of soil.

**Unit 6: Statistics-**

Experimental designs for soil culture and field experiments; Statistical measures of central tendency and dispersion; Correlation and regression; Tests of significance - t and F tests; Computer use in soil research.

**Unit 7: Soil Chemistry-**

Chemical composition of soil, Soil colloids- structure, composition, constitution of clay minerals, amorphous clays and other non-crystalline silicate minerals, oxide and hydroxide minerals; Charge development on clay and organic matter; pH-charge relations; Buffer capacity of soils. Chemical equilibria, electrochemistry and chemical kinetics. Inorganic and organic colloids- surface charge characteristics, diffuse double layer theories, zeta potential stability, coagulation/ flocculation, adsorption, electrostatic and van der Waals forces of soil colloids; Soil organic matter- fractionation, diagenesis, interactions. Cation exchange theories, adsorption isotherms, Drexler membrane equilibrium concept, clay-membrane electrostatic and ionic activity requirement, thermodynamics, water and liquid exchange- inner sphere and outer sphere complex formation, fixation of cations, sorption-desorption characteristics and zeolites. Nitrogen, potassium, phosphorus and ammonium fixation in soils and management aspects.

**Unit 8: Management of Problem of Soil and Water-**

Area and distribution of problem soils- acidic, saline and sodic soils; origin of problematic soils, and factors responsible. Morphological features of saline, sodic and saline-sodic soil, characterization of salt-affected soils- soluble salts, ESP, pH; physical, chemical and microbiological properties. Management of

salt-affected soils, salt tolerance of crops - mechanism and rating; monitoring of soil salinity in the field; management principles for sandy, clayey, red and lateritic dryland soils. Acid soils-natural/soil acidity, sources and acidity; effect on plant growth, lime requirement of acid soils; management of acid soils; biological salinity of soils and its management. Quality of irrigation water; management of brackish water for irrigation; characterization of brackish waters; relationship in water use/land quality. Agronomic practices in relation to problematic soils; cropping pattern for utilizing poor quality ground waters. Chemistry of slaked lime.

**Unit 9: Methods of Soil Analysis-**

Particle size distribution, bulk and particle density, moisture constants. Modern methods of soil, plant and water analysis. Flame photometry and inductively coupled plasma optical emission spectroscopy; Spectrophotometry - visible, ultra-violet and infrared; Atomic absorption spectrophotometry; Potentiometry and conductometry; X-ray diffractometry; Mass spectrometry.

**Unit 10: Remote Sensing and Landuse Planning.**

Remote sensing and its application in agriculture. GIS and GPS-based features and uses in agriculture. Elementary concepts of remote sensing and uses in agriculture. Applications of Remote Sensing in Soil fertility mapping. Remote Sensing and GIS in Carbon sequestration studies. Concept and techniques of land use planning; factors governing present land use. Land evaluation methods and soil site suitability evaluation for different crops; land capability classification and constraints in application. Agro-ecological regions/sub-region of India and their characteristics in relation to crop production. Status of IUP in India. Water harvesting - concept, significance, types, methodology; use of harvested water in agriculture to increase water productivity. Watershed development/management - concept, objectives, characterization, planning, execution, community participation and evaluation, rehabilitation of watershed.

**Unit 11: Nano-Technology -**

General introduction. Basics of quantum mechanics, harmonic oscillator, magnetic phenomena, band structure in solids, Mossbauer effect and spectroscopy, optical phenomena, bond in solids, as history. Nanotechnology: growth of compound semiconductors, super lattices, self-assembled quantum dots, Nano-particles, Nano tubes and nanowires, fullerenes (Buck balls, graphene). Nanofabrication and Nano-assembly. Optical, X-ray, and electron beam lithography; self-assembled organic layers, process of synthesis of Nano-particles, electrode position, important Nano-materials. Mechanical properties, magnetic properties, electrical properties, electronic conduction with nanostructure; Investigating and manipulating materials in the nanoscale. Electron microscopy. Nano-biology: interaction between biomolecules and Nano-particle surface, different types of inorganic materials used for the synthesis of hybrid Nano-bio-assemblies, application of Nano- in agriculture, current status of Nano-biotechnology, future prospectives of Nano-biology and Nano-sensors.

बोर्ड द्वारा आयोजित की जाने वाली सभी वस्तुनिष्ठ परीक्षाओं में किसी प्रश्न का उत्तर नहीं देने वाले के संकेत में इकाई को शून्य माना जाएगा जो भी होए परात उत्तर देने में कृपया ध्यान दें कि प्रश्न के चारों ओर के विकल्पों में से सही विकल्प को चुनकर उत्तर देना है।

1. प्रश्न को पढ़ लें। विकल्प A, B, C, D, E में से सही विकल्प को चुनकर उत्तर दें। प्रश्न को उत्तर देने के लिए उत्तर देने के लिए उत्तर दें।  
Each question has five options marked as A, B, C, D, E. You have to darken only one circle (bubble) indicating the correct answer on the Answer Sheet using BLUE BALL POINT PEN.

2. प्रश्न को उत्तर देने के लिए उत्तर देने के लिए उत्तर दें। प्रश्न को उत्तर देने के लिए उत्तर दें। प्रश्न को उत्तर देने के लिए उत्तर दें।  
It is mandatory to fill only one of the options for each question.

3. यदि कोई प्रश्न उत्तर देने के लिए उत्तर देने के लिए उत्तर दें। प्रश्न को उत्तर देने के लिए उत्तर दें। प्रश्न को उत्तर देने के लिए उत्तर दें।  
If you are not attempting a question then you have to darken the circle 'E'. If none of the five circles is darkened, one third (1/3) part of the marks of question shall be deducted.

4. प्रश्न को उत्तर देने के लिए उत्तर देने के लिए उत्तर दें। प्रश्न को उत्तर देने के लिए उत्तर दें। प्रश्न को उत्तर देने के लिए उत्तर दें।  
After solving question paper, candidate must ascertain that bubble has darkened one of the circles (bubbles) for each of the question. Extra time of 10 minutes beyond scheduled time, is provided for darkening the circle of option 'E' for all unanswered questions.

5. प्रश्न को उत्तर देने के लिए उत्तर देने के लिए उत्तर दें। प्रश्न को उत्तर देने के लिए उत्तर दें। प्रश्न को उत्तर देने के लिए उत्तर दें।  
A candidate who has not darkened any of the five circles in more than 10% question shall be disqualified.

23. यदि कोई प्रश्न उत्तर देने के लिए उत्तर देने के लिए उत्तर दें। प्रश्न को उत्तर देने के लिए उत्तर दें। प्रश्न को उत्तर देने के लिए उत्तर दें।  
If you are not attempting a question then you have to darken the circle 'E'. If none of the five circles is darkened, one third (1/3) part of the marks of question shall be deducted.

24. प्रश्न को उत्तर देने के लिए उत्तर देने के लिए उत्तर दें। प्रश्न को उत्तर देने के लिए उत्तर दें। प्रश्न को उत्तर देने के लिए उत्तर दें।  
After solving question paper, candidate must ascertain that bubble has darkened one of the circles (bubbles) for each of the question. Extra time of 10 minutes beyond scheduled time, is provided for darkening the circle of option 'E' for all unanswered questions.

25. प्रश्न को उत्तर देने के लिए उत्तर देने के लिए उत्तर दें। प्रश्न को उत्तर देने के लिए उत्तर दें। प्रश्न को उत्तर देने के लिए उत्तर दें।  
A candidate who has not darkened any of the five circles in more than 10% question shall be disqualified.

डॉ. अहं. पी. अर/सी/7672/2026 रा.रो.सं. 14/2026

सचिव

**राजस्थान कर्मचारी चयन बोर्ड, जयपुर**  
राज्य कृषि प्रबंध संस्थान परिसर, दुर्गापुरा, जयपुर-302018 दूरभाष नं. 0141-2722520

क्रमांक: प.14(176)RSSB/अर्थना/प्रा.शि./अध्यापक/मती/2025/ दिनांक :- 7.05.2026

**प्राथमिक विद्यालय अध्यापक (सामान्य/संस्कृत शिक्षा) (लेवल-प्रथम, कक्षा 1 से 5 तक) सीधी भर्ती-2025 संशोधित विज्ञापित**

बोर्ड द्वारा प्राथमिक विद्यालय अध्यापक (सामान्य/संस्कृत शिक्षा) (लेवल-प्रथम, कक्षा 1 से 5 तक) सीधी भर्ती-2025 के अन्तर्गत राजस्थान पंचायती राज नियम-1996, यथा संशोधित राजस्थान संस्कृत शिक्षा राज्य एवं अधीनस्थ सेवा विद्यालय शाखा नियम 2015 एवं यथा संशोधित राजस्थान अनुसूचित क्षेत्र अधीनस्थ, मंत्रालयिक एवं चतुर्थ श्रेणी सेवा (भर्ती एवं सेवा की अन्य शर्तों) नियम-2014 के प्रावधानों के अनुसार प्राथमिक विद्यालय अध्यापक (सामान्य/संस्कृत शिक्षा) (लेवल-प्रथम, कक्षा 1 से 5 तक) के संस्कृत शिक्षा विभाग के कुल 636 (गैर अनुसूचित क्षेत्र 609 एवं अनुसूचित क्षेत्र के 27) तथा प्रारम्भिक शिक्षा विभाग के कुल 5000 (गैर अनुसूचित क्षेत्र 4500 एवं अनुसूचित क्षेत्र के 500) पर सीधी भर्ती हेतु दिनांक 06.11.2025 को विज्ञापन जारी किया गया था। उक्त कम में संस्कृत शिक्षा विभाग (संस्कृत शिक्षा) के गैर अनुसूचित क्षेत्र में अनुसूचित जाति की सामान्य महिला के पूर्व में जारी 16 पदों को 06 (संस्कृत शिक्षा गैर अनुसूचित क्षेत्र कुल 187 पद) प्राप्त जावें तथा प्रारम्भिक शिक्षा विभाग से प्राप्त संशोधित अर्थना के आधार पर पूर्व में विज्ञापित पदों की संख्या में संशोधन करते हुए कुल 5000 पदों के स्थान पर कुल 7000 (गैर अनुसूचित क्षेत्र 6146 एवं अनुसूचित क्षेत्र के 854) पदों का संशोधित नवीनतम वर्गीकरण निम्नानुसार किया जाता है -

विभाग का नाम	पद का नाम	विज्ञापित पद संख्या	
		गैर अनुसूचित क्षेत्र	अनुसूचित क्षेत्र
संस्कृत शिक्षा विभाग	प्राथमिक विद्यालय अध्यापक सीधी भर्ती लेवल-प्रथम (संस्कृत)	187	—
		<b>कुल</b>	<b>187</b>
		गैर अनुसूचित क्षेत्र	422
प्रारम्भिक शिक्षा विभाग	प्राथमिक विद्यालय अध्यापक सीधी भर्ती लेवल-प्रथम (सामान्य)	27	—
		<b>कुल</b>	<b>449</b>
		गैर अनुसूचित क्षेत्र	854
		<b>कुल</b>	<b>7000</b>

**संस्कृत शिक्षा विभाग (संस्कृत) (गैर-अनुसूचित क्षेत्र)**

क्र.सं.	सामान्य				अनुसूचित जाति				अनुसूचित जगजाति				अन्य पिछड़ा वर्ग				अति पिछड़ा वर्ग				आर्थिक रूप से कमजोर वर्ग				भारत विदेशी जो संरक्षण अधिन जाति			
	सामान्य	सामान्य महिला	शिव	एच.एस.डी.	सामान्य	सामान्य महिला	शिव	एच.एस.डी.	सामान्य	सामान्य महिला	शिव	एच.एस.डी.	सामान्य	सामान्य महिला	शिव	एच.एस.डी.	सामान्य	सामान्य महिला	शिव	एच.एस.डी.	सामान्य	सामान्य महिला	शिव	एच.एस.डी.				
107	49	10	00	01	21	06	02	—	10	00	01	—	26	09	03	—	07	02	—	—	13	04	01	—	—	—	—	

**क्षैतिज आरक्षण (HORIZONTAL RESERVATION)**

दिव्यांगजन				भूतपूर्व सैनिक												उत्सृष्ट विदायी
B/LV	HI	LD/CP	LD, M,SLD, AUTISM	GEN	SC	ST	OBC	MBC	EWS							
02	02	02	02	08	03	02	04	01	02	03						

(क्रमशः)



**प्रारम्भिक शिक्षा विभाग (लेवल-प्रथम, सामान्य शिक्षा) की रिक्तियों का जिलेवार एवं वर्गवार वर्गीकृत विवरण - (अनुसूचित क्षेत्र)**

**क- पद सम्बन्धी आरक्षण वर्गवार सूचना**

क्रसं	वर्ग	कुल पदों की संख्या	सामान्य (पुरुष)	महिला			रिक्ति वर्ष
				सामान्य	विधवा	परित्यक्ता	
1	सामान्य वर्ग	428	300	87	33	8	2025
3	अनुसूचित जाति	42	30	10	2	0	
4	अनुसूचित जनजाति	384	268	77	32	7	

**ख- बैकलॉग के पद**

**ग- क्षैतिज आरक्षण**

क्रसं	वर्ग	कुल पदों की संख्या	सामान्य (पुरुष)	महिला			रिक्ति वर्ष	नि:शक्ताजन		राजकीय कर्मचारी			भूतपूर्व सैनिक			उत्कृष्ट विदाही	अन्य		
				सामान्य	विधवा	परित्यक्ता		(अ) दृष्टि बाधित (1%)	(ब) श्रवण बाधित (1%)	(क) संवेदन गार्लो, कुच रोग, बीजापन, एडिड रोग, मानसिकता की दिष्टदृष्टी वहीत समस्त पदान- नि:शक्ताता (1%)	(द) ओरिजन क्षैट्रिक नि शक्ताता, लर्निंग डिफिकल्टी एवं मानसिक रुग्णता (एम डी) (1%)	अराज्यीय कर्मचारी	महालक्षिक कर्मचारी	सामान्य कर्मचारी	UR			SC	ST
1	अनुसूचित जाति	0	0	0	0	0	-	26 (BL 16)	26 (BL 16)	8	24 (BL 16)	-	-	-	286 (BL 238)	25 (BL 20)	253 (BL 207)	17	-
2	अनुसूचित जनजाति	0	0	0	0	0	-												

सं. क्र	जिले का नाम	कुल पद	अनासित वर्ग										SC वर्ग कुल 05 प्रतिशत					ST वर्ग कुल 45 प्रतिशत					नि:शक्ताजन कुल 4 प्रतिशत					नि:शक्ताजन पूर्व भर्ती के अग्रणीत पदों की संख्या							
			सामान्य		महिला (30 प्रतिशत)		योग		महिलाओं हेतु कुल 30 प्रतिशत		विधवा (08 प्रतिशत)		परित्यक्ता (02 प्रतिशत)		भूतपूर्व सैनिक		भूतपूर्व सैनिक (पूर्व भर्ती के अर्धरिक्त)		सामान्य		महिला (30 प्रतिशत)		योग		महिलाओं हेतु कुल 30 प्रतिशत		विधवा (08 प्रतिशत)		परित्यक्ता (02 प्रतिशत)		भूतपूर्व सैनिक		भूतपूर्व सैनिक (पूर्व भर्ती के अर्धरिक्त)		
			(अ)	(ब)	(क)	(द)	(क)	(ख)	(ग)	(घ)	(ङ)	(च)	(छ)	(ज)	(झ)	(झ)	(झ)	(झ)	(झ)	(झ)	(झ)	(झ)	(झ)	(झ)	(झ)	(झ)	(झ)		(झ)	(झ)	(झ)	(झ)	(झ)	(झ)	(झ)
1	BANSWARA	148	52	22	74	15	5	2	9	55	4	3	7	3	0	0	1	4	47	20	67	13	6	1	8	49	2	1	1	1	2	3	3	2	
2	DUNGARPUR	81	28	12	40	8	3	1	5	35	2	2	4	2	0	0	0	4	26	11	37	8	2	1	5	32	1	1	1	1	2	3	3	4	
3	PAU	60	21	9	30	6	3	0	3	4	3	0	3	0	0	0	0	0	19	8	27	6	2	0	4	1	0	1	1	0	0	0	0	0	
4	PRATAPGARH	123	44	18	62	12	5	1	8	46	5	1	6	1	0	0	1	4	38	17	55	11	5	1	7	40	1	2	1	1	2	2	2	2	
5	RAISAMAND	11	3	2	5	1	1	0	0	3	1	0	1	0	0	0	0	0	3	2	5	1	1	0	1	0	0	1	0	0	0	0	0	1	
6	UDAIPUR	204	71	31	102	21	8	2	12	90	7	3	10	2	1	0	2	8	64	28	92	18	8	2	11	81	2	2	2	2	4	7	7	6	
7	SIROHI	113	40	17	57	12	4	1	6	21	4	2	6	1	1	0	1	1	35	15	50	10	4	1	6	17	2	1	1	1	3	1	1	1	
8	SALUMBER	114	41	17	58	12	4	1	7	0	4	1	5	1	0	0	0	0	36	15	51	10	4	1	6	0	2	1	1	1	2	0	0	0	
TOTAL		854	300	128	428	87	33	8	50	254	30	12	42	10	2	0	5	21	268	116	384	77	32	7	48	220	10	10	8	8	17	16	16	16	

विशेष नोट:- पूर्व में जारी विज्ञापित में अन्य नियम व शर्तें यथावत रहेंगी। सचिव

**वार्षिक अभिदाताओं/एजेंट हेतु आवश्यक सूचना**

राजस्थान रोजगार संदेश (पाक्षिक) के वार्षिक अभिदाता बनने हेतु अथवा वर्तमान में चल रहे अभिदाता जिनका वार्षिक शुल्क समाप्त होने जा रहा है वे रु 60/- की राशि का भारतीय पोस्टल आर्डर या डिमान्ड ड्राफ्ट सहायक निदेशक (प्रकाशन) राजस्थान रोजगार संदेश के पक्ष में भेजकर इस पाक्षिक पत्र के वार्षिक सदस्य बन सकते हैं।

-संपादक

**सूचना**

राजस्थान रोजगार संदेश के प्रकाशित लेखों एवं प्रशिक्षण एक परिचय में प्रयुक्त विषय वस्तु लेखकों/संस्थानों की अपनी हैं। सम्पादक इन विषय वस्तु एवं इनसे उत्पन्न होने वाले किसी भी प्रकार के विवाद के लिए किसी भी तरह उत्तरदायी नहीं है।

-संपादक

**राजस्थान रोजगार संदेश**

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सहायक संपादक  
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सम्पादक, रोजगार सेवा निदेशक, राजस्थान सरकार के लिए मुद्रक सहायक निदेशक (प्रकाशन) द्वारा बी.जी. कॉपी लि. 10, नेहरूनगर, जयपुर, फोन - 01416658888 (अक्षर मिटिंग प्रेस, प्रिन्टिंगमुद्रक, टोक गेट, जयपुर) से मुद्रित एवं दरवार झूल पॉस्ट, सोनीगढ़ मार्ग, जयपुर से इलेक्ट्रॉनिक सहायक - डॉ.सतीश शर्मा