

**TELANGANA RESIDENTIAL EDUCATIONAL INSTITUTIONS RECRUITMENT BOARD**  
**(TREI-RB), HYDERABAD.**  
**NOTIFICATION NO.01/2023. Dt:05.04.2023**

**LECTURER/PHYSICAL DIRECTOR/LIBRARIAN IN DEGREE COLLEGES**  
**IN RESIDENTIAL EDUCATIONAL INSTITUTIONS SOCIETIES**  
**(GENERAL RECRUITMENT)**

**PARA - I:**

1. Online Applications are invited from qualified candidates in the proforma application made available on Board's WEBSITE ([www.treirb.telangana.gov.in](http://www.treirb.telangana.gov.in)) for direct recruitment to the post of Lecturer/Physical Director/Librarian in Degree Colleges in Residential Educational Institutions Societies.

- I. Submission of ONLINE applications starts from Dt.17.04.2023.
- II. Last date and time for submission of ONLINE applications is 17.05.2023, upto 5.00 pm.
- III. Examination schedule will be displayed on the Board Website.
- IV. Hall Tickets can be downloaded 07 days before commencement of Examination.
- V. The question Paper-I is common for all subjects and will be in bilingual i.e., English and Telugu. Paper- II will be in English version, except Languages.

2. Paper-I and II are Objective type in OFFLINE OMR mode. The Board reserves the right to change the conduct of the Examinations from OFFLINE OMR mode to ONLINE CBT mode.

**IMPORTANT NOTE:**

Applicants are requested to keep the following documents ready while registering OTR and uploading their Applications.

- i. Aadhar Card.
  - ii. Educational Qualifications i.e., SSC, Intermediate, Degree, Post Graduation etc.,
  - iii. Study (Bonafide) / Residence Certificate (1<sup>st</sup> to 7<sup>th</sup> Class period).
  - iv. Community Certificate (SC/ST/BC), Non-Creamy Layer Certificate in case of BCs issued by the competent authority of Telangana Government.
  - v. Income certificate for the Financial Year prior to the year of application issued by the competent authority of Telangana Government for claiming EWS reservation. (Issued after date: 01.01.2023 for validation).
  - vi. Certificates claiming Sports & Differently Abled reservation and age relaxation for Ex-Servicemen.
  - vii. Applicant must upload his/her own scanned photo and signature through JPG format.
3. The applicants who possess requisite qualification may apply online by satisfying themselves about the terms and conditions of this recruitment.
4. The details of vacancies are given below:-

Sl. No.	Name of the Post	Name of the Society	No. of Vacancies	Age as on 01/07/2023 Min. Max.	Scale of Pay (Rs.)
1	LECTURER IN DEGREE COLLEGE	Telangana Social Welfare Residential Institutions (TSWREIS). Educational Society	153	18-44	58850-137050/-
2		Telangana Tribal Welfare Residential Institutions (TTWREIS). Educational Society	257		

Sl. No.	Name of the Post	Name of the Society	No. of Vacancies	Age as on 01/07/2023 Min. Max.	Scale of Pay (Rs.)		
3		Mahatma Jyothiba Phule Telangana Backward Classes Welfare Residential Educational Institutions Society (MJPTBCWREIS).	383				
4	PHYSICAL DIRECTOR IN DEGREE COLLEGE	Telangana Social Welfare Residential Educational Institutions Society (TSWREIS).	12	18-44	58850- 137050/-		
5		Telangana Tribal Welfare Residential Educational Institutions Society (TTWREIS).	15				
6		Mahatma Jyothiba Phule Telangana Backward Classes Welfare Residential Educational Institutions Society (MJPTBCWREIS).	12				
7	LIBRARIAN IN DEGREE COLLEGE	Telangana Social Welfare Residential Educational Institutions Society (TSWREIS)	09				
8		Telangana Tribal Welfare Residential Educational Institutions Society (TTWREIS).	15				
9		Mahatma Jyothiba Phule Telangana Backward Classes Welfare Residential Educational Institutions Society (MJPTBDWREIS).	12				
<b>TOTAL</b>			<b>868</b>				

(The Details of Vacancies Society wise, Community-wise, Differently Abled-wise, EWS, Sports Category, Multi-Zone and Gender-wise (General/Women) are available at Annexure-I.)

**IMPORTANT NOTE:** - The number of vacancies is subject to variation on intimation being received from the concerned. Addition of vacancies, if any, will be accepted only before the date of examination and an addendum to that effect will be issued. Deletion of vacancies, if any, can be effected upto the declaration of results.

#### 5. EDUCATIONAL QUALIFICATIONS:

Applicants must possess the qualifications from a recognized University/ Institution as detailed below or equivalent thereto as specified in the relevant Bye Laws/ Service Regulations, indented by the Residential Educational Institutions Societies as on the Date of Notification.

Sl. No.	Name of the Post	Educational Qualifications
1	<b>LECTURER (DEGREE COLLEGE)</b> in Telangana Residential Educational Institutions Societies (TSWREIS, TTWREIS & MJPTBCWREIS)	<b>Academic Qualifications</b> i) Good academic record in Post Graduation in the relevant subject (as shown in Table-I) with a minimum of 55% marks of an equivalent Grade of B in the 7 point scale with letter Grades O,A,B,C,D,E and F obtained from the Universities recognized in India. ii) Should have passed National Eligibility Test (NET) conducted by UGC/CSIR or similar Test accredited by the UGC or SLET/SET conducted by the PSC/ Universities of the State.

		<p>iii) The candidate who possesses Ph.D., or equivalent is exempted from passing of National Eligibility Test (NET) conducted by UGC/CSIR or similar Tests accredited by the UGC or SLET/SET conducted by PSC/Universities of the State.</p> <p><b>Note:</b></p> <ol style="list-style-type: none"> <li>1. In case of candidates belonging to SC/ST/Differently abled category, the Minimum % of marks shall be 50% (instead of 55%).</li> <li>2. A relaxation of 5% marks may be provided (from 55% to 50%) to the Ph.D. Degree holder who passed Master Degree prior to 19-09-1991.</li> </ol>
2	<p align="center"><b><u>PHYSICAL DIRECTOR</u></b> <b><u>(DEGREE COLLEGE)</u></b> in Telangana Residential Educational Institutions Societies <b>(TSWREIS, TTWREIS &amp; MJPTBCWREIS)</b></p>	<ol style="list-style-type: none"> <li>I. Good academic record in Master of Physical Education with a minimum of 55% marks of an equivalent grade of B in the 7-point scale with letter grades O, A,B,C,D,E &amp; F obtained from the Universities Recognized in India.</li> <li>II. Should have passed National Eligibility Test (NET) conducted by UGC/CSIR or similar tests accredited by the UGC or SLET/SET conducted by PSC/Universities of the State.</li> <li>III. The candidate who possesses Ph.D., or equivalent is exempted from passing of National Eligibility Test (NET) conducted by UGC/CSIR or similar Tests accredited by the UGC or SLET/SET conducted by PSC/Universities of the State.</li> </ol> <p><b>Note:</b></p> <ol style="list-style-type: none"> <li>1. In case of candidates belonging to SC/ST category, the Minimum % of marks shall be 50% (instead of 55%).</li> <li>2. A relaxation of 5% marks may be provided (from 55% to 50%) to the Ph.D. Degree holder who passed Master Degree prior to 19-09-1991.</li> </ol>
3	<p align="center"><b><u>LIBRARIAN</u></b> <b><u>(DEGREE COLLEGE)</u></b> in Telangana Residential Educational Institutions Societies. <b>(TSWREIS, TTWREIS &amp; MJPTBCWREIS)</b></p>	<ol style="list-style-type: none"> <li>i. Good academic record in Master of Library Science with a minimum of 55% marks of an equivalent grade of B in the 7-point scale with letter grades O,A,B,C,D,E &amp; F obtained from the Universities recognized in India.</li> <li>ii. Should have passed National Eligibility Test (NET) conducted by UGC/CSIR or similar tests accredited by the UGC or SLET/SET conducted by PSC/Universities of the State.</li> <li>iii. The candidate possesses Ph.D., or equivalent is exempted from passing of National Eligibility Test (NET) conducted by UGC/CSIR or similar Tests accredited by the UGC or SLET/SET conducted by PSC/Universities of the State.</li> </ol> <p><b>Note:</b></p> <ol style="list-style-type: none"> <li>1. In case of candidates belonging to SC/ST/Differently abled category, the Minimum % of marks shall be 50% (instead of 55%).</li> <li>2. A relaxation of 5% marks may be provided (from 55% to 50%) to the Ph.D. Degree holder who passed Master Degree prior to 19-09-1991.</li> </ol>

Table-ISUBJECTS FOR THE POST OF LECTURER IN DEGREE COLLEGESubjects in PG / Graduation

1. **Telugu:** M.A. Telugu or its equivalent Degree.
2. **English:** M.A. English or its equivalent Degree.
3. **Maths:** M.Sc., Mathematics or its equivalent Degree.
4. **Statistics:** M.Sc Statistics or its equivalent Degree.
5. **Physics:** M.Sc Physics or its equivalent Degree.
6. **Chemistry:** M.Sc Chemistry or its equivalent Degree.
7. **Botany:** M.Sc., Botany or its equivalent Degree.
8. **Zoology:** M.Sc. Zoology or its equivalent Degree.
9. **Computer Science:** Msc.Computer Science/ MCA or its equivalent Degree.
10. **Geology:** M.Sc. Geology or its equivalent Degree.
11. **Bio-Chemistry:** M.Sc. Bio-Chemistry or its equivalent Degree.
12. **Bio-Technology:** M.Sc. Bio-Technology or its equivalent Degree.
13. **History:** M.A. History or its equivalent Degree.
14. **Economics:** M.A. Economics or its equivalent Degree.
15. **Political Science:** M.A. Political Science or its equivalent Degree.
16. **Commerce:** M.Com or its equivalent Degree.
17. **Journalism:** M.A. Journalism or its equivalent Degree.
18. **Psychology:** M.A. Psychology or its equivalent Degree.
19. **Micro-Biology:** M.Sc. Micro-Biology or its equivalent Degree.
20. **Public Administration:** M.A. Public Administration or its equivalent Degree.
21. **Sociology:** M.A. Sociology or its equivalent Degree.
22. **Business Administration:** MBA or its equivalent Degree.
23. **Physical Director:** Master of Physical Education.
24. **Librarian:** Master of Library Science.

**NOTE:** - Subject wise vacancy position is available at ANNEXURE-I and candidates may apply as per the vacancy position in their concerned subject.

**N.B:-i) Distance Education:** - The Applicants who have obtained requisite Degrees through Open Universities / Distance Education mode are required to have recognition by the University Grants Commission / AICTE / Distance Education Bureau as the case may be. Unless such Degrees have been recognised by the relevant Statutory Authority, they will not be accepted for the purpose of Educational Qualification vide its Public Notice No. F.27-1/2012 (CPP-II), Dt. 27/06/2013. (A university established or incorporated by or under a State act shall operate only within the territorial jurisdiction allotted to it under its Act and in no case beyond the territory of the State of its location). The onus of proof of recognition by the relevant Statutory Authority that their Degrees / Universities have been recognised rests with the candidate.

**ii) Equivalent Qualification:** At the time of verification of certificates, if it is noticed that any applicant possessing other than prescribed qualification and claims it as equivalent to the prescribed qualifications, then an Expert Committee will be constituted by the Board and the Board will take a decision based on the report of the Expert Committee.

**6) AGE:** The candidates should possess Minimum 18 years & Maximum 44 years. The age is reckoned as on 01/07/2023 (Rule-12(1)(a)(v) of State and Subordinate Service Rules).

(As per G.O.Ms.No.42, G.A. (Ser.A) Department, Dt. 19/03/2022 the upper age limit is raised up to 10 years i.e., from 34 years to 44 years)

**Minimum Age (18 years):** The applicant should not be born after **01/07/2005.**

**Maximum Age (44 years):** The applicant should not be born before **02/07/1979.**

The Upper Age limit will be relaxed as per Rules and will be calculated on the above lines.

**Age Relaxations:** The upper age limit prescribed above is however relaxable in the following cases:

Sl. No.	Category of candidates	Relaxation of age permissible
1	2	3
1.	Telangana State Government Employees (Employees of TSRTC, Corporations, Municipalities etc. are not eligible).	5 Years based on the length of regular service.
2.	Ex-Service men	3 years & length of service rendered in the armed forces.
3.	N.C.C. (who have worked as Instructor in N.C.C.)	3 Years & length of service rendered in the N.C.C.
4.	SC/ST/BCs and EWS	5 Years
5.	Differently Abled persons (Except for Physical Director)	10 Years

**Note:** Provided that the persons referred at Sl.No. 2&3 above shall, after making deductions referred to in Sub Rule-12(c)(i)&(ii) of Telangana State and Subordinate Service Rules, not exceed the maximum age limit prescribed for the post.

- i) The age relaxation for Ex-servicemen is applicable for those who have been released from Armed forces other than by way of Dismissal or Discharge on account of misconduct or Inefficiency.
- ii) The age relaxation for NCC, a Person who was recruited as a whole-time Cadet Corps Instructor on or after the 1st January, 1963 on his discharge from the NCC either before or after the expiry of the initial or extended tenure of his office in NCC having served for a period of not less than six months prior to his release from the NCC.

**N.B.** However, no person shall be eligible if he/she crossed 61 years of age (Superannuation age) after availing the eligible age relaxations as on 01/07/2023.

**7) (a) FEE:** (Remittance of Fee) The applicant shall pay **Rs.1200/-** (Rupees Twelve Hundred Only) towards Application Processing Fee and Examination Fee. However, local applicants of Telangana State belonging to SC, ST, BC, EWS and PH have to pay **Rs.600/-** (Rupees Six Hundred Only) towards Application Processing Fee and Examination Fee.

Note: EWS, BCs, SCs and STs belonging to other States are not entitled for any fee concession and they are not entitled for any kind of reservation.

**b) Mode of Payment of Fee:**

The Fee mentioned above is to be paid online duly following online instructions displayed in the Board Website.

The fee once remitted shall not be refunded or adjusted under any circumstances. Failure to pay the examination fee will entail total rejection of application.

**PARA-II: CENTERS FOR THE WRITTEN EXAMINATION:**

- 1) The examinations will be held at all District head quarters. However, the Board reserves the right either to increase or decrease the number of Centers.
- 2) However, the Board reserves the right to abolish / create new centre or centers for administrative reasons. Request for change of the centre will not be entertained.

**PARA-III: HOW TO APPLY:**

**A) HOW TO SUBMIT THE APPLICATION FORM:**

- i. The Applicants have to read the **User Guide** for online submission of applications and then proceed further.

**Step-I:** The Applicant shall visit the website ([www.treirb.telangana.gov.in](http://www.treirb.telangana.gov.in)) and fill the One Time Registration (OTR) form on or after 12-04-2023 to obtain TREI-RB ID. While filling the OTR, the applicant has to ensure that there are no mistakes in it. The Board will not be held responsible for the mistakes, if any, made by the applicants. After One Time Registration (OTR), the applicant can access the application form. The applicant is instructed to fill the application form with utmost care.

**Step-II:-**

- i) In order to fill the application form, the Applicant has to visit the website ([www.treirb.telangana.gov.in](http://www.treirb.telangana.gov.in)) and Click on the online Application Link provided on the Website, then enter TREI-RB ID/ USER ID and generate password and Login to proceed further.
- ii) After login, click on the Online Application Submission option. After selecting the Fee payment option, the applicant has to verify the details fetched from OTR database pertaining to Name, Date of Birth, Community, Gender etc., displayed on the screen.

**STEP III:** - The applicant shall pay the prescribed fee as specified through any of the three modes viz. Debit Card, Credit Card and Net Banking. Separate instructions have to be followed for each mode of payment.

**STEP IV:** - After payment of fee and filling the entire application form, the PDF Application will be generated which contains the particulars furnished by the candidates. The ID No in the PDF Application form has to be quoted for future reference/correspondence.

- i) Applicant should compulsorily note that, the details available in OTR database at the time of submitting the application will only be considered for the purpose of this notification. Hence, the candidate is advised to update/edit the details in OTR form before submitting online application form. The Time and Date of submission of the application will be printed on the application PDF form. Changes made by the applicant in OTR details after submission of application form will not be considered for the purpose of this Notification.
- ii) The Board is not responsible for any discrepancy in Bio-data particulars submitted in the application form. The applicant is therefore advised to strictly follow the instructions and User Guide in his/her own interest before submitting the application.
- iii) The applicant should compulsorily fill-up all relevant columns of the application form. The eligibility of the applicant will be decided based on the particulars given in the online application form in terms of notification and it is validated by the software and it will be taken as final. For eg: If an applicant fails to update the OTR regarding his/her Sports status before applying, the applicant shall not be considered for Sports vacancies. Applicant should therefore be very careful, while entering the data and uploading/submission of the application form online.
- iv) Incomplete/incorrect application form will be rejected. The information, if any, furnished by the applicant subsequently, in any form, will not be entertained by the Board under any circumstances unless specifically called for. Applicant should be careful in filling-up the application form and submission. If any lapse is detected during the scrutiny/verification of certificates, the candidature will be rejected even though he/she comes through the final stage of recruitment process or even at a later stage.
- v) Before uploading/submission of application form, the applicant shall carefully ensure his/her eligibility for this examination. No relevant column of the application form should be left blank; otherwise application form will not be accepted.
- vi) The Board will not make any corrections in the application form submitted by the applicant.
- vii) Hand written/Typed/Photostat copies/outside printed Application Form will not be entertained. The Board will not be held responsible for the applications submitted in any other mode.
- viii) For any Technical problems related to Online submission and downloading of Hall-Tickets please contact Phone No.040-23317140 (Call Time: 10.30 A.M to 1.00 P.M & 1.30 P.M to 5.00 P.M) or mail to [treirbhelpline@gmail.com](mailto:treirbhelpline@gmail.com)
- ix) For any General Queries please contact office of the TREI-RB Phone No.040-23317140 (Call Time: 10.30 A.M to 1.00 P.M & 1.30 P.M to 5.00 P.M) or mail to [helpdesk-treirb@telangana.gov.in](mailto:helpdesk-treirb@telangana.gov.in)

**PARA- IV GENERAL PROVISIONS**

1. The applicants compulsorily fill-up all relevant columns of application and submit application through online only. The particulars made available in the website shall be processed through computer and the eligibility decided in terms of notification.
2. The applications will be received online in the prescribed proforma available in the website for a stipulated period of time and the Board will not be held responsible for any kind of discrepancy.
3. Applicant must upload his/her own scanned photo and signature through JPG format.
4. The applicant shall not furnish any particulars that are false, tampered, fabricated or suppress any material / information while submitting application online. For such illegal activities, criminal action shall be initiated against them.
5. All the essential certificates issued by the competent authority of Telangana State shall compulsorily be kept with the applicants to produce as and when required to do so. Failure to produce the required certificates on the day of verification will lead to disqualification for further exams as well.
6. **Important** - The claim of the candidates with regard to the date of birth, educational/technical qualifications, experience and community are accepted only provisionally on the information furnished by them in their application form and is subject to verification and satisfaction of the Board. Mere admission to any test or interview or inclusion of the name of a candidate in a Merit List will not confer on the candidate any right for appointment. The candidature is, therefore, provisional at all stages and the Board reserves the right to reject candidature at any stage of the selection even after the advice has been made.
7. The applicant shall be willing to serve anywhere in Telangana State.
8. **NOTE ON UTILISING EDIT OPTION BY CANDIDATES:** The applicant shall follow the TREI-RB website regularly to utilize the edit option if given by the Board at any point of time. No separate advertisement / notification will be issued in any news paper. No separate individual intimation shall be given.
9. **Invalidation of OMR Answer Sheet:-**
  - a. If any applicant fails to bubble or wrongly bubble the Booklet Series, Hall Ticket Number in the OMR Answer Sheet, such Answer Sheets are invariably invalidated as the answer sheets are valued by Optical Mark Reader. This stipulation is to avoid any sort of human interface in evaluation of the Scripts.
  - b. Tampering of OMR answer sheet by using whitener, eraser, blade and chalk powder etc., and also tampering of barcode by any means leads to invalidation.
  - c. No request for reconsideration of such rejected/invalidated cases will be entertained.
10. This Recruitment is entrusted to TREI-RB by the Government of Telangana along with Finance clearance as details below:  
 G.O.Ms. No. 88, Finance (HRM.VII) Department, Dt: 17.06.2022 (MJPTBCWREIS)  
 G.O.Ms.No.93, Finance (HRM.VII) Department, Dt: 17.06.2022 (TTWREIS)  
 G.O.Ms.No.96, Finance (HRM.VII) Department, Dt: 17.06.2022 (TSWREIS)  
 G.O.Ms.No.11, Finance (HRM.VII) Department, Dt: 27.01.2023 (MJPTBCWREIS)
11. **A) The following certificates shall be kept ready by the candidates for the purpose of verification and also at the time of making online application.**
  - i). PDF Application form
  - ii). Hall Ticket.
  - iii). Aadhar Card.
  - iv). Proof of Educational Qualifications.
  - v). S.S.C / CBSE / ICSE (For Date of Birth)
  - vi). School Study Certificate (1st to 7th Class)
  - vii). Certificate of Residence (where the Candidate has not studied in Educational Institution) (1st to 7th Class period) obtained from competent authority of Telangana Government.
  - viii). No Objection Certificate from Employer (even if employed at any later stage of recruitment).
  - ix). Service Certificate (If any employee claimed Age relaxation).
  - x). Certificate claiming sports reservation.
  - xi). Certificate claiming Ex-servicemen for age relaxation.
  - xii). Any other certificate required.

**Note:** Original certificates have to be produced for verification at the time of scrutiny before finalizing the selection list.

**The following Certificates shall be obtained from Govt. of Telangana in prescribed proforma for the purpose of verification.**

- xiii). Community Certificate for BCs, SCs & STs (Issued in the name of candidate with Father Name is only acceptable.) obtained from competent authority of Telangana Government.
- xiv). Non-Creamy Layer Certificate for BCs as per Form- VIIB vide G.O. Ms. No. 34 BC Welfare (OP) Department Dt.08/10/2015 and G.O. Ms. No. 20 BC Welfare (OP) Department Dt.31/10/2017 (Certificate issued in the name of candidate as S/o OR D/o is only acceptable.) obtained from competent authority of Telangana Government.issued after Date: 01/04/2023.
- xv). Income certificate for the Financial Year prior to the year of application issued by the competent authority of Telangana government for claiming EWS reservation.
- xvi). Certificate of Residence / Nativity (where the Candidates not studied in School / Private Study).

**B) Guidelines for evaluation of various disabilities and procedure for certification** (mentioned in G.O.Ms.No.31, WD, CW & (DW) Dept, Dt:01-12-2009).

- a. Physically Challenged candidates who are claiming reservations under Disability quota must note that they will be referred to State Medical Board (Appellate Medical Authority) after completion of certificate verification. The report of Medical Board is final.
- b. Request for re-medical-examination by the State Medical Board (Appellate Medical Authority) for assessment of disability will not be entertained.

**PARA-V:- IMPORTANT LEGAL PROVISIONS GOVERNING THE RECRUITMENT PROCESS:**

1. **Vacancies:** The recruitment will be made to the vacancies notified before the examination only. There shall be no waiting list as per G.O.Ms.No. 81, General Administration (Ser.A) Department, Dated 22/02/1997. If additional vacancies are reported by the Government, an addendum to that effect will be issued.
2. Unfilled and non-joining vacancies will be carryforwarded to next recruitment.
3. **Recruitment:-** The recruitment will be processed as per the Notification and also as per the Byelaws/Service Regulations, B.O.G. resolutions of the Residential Educational Institutions Societies and orders/Instructions issued by the Government and also as decided by the Board from time to time.
4. **Rules:** All are informed that the various conditions and criterion prescribed herein are governed by the General Rules of existing State and Subordinate Service Rules, read with the relevant Special Rules applicable to any particular service in the departments. Any guidelines or clarification is based on the said Rules, and, in case of any necessity, any matter will be processed as per the relevant General and Special Rules in force.
5. **Government Orders:-** The TREI-RB is empowered for taking up recruitment for Teaching & Non-teaching posts in all the Residential Societies i.e, TREIS/TSWREIS/TTWREIS/MJPTBCWREIS/TMREIS under the orders of Government of Telangana vide G.O.Ms.No.22, dated:27.04.2018 of the Scheduled Castes Development (RS) Department. The Board will follow the relevant laws, rules, regulations and executive instructions and all enabling legal provisions of the Government of Telangana regarding the conduct of examinations for appointment to the posts notified herein by TREI-RB duly following the principle of order of merit with reference to relevant statutory provisions of the Government of Telangana and ensuring that the whole recruitment and selection process is carried out with utmost secrecy and confidentiality so as to ensure that the principle of merit is followed. A candidate shall be disqualified for appointment, if himself / herself or through relations or friends or any others has canvassed or endeavored to enlist for his candidature, extraneous support, whether from official or non-official sources for appointment to this service.
6. **Multi-Zonal post:** - These posts are classified into Multi Zonal posts and the local reservation is applicable as per G.O.Ms.No.124, General Administration (SPF-MC), Department, Dated 30-08-2018.
7. **Local:-**The Local Reservations shall be followed as per the Telangana Public Employment (Organization of Local Cadres and Regulation of Direct Recruitment) Order,



2018, G.O.Ms.No.124, General Administration (SPF-MC), Department, Dated 30-08-2018 as amended vide G.O.Ms. No. 128, G.A. (SPF-I) Dept., Dated: 30/06/2021 and other orders issued by the Government of Telangana from time to time and other related G.Os, Rules etc., applicable.

8. **Employee Details:-** The persons already in Government Service/ Autonomous bodies/ Government aided institutions etc., whether in permanent or temporary capacity or as work charged employees are required to inform in writing to their Head of Office / Department, as the case may be and required to submit the “No objection” from the concerned Head of Office / Department to the Board as and when required to do so.
9. **A) Penal Action:-** The Board has taken decision to adopt the Telangana Public Examinations (Prevention of Malpractices and Unfair means) Act 25/97 and empowered to invoke its penal provisions for matters connected therewith or incidental thereto.  
**B) Disqualification for appointment:** A candidate shall be disqualified at any stage as per Rule-12(4) of Telangana State and Subordinate Rules.
10. **Caste & Community:** The candidates belonging to SC & ST are required to produce Community Certificate issued by the competent authority (obtained from Government of Telangana State) in terms of G.O.Ms No. 58, SW (J) Dept., dt: 12/5/97 read with G.O. Ms. No. 5 Scheduled Castes Development (POA.A2) Dept., dt. 08/08/2014, G.O. Ms. No. 11 Scheduled Castes Development (POA.A2) Dept., dt. 17/09/2014 and G.O. Ms. No. 2 Scheduled Castes Development (POA.A2) Dept., dt. 22/01/2015. As per Rule-2(29) of T.S. State and Subordinate Service Rules. Explanation: No person who professes a religion different from Hinduism, the Sikh or Buddhism shall be deemed to be as member of a Scheduled Caste. (b)The candidates belonging to Backward Classes are required to produce Community Certificate (BC-A, BC-B, BC-C, BC-D & BC-E) issued by the Competent Authority in the State of Telangana obtained through Mee-Seva vide G.O. Ms. No. 16 BCW (OP) Dept., Dt. 11/03/2015. (c) Income Certificate for claiming EWS Reservation issued by the Tahsildar (Government of Telangana) vide G.O. Ms. No. 244 General Administration (Ser.D) Department, Dt. 24/08/2021 and orders and instructions issued by the Government from time to time.
11. **Reservation:-**
  - i) The Rule of Reservation will be applicable in terms of General Rule 22 & 22 (A) of Telangana State and Subordinate Service Rules, the Government Orders / Instructions and the Court orders, if any, in that regard, before completion of selection process.
  - ii) As per the Government orders in G.O.Ms.No.161 Education, dated:04.05.1989 of PECET regulations “no student with any disability is eligible for admission into Physical Education Courses”. In view of the above, no physically challenged quota should be extended for the PD/PET posts. The posts earmarked for Differently Abled should be filled with eligible meritorious candidates as per the recruitment guidelines issued in G.O.Ms.No.91, School Education (P.E.Ser.II) Department, dated: 03.11.2012.
  - iii) Reservation to Disabled persons is subject to the Special Rules/Adhoc Rules governing the posts. The extent of Disability will be decided by the State Appellate Medical Authorities.
  - iv) If eligible disabled women candidates of VH (W) / HH (W) / OH (W) / MH (W) category are not available in the initial recruitment in the General Institutions, the same shall be filled up by the eligible Male candidates with same category of disability respectively as per G.O.MS. No. 96 General Administration (Ser.D) Department, Dt. 22/07/2019. Hence, eligible male candidates of VH/ HH/ OH/ MH disabled category can also apply for the posts meant for Women categories.
  - v) For Carry Forward Differently Abled vacancies, if eligible disabled candidates of that particular category are not available, the same shall be filled up by the method of interchanging as per G.O.MS. No. 96 General Administration (Ser.D) Department, Dt. 22/07/2019. Hence, candidates of all the disabled categories can apply.
  - vi) The Reservation to Women will apply as per Telangana State and Subordinate Service Rules and in terms of G.O.Rt.No.1274, G.A (Ser-B) Department, Dated 04-06-2016:
  - vii) As per G.O.Rt.No.1274, G.A (Ser-B) Department, Dated 04-06-2016:

- a) Women staff shall only be recruited in all cadres of posts in the Institutions meant for WOMEN, in terms of Sub-Rule (3) of Rule 22-A of Telangana State and Subordinate Service Rules.
  - b) The Institutions meant for MEN shall be treated as General Institutions and the posts in such Institutions shall be filled with men and women candidates, in terms of sub-rule (2) of Rule 22-A of Telangana State and Subordinate Service Rules.
  - c) Separate rosters in each cadre shall be maintained for General (MEN) Institutions and for WOMEN Institutions, in accordance with sub-rules (2) and (3) of Rule 22-A of Telangana State and Subordinate Service Rules.
- viii) Reservation to BC-E group will be subject to the adjudication of the litigation before the Honorable Courts including final orders in Civil Appeal No: (a) 2628-2637 of 2010 in **SLP. No. 7388-97 of 2010, dated. 25/03/2010** and orders from the Government.
- ix) The reservation to Meritorious Sports Person is applicable as per the amendments made to State and Subordinate Service Rules as per G.O.Ms.No.107, General Administration (Ser.D) Dept., Dt. 27-07-2018 that is in Rule-2, for sub-Rule (20) and in Rule-22 (i) in sub-Rule (2), for Class-D. In implementing the reservation to Meritorious Sports Person as per G.O. Ms. No.05 YAT&C(Sports) Department, Dt. 14/05/2018, or as may be revised by the Government from time to time shall be followed.
- x) **Economically Weaker Sections:-** The EWS reservation is applicable as per G.O. Ms. No. 243 & 244 GA (SER.D) Dept., Dt. 24/08/2021.
- xi) As per G.O.Ms.No.130, General Administration (Ser.D) Department, Dt.09.11.2022, the reservations for Scheduled Tribes enhanced from 6% to 10% read with G.O.Ms.No.135, General Administration (Ser.D) Department, and Dt.23.11.2022.

**Note:-** Candidates producing Certificates issued by the Competent Authorities in Telangana State alone are eligible to claim various reservations like SC/ST/BC/ EWS/ Differently Abled etc

12. **Legal Issues:** Any legal issues arising out of this Notification shall fall within the Jurisdiction of Hyderabad, Tealangana State only.

**PARA-VI: RESERVATION TO LOCAL CANDIDATES:**

Reservation to the Local candidates is applicable as provided in the Rules and as amended from time to time as in force as on the date of notification. The candidates claiming reservation as Local candidates should obtain the required Study certificates (from I Class to VII Class) (OR) Residence Certificate in the Proforma only for those candidates who have not studied in any Educational Institutions as the case may be. The relevant certificates with authorized signature should be kept with the candidates to produce as and when required.

**DEFINITION OF LOCAL CANDIDATE: -**

- (1) Local Reservation (95%) is applicable as per Para-8 of G.O.Ms.No.124 General Administration (SPF-MC) Department, dated: 30.08.2018).
- (2) **Local Candidate as per Para-7 of G.O.Ms.No.124 General Administration (SPF-MC) Department, Dated :30.08.2018:-**
  - 1) A candidate for direct recruitment to any post shall be regarded as a local candidate in relation to a local area,-
    - (a) in cases where a minimum educational qualification has been prescribed for recruitment to the posts,-
      - (i) if he has studied in an educational institution or educational institutions in such local area for a period of not less than four consecutive academic years ending with the academic year in which he appeared or, as the case may be, first appeared for the relevant qualifying examination; or
      - (ii) where during the whole or any part of the four consecutive academic years ending with the academic year in which he appeared or as the case may be first appeared for the relevant qualifying examination he has not studied in any educational institution, if he has resided in that local area for a period of not less than four years immediately preceding the date of commencement of the qualifying examination in which he appeared, or as the case may be, first appeared.
    - (b) In cases where no minimum educational qualifications has been prescribed for recruitment to the post, if he has resided in that local area for a period of not less than four years immediately preceding the date on which the post is notified for recruitment. Explanations:- For the purpose of this paragraph,-
      - (i) 'Educational institution' means a University or any educational institution recognized by the State Government, a University or other competent authority;

- (ii) Relevant qualifying examination in relation to a post means, -
  - (a) The examination, a pass in which is the minimum educational qualification prescribed for the post;
  - (b) The Seventh Class examination or an examination declared by the State Government to be equivalent to the Seventh Class examination; whichever is lower;
- (iii) in reckoning the consecutive academic years during which a candidate has studied, any period of interruption of his study by reason of his failure to pass any examination shall be disregarded;
- (iv) the question, whether any candidate for direct recruitment to any post has resided in any local area shall be determined with reference to the places where the candidate actually resided and not with reference to the residence of his parents or other guardian.
- (2) A candidate for direct recruitment to any post who is not regarded as a local candidate under sub-paragraph (1) in relation to any local area shall, -
  - (a) in cases where a minimum educational qualification has been prescribed for recruitment to the post, -
    - (i) If he has studied in educational institutions in the State for a period of not less than seven consecutive academic years ending with the academic year in which he appeared or as the case may be, first appeared for the relevant qualifying examination be regarded as a local candidate in relation to, -
      - (A) Such local area where he has studied for the maximum period out of the said period of seven years; or
      - (B) Where the periods of his study in two or more local areas are equal, such local areas where he has studied last in such equal periods;
    - (ii) If during the whole or any part of the seven consecutive academic years ending with the academic year in which he appeared or as the case may be first appeared for the relevant qualifying examination, he has not studied in the educational institutions in any local area, but has resided in the State during the whole of the said period of seven years, be regarded as a local candidate in relation to, -
      - (A) Such local area where he has resided for the maximum period out of the said period of seven years; or
      - (B) Where the periods of his residence in two or more local areas are equal, such local area where he has resided last in such equal periods;
  - (b) In cases where no minimum educational qualification has been prescribed for recruitment to the post, if he has resided in the State for a period of not less than seven years immediately preceding the date on which the post is notified for recruitment, be regarded as a local candidate in relation to, -
    - (i) such local area where he has resided for the maximum period out of the said period of seven years; or
    - (ii) Where the periods of his residence in two or more local areas are equal such local area where he has resided last in such equal periods.
  - (c) In cases where Visually Handicapped and Hearing Handicapped persons studied in the special schools meant for them, the native place of the parents of such Visually Handicapped and Hearing Handicapped persons.”

3. The following are the Present Multi- Zones in the Telangana State vide G.O.Ms. No. 124, G.A. (SPF-MC) Dept., Dated: 30/08/2018 and amended vide G.O.Ms. No. 128, G.A. (SPF-I) Dept., Dated: 30/06/2021 read with G.O.Rt.No.74, Revenue (DA-CMRF) Dept., dt: 12/08/2021:

<b>Multi Zone- I</b>	Asifabad-Kumrambheem, Mancherial, Peddapalli, Jayashankar-Bhupalapalli-, Mulugu Districts
	Adilabad, Nirmal, Nizamabad, Jagityal Districts
	Karimnagar, Sircilla-Rajanna, Siddipet, Medak, Kamareddy Districts
	Kothagudem- Bhadradi, Khammam, Mahabubabad, Hanumakonda (Warangal Urban), Warangal (Warangal Rural) Districts
<b>Multi Zone- II</b>	Suryapet, Nalgonda, Bhongir-Yadadri, Jangaon Districts
	Medchal-Malkajgiri, Hyderabad, Ranga Reddy, Sanga Reddy, Vikarabad Districts
	Mahaboobnagar, Narayanpet, Jogulamba-Gadwal, Wanaparthy, Nagarkurnool Districts

**PARA-VII: SCHEME OF EXAMINATION:** - The Scheme and Syllabus for the examination has been shown in ANNEXURE-II.

**PARA-VIII: RESOLVING OBJECTIONS RELATED TO QUESTIONS, KEY AND OTHER MATTERS OF OBJECTIVE TEST:**

- i) The Board publishes the key on its website after conduct of the objective test. Any objections with regard to the questions/Key shall be filed within the stipulated period through the link provided in the Board website, after publication of the key. The objections received physically in the form of representations or through emails are not entertained in any circumstances. Any objection(s) received after the last date for receipt of objections on key would not be entertained.
- ii) However, for each objection raised by the candidate he/she required to pay Rs.500/- (Rupees Five Hundred only) online through payment gateway duly following online instructions.
- iii) The objections received in the prescribed proforma within due date will be referred to Expert Committee for opinion to take appropriate decision thereon by the Board. Final key will be hosted as per decision of the Board.
- iv) Objections on final key shall not be entertained.
- v) The marks for the deleted questions, if any, will be awarded to each candidate proportionately based on his performance on the remaining questions and the marks would be considered upto 3<sup>rd</sup> decimal figure, to determine the merit of the candidates.
- vi) After completion of Examination, the Images of OMR Sheets will be hosted on the Board's Website (<https://treirb.telangana.gov.in>) for reference. Candidates by entering the required Login credentials can download the Images of OMR Sheets. Candidates are advised to retain their Images of OMR Sheets for future purpose until completion of the recruitment process. Duplicate Images of OMR Sheets will not be issued under any circumstances.

**PARA-IX: PROCEDURE OF SELECTION:**

THE FINAL SELECTION FOR THE POST WILL BE BASED ON TOTAL MARKS SECURED IN THE WRITTEN EXAMINATION OF PAPER-I, II AND DEMONSTRATION.

1. The applicants will be subjected to written examination of Paper-I and Paper-II of Objective Type and candidates shall be called in the order of merit for demonstration in the respective categories duly following the Rule of reservation in the Ratio of 1:2.
2. There will be penalty for wrong answers marked in the objective tests of Paper-I and II. For each question for which a wrong answer is given by the candidate, one fourth (1/4) of the marks assigned to that question will be deducted as penalty to arrive at corrected score. If a question is left blank, i.e., if no answer is marked by the candidate, there will be no penalty for that question.
3. Marks secured in Paper-I and Paper-II and marks obtained in demonstration will be counted for preparation of final Merit list.

4. The candidates will be selected and allotted to the Residential Educational Institutions Societies in Telangana State as per the option exercised and as per their rank in the merit list and as per Multi-zonal preference for allotment of candidates against available vacancies after verification of Certificates, Community and Category wise for the vacancies available as required.
5. The appearance in all papers in the Written Examination and Demonstration as per rules is compulsory. Absence in any paper/papers/Demonstration will automatically render his/her candidature as disqualified.
6. Candidates have to produce Original documents and other particulars on the day of verification itself. If candidate fails to produce any of the required certificates and if the particulars furnished by him/her in the Application do not tally with the Original documents produced by him/her, then his/her candidature will be rejected/disqualified without any further correspondence. As candidature for the recruitment is processed through Computer/Electronic devices based on the particulars furnished in the Application Form, the candidate is advised to fill in all the relevant particulars carefully.
7. While the Board calls for preference of candidates in respect of posts/R.E.I. Societies etc., in the application form, it is hereby clarified that the said preferences are only indicative for being considered to the extent possible but not binding or limiting the Board's powers enjoyed under G.O.Ms.No.22, Scheduled Castes Development Department, dated 27.04.2018. Therefore, the Board has the power to assigning a successful candidate to any of the notified posts for which he is considered to be qualified and eligible, subject to fulfilling the selection criterion.
8. The candidates will be selected and allotted to Multi-Zone as per their merit and order of Preference (**web-options**) against the vacancies available.
9. The selection of candidates will be subject to their being found medically fit in the appropriate Medical Examination, and if he/she is of sound health, active habits free from any bodily defect or infirmity.

**PARA-X: DEBARMENT:**

- a) Candidates should make sure of their eligibility to the post applied for and that the declaration made by them in the format of application regarding their eligibility is correct in all respects. Any candidate furnishing incorrect information or making false declaration regarding his/her eligibility at any stage or suppressing any information is liable to be debarred for five years from appearing for any of the examinations conducted by the Board and their candidature for the recruitment shall be summarily rejected.
- b) The Penal Provisions of Act 25/97 published in the Telangana Gazette No.130, Part-I.A Extraordinary dated: 01.06.2016 shall be invoked if malpractice and unfair means are noticed at any stage of the Recruitment.
- c) The Board is vested with the powers vide G.O.Ms.No.22, Scheduled Caste Development Department, dated 27.04.2018 of conducting recruitment and selection as per rules duly maintaining utmost secrecy and confidentiality in this process and any attempt by anyone causing or likely to cause breach of this duty cast on the Board by the Government of Telangana in such manner or by such action as to violate or likely to violate the fair practices followed and ensured by the Board will be sufficient cause for rendering such questionable means as ground for debarment and penal consequences as per law and rules and as may be decided by the Board.
- d) Any candidate is or has been found impersonating or procuring impersonation by any person or resorting to any other irregular or improper means in connection with his/her candidature for selection or obtaining support of candidature by any means, such a candidate may in addition to rendering himself/herself liable to criminal prosecution, will be debarred permanently from any exam or selection held by the TREI-RB in the Telangana State.
- e) The applicants are not allowed to bring any Electronic devices or Gadgets such as Smart/Mobile Phones, Calculators, Tablets, iPad, Bluetooth, Pagers, Programmable Devices or Storage Media like Pen-drive, Smart Watches, Camera etc., or any other equipment or related accessories either in working or switched off mode capable of being used as a communication device during the examination. Loaning and interchanging of articles among the applicants is not permitted in the examination hall and any form of malpractice will not be permitted in the exam hall and applicants are advised not to bring any of the banned items including mobile phones to the venue of the examination, as arrangement for safe keeping cannot be assured.

**PARA XI :( A) MEMORANDUM OF MARKS: -**

Memorandum of Marks will be issued on payment of Rs.200/- (Rupees Two Hundred Only) through Online Payment in favour of the E.O.(Convenor), TREI-RB, Hyderabad. Request for Memorandum of Marks from candidates will be entertained after one month from the date of publication of the final results in TREI-RB Website. The Memorandum of Marks will be issued to the candidates for a period of 90 days only. Request for revaluation or recounting will not be undertaken under any circumstances. Invalid, disqualified, ineligible candidates will not be issued any Memorandum of Marks and fees paid by such candidates, if any, will be forfeited to TREI-RB account, without any correspondence in this regard.

In Offline examination, if any candidate fails to mark the Booklet Series, Roll Number etc., in the OMR Answer Sheet, the Board reserves the right to invalidate such Answer Sheets as Answer Sheets are valued by Optical Mark Scanner. No request for reconsideration of such rejected/invalidated cases will be entertained under any circumstances whatsoever.

**(B)** Please read the following Annexures appended to the Notification before filling the application form.

- |             |  |                                 |
|-------------|--|---------------------------------|
| <b>i)</b>   | <b><i>Breakup of Vacancies</i></b>           | <b><i>:(Annexure - I)</i></b>   |
| <b>ii)</b>  | <b><i>Scheme and Syllabus</i></b>            | <b><i>:(Annexure - II)</i></b>  |
| <b>iii)</b> | <b><i>Instructions to the Candidates</i></b> | <b><i>:(Annexure - III)</i></b> |
| <b>iv)</b>  | <b><i>List of Communities</i></b>            | <b><i>:(Annexure - IV)</i></b>  |
| <b>v)</b>   | <b><i>List of the recognized sports</i></b>  | <b><i>:( Annexure - V)</i></b>  |

**PARA XII: SPECIAL INSTRUCTIONS TO CANDIDATES:**

Candidates are directed to follow the TREI-RB's Website (<https://treirb.telangana.gov.in>) regularly to know the latest developments of this Recruitment and any changes/ Modifications/Addendum/Corrigendum, dates of Examination, calling of candidates for verification of Certificates/ Interviews/Results etc. Candidates are advised to go through the Instructions to Candidates enclosed to this Notification at Annexure-III.

**PARA-XIII: TREI-RB'S DECISION TO BE FINAL:**

The decision of the Board in all aspects and in all respects pertaining to the application and its acceptance or rejection as the case may be, conduct of examination and at all consequent stages culminating in the selection or otherwise of any candidate shall be final in all respects and binding on all concerned, under the powers vested with it vide G.O.Ms.No.22, Scheduled Caste Development Department, dated 27.04.2018. Board also reserves its right to alter and modify terms and conditions laid down in the notification for conducting the various stages up to selection, duly intimating details thereof to all concerned, as warranted by any unforeseen circumstances arose during the course of this process, or as deemed necessary by the Board at any stage.

Hyderabad  
Date:15.04.2023.

Sd/-  
Executive Officer (Convenor),  
TREI-RB, Hyd.

**ANNEXURE - I  
(GENERAL RECRUITMENT)**

**BREAK UP OF VACANCY POSITION FOR THE POST OF DEGREE COLLEGE LECTURERS IN RESIDENTIAL EDUCATIONAL INSTITUTIONS SOCIETIES**

**WOMEN INSTITUTIONS**

Society	Subject	Multi Zone	OC (W)	EWS (W)	SC (W)	ST (W)	BC-A (W)	BC-B (W)	BC-C (W)	BC-D (W)	BC-E (W)	PH (W)	Sports (W)	Total	
<b>TSWREIS (Degree College Lecturers - Women)</b>	Telugu	MZ-I	1	0	0	0	0	0	1	0	0	1 (VH)	0	03	
		MZ-II	2	0	1	0	0	0	0	0	0	1 (HH)	0	04	
	English	MZ-I	3	0	2	2	3	0	0	0	0	2 (VH) 1 (HH)	0	13	
		MZ-II	0	0	0	2	1	0	0	0	0	1 (VH) 1 (HH)	0	05	
	Mathematics	MZ-I	3	0	1	1	1	0	0	0	0	1	2 (VH)	0	9
		MZ-II	0	0	0	1	0	0	0	0	0	0	1 (VH)	0	02
	Statistics	MZ-I	6	1	4	3	2	2	1	0	0	0	2 (VH)	0	21
		MZ-II	3	0	3	0	1	0	0	0	0	0	1 (VH)	0	08
	Physics	MZ-I	1	0	1	1	0	0	0	1	0	0	1 (VH)	0	05
		MZ-II	0	0	0	0	0	0	0	0	0	0	0	0	0
	Chemistry	MZ-I	3	0	1	0	1	0	0	0	0	0	1 (VH) 1 (HH)	0	7
		MZ-II	0	0	0	0	0	0	0	0	0	0	1 (VH)	0	1
	Botany	MZ-I	1	0	0	1	0	0	0	1	0	0	1 (VH)	0	4
		MZ-II	1	0	0	0	0	1	0	0	0	0	1 (VH)	0	3

Society	Subject	Multi Zone	OC (W)	EWS (W)	SC (W)	ST (W)	BC-A (W)	BC-B (W)	BC-C (W)	BC-D (W)	BC-E (W)	PH (W)	Sports (W)	Total	
TSWREIS (Degree College Lecturers - Women)	Zoology	MZ-I	4	1	2	2	1	1	1	0	0	2 (VH)	0	14	
		MZ-II	0	0	0	1	2	0	1	0	0	1 (VH)	0	05	
	Computer Science	MZ-I	3	0	1	0	2	0	0	0	1	0	1 (VH)	0	08
		MZ-II	0	0	0	1	0	0	0	1	0	0	1 (VH)	0	03
	History	MZ-I	1	0	0	0	1	0	0	0	0	0	1 (VH)	0	03
		MZ-II	0	0	0	0	1	0	0	0	0	0	1 (VH)	0	02
	Economics	MZ-I	0	0	0	0	0	0	0	0	0	0	0	0	0
		MZ-II	1	0	0	0	0	0	0	0	0	0	1 (VH)	0	2
	Political Science	MZ-I	1	0	0	0	1	0	0	0	0	0	1 (VH)	0	03
		MZ-II	1	0	0	1	1	0	0	0	0	0	1 (VH)	0	4
	Commerce	MZ-I	3	1	2	3	2	1	1	0	0	0	2 (VH) 1 (HH)	0	16
		MZ-II	0	0	0	3	0	1	0	0	0	0	1 (VH) 1 (HH)	0	06
	Journalisam	MZ-I	0	0	0	0	0	0	0	0	0	0	0	0	0
		MZ-II	1	0	0	0	0	0	0	0	0	0	0	0	1
	Psychology	MZ-I	0	0	0	0	0	0	0	0	0	0	0	0	0
		MZ-II	1	0	0	0	0	0	0	0	0	0	0	0	1
	<b>Total</b>			<b>40</b>	<b>3</b>	<b>18</b>	<b>22</b>	<b>21</b>	<b>5</b>	<b>8</b>	<b>1</b>	<b>1</b>	<b>34</b>	<b>0</b>	<b>153</b>



**ANNEXURE - I**  
**(GENERAL RECRUITMENT)**  
**BREAK UP OF VACANCY POSITION FOR THE POST OF DEGREE LECTURERS IN RESIDENTIAL EDUCATIONAL INSTITUTIONS SOCIETIES**  
**GENERAL (MEN) INSTITUTIONS**

Society	Subject	Multi Zone	OC		EWS		SC		ST		BC-A		BC-B		BC-C		BC-D		BC-E		PH		Sports		Total		Grand Total (G+W)		
			G	W	G	W	G	W	G	W	G	W	G	W	G	W	G	W	G	W	G	W	G	W	General	Women			
<b>TTWREIS (Degree College Lecturers - General)</b>	Telugu	MZ-I	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	4
		MZ-II	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	English	MZ-I	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1 (VH)	0	0	0	0	0	4	4
		MZ-II	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Mathematics	MZ-I	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
		MZ-II	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Statistics	MZ-I	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
		MZ-II	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Zoology	MZ-I	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1 (VH)	0	0	0	0	0	4	4
		MZ-II	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
	Botany	MZ-I	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3	
		MZ-II	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Physics	MZ-I	2	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	5	
		MZ-II	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
	Micro Biology	MZ-I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		MZ-II	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
	Chemistry	MZ-I	2	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	5	
		MZ-II	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	01	3	4		

Society	Subject	Multi Zone	OC		EWS		SC		ST		BC-A		BC-B		BC-C		BC-D		BC-E		PH		Sports		Total		Grand Total (G+W)					
			G	W	G	W	G	W	G	W	G	W	G	W	G	W	G	W	G	W	G	W	G	W	General	Women						
TTWREIS (Degree College Lecturers - General)	Computer Science	MZ-I	2	1	0	0	1	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1 (VH)	0	0	3	5	8
		MZ-II	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	History	MZ-I	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
		MZ-II	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
	Economics	MZ-I	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3
		MZ-II	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
	Political Science	MZ-I	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
		MZ-II	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
	Commerce	MZ-I	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
		MZ-II	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Public Adiministration	MZ-I	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
		MZ-II	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>			<b>10</b>	<b>21</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>12</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>11</b>	<b>44</b>	<b>56</b>	

**ANNEXURE - I**  
**(GENERAL RECRUITMENT)**  
**BREAK UP OF VACANCY POSITION FOR THE POST OF DEGREE COLLEGE LECTURERS IN RESIDENTIAL EDUCATIONAL INSTITUTIONS SOCIETIES**  
**WOMEN INSTITUTIONS**

Society	Subject	Multi Zone	OC(W)	EWS(W)	SC(W)	ST(W)	BC-A(W)	BC-B(W)	BC-C(W)	BC-D(W)	BC-E(W)	PH(W)	Sports (W)	Total	
<b>TTWREIS (Degree College Lecturers - Women)</b>	Telugu	MZ-I	3	1	2	1	1	1	0	0	0	2 (VH)	0	11	
		MZ-II	3	0	2	0	2	0	0	0	0	2 (VH)	0	9	
	English	MZ-I	3	1	3	1	2	1	0	0	0	0	2 (VH)	0	13
		MZ-II	2	0	3	1	2	0	0	0	0	0	0	0	8
	Mathematics	MZ-I	3	0	1	0	2	0	0	0	0	0	1 (VH)	0	7
		MZ-II	2	0	2	0	1	0	0	0	0	0	1 (VH)	0	6
	Statistics	MZ-I	1	0	1	0	0	0	0	0	0	0	0	0	2
		MZ-II	1	0	0	0	0	0	0	0	0	0	0	0	1
	Zoology	MZ-I	3	1	2	1	2	0	0	0	0	0	2 (VH)	0	11
		MZ-II	2	0	2	0	2	0	0	0	0	0	1 (VH)	0	07
	Botany	MZ-I	3	1	2	1	1	0	0	0	0	0	2 (VH)	0	10
		MZ-II	2	0	1	0	2	0	0	0	0	0	0	0	05
	Physics	MZ-I	3	1	2	1	1	0	0	0	0	0	2 (VH)	0	10
		MZ-II	2	0	1	0	1	0	0	0	0	0	1 (VH)	0	5
	Micro Biology	MZ-I	3	0	1	0	1	0	0	0	0	0	0	0	5
		MZ-II	2	0	1	0	2	0	0	0	0	0	0	0	5
	Chemistry	MZ-I	6	1	2	1	1	1	0	0	0	0	2 (VH)	0	14
		MZ-II	3	1	2	1	1	0	0	0	0	0	2 (VH)	0	10

Society	Subject	Multi Zone	OC(W)	EWS(W)	SC(W)	ST(W)	BC-A(W)	BC-B(W)	BC-C(W)	BC-D(W)	BC-E(W)	PH(W)	Sports (W)	Total	
TTWREIS (Degree College Lecturers - Women)	Computer Science	MZ-I	6	2	3	2	2	1	1	1	0	2 (VH)	0	20	
		MZ-II	3	1	2	1	2	0	0	0	0	1 (VH)	0	10	
	History	MZ-I	2	0	1	0	1	0	0	0	0	0	0	0	4
		MZ-II	1	0	1	0	0	0	0	0	0	0	0	0	2
	Economics	MZ-I	2	0	0	0	0	0	0	0	0	0	0	0	2
		MZ-II	1	0	0	0	0	0	0	0	0	0	0	0	1
	Political Science	MZ-I	1	0	0	0	1	0	0	0	0	0	0	0	2
		MZ-II	0	0	1	0	0	0	0	0	0	0	0	0	1
	Commerce	MZ-I	3	0	2	0	2	0	0	0	0	0	2 (VH)	0	9
		MZ-II	3	0	1	0	2	0	0	0	0	0	1 (VH)	0	7
	Journalism	MZ-I	1	0	0	0	0	0	0	0	0	0	0	0	1
		MZ-II	0	0	0	0	0	0	0	0	0	0	0	0	0
	Business Administration	MZ-I	2	0	1	0	0	0	0	0	0	0	0	0	3
		MZ-II	0	0	0	0	0	0	0	0	0	0	0	0	0
Total			72	10	42	11	34	4	1	1	0	26	0	201	



Society	Subject	Multi Zone	OC		EWS		SC		ST		BC-A		BC-B		BC-C		BC-D		BC-E		PH		Sports		Total		G Total (G+W)	
			G	W	G	W	G	W	G	W	G	W	G	W	G	W	G	W	G	W	G	W	G	W	General	Women		
MJPTBCWREIS (Degree College Lecturers - General)	Computer Science	MZ-I	4	2	1	0	1	1	1	1	0	1	0	1	1	0	0	0	0	0	0	0	1 (VH)	0	0	8	7	15
		MZ-II	4	2	1	0	1	1	1	1	0	1	0	1	1	0	0	0	0	0	0	0	1 (VH)	0	0	8	7	15
	History	MZ-I	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	03
		MZ-II	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	04
	Economics	MZ-I	2	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	05
		MZ-II	2	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	05
	Political Science	MZ-I	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	04
		MZ-II	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	04
	Commerce	MZ-I	4	2	1	1	2	1	1	1	0	1	0	1	1	0	0	1	0	0	0	1 (VH)	0	0	9	9	18	
		MZ-II	4	2	1	1	2	1	1	1	0	1	0	1	1	0	0	0	0	0	0	1 (VH)	0	0	9	8	17	
	Geology	MZ-I	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	02
		MZ-II	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	02
	Psychology	MZ-I	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	01
		MZ-II	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	01
	Public Administration	MZ-I	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	02
		MZ-II	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	02
	Business Administration	MZ-I	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	03
		MZ-II	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	03
	BioTechnology	MZ-I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		MZ-II	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	02
Sociology	MZ-I	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	02	
	MZ-II	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	02	
<b>Total</b>			59	44	7	2	16	37	4	11	0	25	0	6	4	0	0	1	0	0	0	17	0	0	90	143	233	

**ANNEXURE - I**  
**(GENERAL RECRUITMENT)**  
**BREAK UP OF VACANCY POSITION FOR THE POST OF DEGREE COLLEGE LECTURERS IN RESIDENTIAL EDUCATIONAL INSTITUTIONS SOCIETIES**  
**WOMEN INSTITUTIONS**

Society	Subject	Multi Zone	OC(W)	EWS(W)	SC(W)	ST(W)	BC-A(W)	BC-B(W)	BC-C(W)	BC-D(W)	BC-E(W)	PH(W)	Sports (W)	Total	
<b>MJPTBCWREIS (Degree College Lecturers - Women)</b>	Telugu	MZ-I	2	0	1	0	1	0	0	0	0	0	0	04	
		MZ-II	3	0	1	0	1	0	0	0	0	0	0	05	
	English	MZ-I	3	0	1	0	1	0	0	0	0	0	0	05	
		MZ-II	3	0	1	0	1	0	0	0	0	0	1 (VH)	0	06
	Mathematics	MZ-I	3	0	1	0	1	0	0	0	0	0	1 (VH)	0	06
		MZ-II	3	0	2	1	1	0	0	0	0	0	1 (VH)	0	08
	Statistics	MZ-I	3	0	1	0	1	0	0	0	0	0	0	0	05
		MZ-II	3	0	1	0	1	0	0	0	0	0	0	0	05
	Zoology	MZ-I	2	0	1	0	0	0	0	0	0	0	0	0	03
		MZ-II	1	0	1	0	0	0	0	0	0	0	0	0	02
	Botany	MZ-I	1	0	1	0	0	0	0	0	0	0	0	0	02
		MZ-II	1	0	1	0	0	0	0	0	0	0	0	0	02
	Physics	MZ-I	2	0	1	0	0	0	0	0	0	0	0	0	03
		MZ-II	3	0	1	0	1	0	0	0	0	0	0	0	05
	Micro Biology	MZ-I	1	0	0	0	0	0	0	0	0	0	0	0	01
		MZ-II	2	0	1	0	0	0	0	0	0	0	0	0	03
	Chemistry	MZ-I	3	0	1	0	1	0	0	0	0	0	0	0	05
		MZ-II	3	0	1	0	1	0	0	0	0	0	1 (VH)	0	06
	Computer Science	MZ-I	3	0	2	1	1	0	0	0	0	0	1 (VH)	0	08
		MZ-II	4	1	2	1	1	1	1	0	0	0	1 (VH)	0	11

Society	Subject	Multi Zone	OC(W)	EWS(W)	SC(W)	ST(W)	BC-A(W)	BC-B(W)	BC-C(W)	BC-D(W)	BC-E(W)	PH(W)	Sports (W)	Total	
<b>MJPTBCWREIS (Degree College Lecturers - Women)</b>	History	MZ-I	2	0	1	0	1	0	0	0	0	0	0	04	
		MZ-II	2	0	1	0	0	0	0	0	0	0	0	03	
	Economics	MZ-I	2	0	1	0	0	0	0	0	0	0	0	0	03
		MZ-II	2	0	1	0	0	0	0	0	0	0	0	0	03
	Political Science	MZ-I	2	0	1	0	0	0	0	0	0	0	0	0	3
		MZ-II	2	0	1	0	0	0	0	0	0	0	0	0	3
	Commerce	MZ-I	3	1	2	1	1	0	0	0	0	0	1 (VH)	0	9
		MZ-II	3	1	2	1	1	1	0	0	0	0	1 (VH)	0	10
	Geology	MZ-I	0	0	0	0	0	0	0	0	0	0	0	0	0
		MZ-II	1	0	1	0	0	0	0	0	0	0	0	0	02
	Psychology	MZ-I	1	0	0	0	0	0	0	0	0	0	0	0	1
		MZ-II	1	0	1	0	0	0	0	0	0	0	0	0	2
	Public Administration	MZ-I	1	0	1	0	0	0	0	0	0	0	0	0	02
		MZ-II	1	0	1	0	0	0	0	0	0	0	0	0	02
	Business Administration	MZ-I	0	0	0	0	0	0	0	0	0	0	0	0	0
		MZ-II	3	0	1	0	1	0	0	0	0	0	0	0	05
	Sociology	MZ-I	1	0	1	0	0	0	0	0	0	0	0	0	02
		MZ-II	1	0	0	0	0	0	0	0	0	0	0	0	01
<b>Total</b>			<b>77</b>	<b>3</b>	<b>38</b>	<b>5</b>	<b>17</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>150</b>	





**ANNEXURE - I**

**(GENERAL RECRUITMENT)**

**BREAK UP OF VACANCY POSITION FOR THE POST OF PHYSICAL DIRECTOR (DEGREE COLLEGE) IN RESIDENTIAL EDUCATIONAL INSTITUTIONS SOCIETIES**

**GENERAL (MEN) INSTITUTIONS**

Society	Subject	Zone	OC		EWS		SC		ST		BC-A		BC-B		BC-C		BC-D		BC-E		SPORTS		Total		Grand Total (G+W)
			G	W	G	W	G	W	G	W	G	W	G	W	G	W	G	W	G	W	G	W	G	W	
TTWREIS (General)	<u>Physical Director</u> (DEGREE COLLEGE)	Multi Zone-I	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3
		Multi Zone-II	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
<b>Total</b>			<b>1</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>3</b>	<b>4</b>	

**WOMEN INSTITUTIONS**

Society	Subject	Zone	OC(W)	EWS	SC (W)	ST (W)	BC-A (W)	BC-B (W)	BC-C (W)	BC-D (W)	BC-E (W)	SPORTS (W)	Total
TTWREIS (Women)	<u>Physical Director</u> (DEGREE COLLEGES)	Multi Zone-I	4	0	2	0	1	0	0	0	0	0	7
		Multi Zone-II	2	0	1	0	1	0	0	0	0	0	4
<b>Total</b>			<b>6</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>11</b>	



**ANNEXURE - I**  
**(GENERAL RECRUITMENT)**  
**BREAK UP OF VACANCY POSITION FOR THE POST OF LIBRARIAN (DEGREE COLLEGE) IN RESIDENTIAL EDUCATIONAL INSTITUTIONS SOCIETIES**

**WOMEN INSTITUTIONS**

Society	Subject	Zone	OC(W)	EWS	SC(W)	ST(W)	BC-A(W)	BC-B(W)	BC-C(W)	BC-D(W)	BC-E(W)	PH(W)	SPORTS(W)	Total
<b>TSWREIS (Women)</b>	<b><u>LIBRARIAN</u> (DEGREE COLLEGES)</b>	Multi Zone-I	2	0	1	0	1	0	0	0	0	1 (VH)	0	<b>05</b>
		Multi Zone-II	1	0	1	1	0	0	0	0	0	0	1 (VH)	0
<b>Total</b>			<b>3</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>09</b>

**ANNEXURE - I**  
**(GENERAL RECRUITMENT)**  
**BREAK UP OF VACANCY POSITION FOR THE POST OF LIBRARIAN (DEGREE COLLEGE) IN RESIDENTIAL EDUCATIONAL INSTITUTIONS SOCIETIES**  
**GENERAL (MEN) INSTITUTIONS**

Society	Subject	Zone	OC		EWS		SC		ST		BC-A		BC-B		BC-C		BC-D		BC-E		PH		SPORTS		Total		Grand Total (G+W)	
			G	W	G	W	G	W	G	W	G	W	G	W	G	W	G	W	G	W	G	W	G	W	G	W		
TTWREIS (General)	<u>LIBRARIAN</u> (DEGREE COLLEGE)	Multi Zone-I	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3
		Multi Zone-II	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<b>Total</b>			<b>1</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>3</b>	<b>4</b>	

**WOMEN INSTITUTIONS**

Society	Subject	Zone	OC(W)	EWS	SC(W)	ST(W)	BC-A(W)	BC-B(W)	BC-C(W)	BC-D(W)	BC-E(W)	PH (W)	SPORTS(W)	Total
TTWREIS (Women)	<u>LIBRARIAN</u> (DEGREE COLLEGES)	Multi Zone-I	3	0	2	0	1	0	0	0	0	1 (VH)	0	7
		Multi Zone-II	2	0	1	0	1	0	0	0	0	0	0	4
<b>Total</b>			<b>5</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>11</b>

**ANNEXURE - I**  
**(GENERAL RECRUITMENT)**  
**BREAK UP OF VACANCY POSITION FOR THE POST OF LIBRARIAN (DEGREE COLLEGE) IN RESIDENTIAL EDUCATIONAL INSTITUTIONS SOCIETIES**  
**GENERAL (MEN) INSTITUTIONS**

Society	Subject	Zone	OC		EWS		SC		ST		BC-A		BC-B		BC-C		BC-D		BC-E		PH		SPORTS		Total		Grand Total (G+W)		
			G	W	G	W	G	W	G	W	G	W	G	W	G	W	G	W	G	W	G	W	G	W	G	W			
MJPTBCWREIS (General)	<u>LIBRARIAN</u> (DEGREE COLLEGE)	Multi Zone-I	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	01	02	03
		Multi Zone-II	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	01	02	03
<b>Total</b>			<b>2</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>4</b>	<b>06</b>		

**WOMEN INSTITUTIONS**

Society	Subject	Zone	OC(W)	EWS	SC(W)	ST(W)	BC-A(W)	BC-B(W)	BC-C(W)	BC-D(W)	BC-E(W)	PH (W)	SPORTS (W)	Total
MJPTBCWREIS (Women)	<u>LIBRARIAN</u> (DEGREE COLLEGES)	Multi Zone-I	2	0	1	0	0	0	0	0	0	0	0	03
		Multi Zone-II	2	0	1	0	0	0	0	0	0	0	0	03
<b>Total</b>			<b>4</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>06</b>

**IMPORTANT NOTE:** The number of vacancies are subject to variation on intimation being received from the appointing authority.

**ANNEXURE-II**

**Scheme of examination for the post of Degree College Lecturers in  
Residential Educational Institutions Societies as per  
G.O.Ms.No.31, SCD (RS) Dept, dated: 08.06.2018**

**Scheme of Examination**

Written Examination (Objective Type)		No. of Questions	Duration (Minutes)	Marks
<b>Paper-I</b>	General Studies, General Abilities and Basic Proficiency in English	100	120	100
<b>Paper-II</b>	1. For Lecturers, Subject Discipline Knowledge/ Concerned Subject (P.G.Level). 2. For Physical Directors, Physical Education (P.G.Level). 3. For Librarians, Library and Information Science (P.G.Level).	100	120	100
Demonstration				25
<b>Total</b>				<b>225</b>

## Written Examination Syllabus for the post of Degree College Lecturers in Residential Educational Institutions Societies

### Paper - I

#### Section-I: General Studies

1. Current Affairs - Regional, National & International.
2. Indian Constitution; Indian Political System; Governance and Public Policy.
3. Social Exclusion; Rights issues such as Gender, Caste, Tribe, Disability etc. and inclusive policies.
4. Society Culture, Civilization Heritage, Arts and Literature of India and Telangana
5. General Science; India's Achievements in Science and Technology
6. Environmental Issues; Disaster Management- Prevention and Mitigation Strategies and Sustainable Development.
7. Economic and Social Development of India and Telangana.
8. Socio-economic, Political and Cultural History of Telangana with special emphasis on Telangana Statehood Movement and formation of Telangana state.

#### Section-II: General Abilities

9. Analytical Abilities: Logical Reasoning and Data Interpretation.
10. Moral Values and Professional Ethics in Education.
11. Teaching Aptitude

#### Section - III: Basic Proficiency in English

- i) School Level English Grammar:**  
Articles; Tense; Noun & Pronouns; Adjectives; Adverbs; Verbs; Modals; Subject-Verb Agreement; Non-Finites; Reported Speech; Degrees of Comparison; Active and Passive Voice; Prepositions; Conjunctions; Conditionals.
- ii) Vocabulary:**  
Synonyms and Antonyms; Phrasal Verbs; Related Pair of Words; Idioms and Phrases; Proverbs.
- iii) Words and Sentences:**  
Use of Words; Choosing Appropriate words and Words often Confused; Sentence Arrangement, Completion, Fillers and Improvement; Transformation of Sentences; Comprehension; Punctuation; Spelling Test; Spotting of Errors.



## Written Examination Syllabus for the post of Degree College Lecturers in Residential Educational Institutions Societies

### 1. Paper - II: Telugu

(ఎ) సంప్రదాయ సాహిత్యకవుల అధ్యయనం - కాలం - రచనలు

నన్నయ, తిక్కన, ఎర్రన, శివకవులు (నన్నెచోడుడు, మల్లికార్జున పండితారాధ్యుడు, పాల్కురికి సోమనాథుడు), నాచనసోమన - భాస్కర రామాయణ కావ్యం, రంగనాథ రామాయణ కవి - శ్రీనాథుడు - పోతన - పిల్లలమర్రి పినవీరభద్రుడు - గౌరన - అనంతామాత్యుడు - కొరవి గోపరాజు - నంది మల్లన, ఘంట సింగన - అష్టదిగ్గజ కవులు - తాళ్ళపాక కవులు - పొన్నగంటి తెలగన్న - చేమకూర వెంకటకవి - తంజావూరు రాజకవులు కవయిత్రులు - కందుకూరి రుద్రకవి, మడికి సింగన

(బి) వేమన తాత్త్వికత - సమకాలిక పరిశీలన, దృక్పథం - సమాజంపై వేమన కవిత్వ ప్రభావం.

సాహిత్య ధోరణుల అధ్యయనం - యుగప్రభావం - రూపాలు - మొదలైనవి. ఇతిహాసం - పురాణం ప్రబంధం - శతకం - సంకీర్తన సాహిత్యం - చారిత్రక కావ్యం - సంప్రదాయ, ఆధునిక గద్య రచనలు - నవల - కథానిక - వ్యాసం - ఏకాంకిక మొదలైనవి - వాదాలు (దళిత, హేతు, స్త్రీ, మైనారిటీ , బి.సి. ప్రాంతీయ)

జానపద విజ్ఞానం - గేయాలు - కతాగేయాలు - గద్యాభ్యాసాలు - (పురాణగాథలు - ఐతిహ్యాలు - కథలు), సామెతలు - పొడుపుకథలు - జానపద కళలు - (వీధి నాటకాలు, యక్షగానాలు, బొమ్మలాటలు,, పగటి వేషాలు, చిందు, ఒగ్గు, జాతర కళారూపాలు.

ఆధునిక కవులు అధ్యయనం - ఆధునిక ధోరణులు వారి రచనలు - గురజాడ - రాయప్రోలు - విరేశలింగం - విశ్వనాథ - దేవులపల్లి - బసవరాజు - పింగళి - కాటూరి - దుమ్మూరి - పుట్టపర్తి - శ్రీశ్రీ - కాళోజి, దాశరథి, సి. నారాయణ రెడ్డి , ఎన్. గోపి - ప్రసిద్ధ ఆధునిక కవులు - భావ, అభ్యుదయ, విప్లవ, - దిగంబర, చేతనావర్తన కవులు.

**తెలుగు వ్యాకరణ, ఛందస్సు అధ్యయనం:**

వ్యాకరణం - బాల వ్యాకరణం (సంజ్ఞ, సంధి, క్రియా, తత్పద, ఆచ్ఛిక ప్రకరణాలు ఛందస్సు) - వృత్తాలు, జాతులు, ఉపజాతులు (ఉత్పలమాల, చంపకమాల, శార్దూలం, మత్తేభం, ద్విపద, తరువోజ , సీసం, కందం, స్రగ్ధర , పంచచామరం) అలంకారాలు - అర్థాలంకారాలు, శబ్దాలంకారాలు తెలుగు భాషా చరిత్ర పరిణామం - (ప్రాజ్ఞప్రాయ యుగం నుండి నేటి వరకు) - ద్రావిడ భాషా కుటుంబాలలో తెలుగు స్థానం - భౌగోళిక విభజన - మాండలికాలు.

భాషా విజ్ఞాన అధ్యయనం - భాషా శాస్త్రం, అర్థ విపరిణామం - ఆధునిక కాలం,: శాసన భాష నుండి సాహిత్య భాష వరకు (వ్యావహారిక భాష ఉద్యమం వంటివి

తెలుగు సాహిత్య పరిణామం (ప్రాజ్ఞప్రాయ యుగం నుండి నేటి వరకు) సాందర్య, సాహిత్య విమర్శ అధ్యయనం (ఫ్రాక్, పశ్చిమ) ఆధునిక తెలుగు సాహిత్య విమర్శ. సంస్కృత వ్యాకరణం - కావ్యాలు - సంస్కృత వ్యాకరణం ప్రాథమిక విజ్ఞానం, సామాన్య ప్రామాణిక గద్య, పద్య పాఠ్యాంశాలు - హితోపదేశం, కాళిదాసుని కృతులు, సంస్కృత పంచకావ్యాల పరిచయం.

## Written Examination Syllabus for the post of Degree College Lecturers in Residential Educational Institutions Societies

### 2. Paper - II: English

#### I. Genres, Movements, Schools, Concepts:

- Renaissance-Reformation, Metaphysical poetry, Neo-classicism, Puritanism, Restoration, Romanticism, Victorian Age, Realism-Naturalism, Expressionism, Symbolism, Modernism, Postmodernism.
- Structuralism, Poststructuralism, Feminism, Postcolonialism, Diaspora, Race Gender and Caste.
- English Literary Criticism from Philip Sydney to Matthew Arnold
- New Criticism, Formalism, Archetypal criticism, New Historicism, Psychoanalytical criticism, Reader response criticism.
- Literary Genres: Poetry, Fiction, Prose, Drama (origins and development, elements, forms, types)

#### II. Writers and Texts:

- |                       |  |
|-----------------------|--|
| • Christopher Marlowe | Doctor Faustus   |
| • William Shakespeare | Hamlet   |
| • John Milton         | Paradise Lost-Book 1   |
| • William Wordsworth  | “Immortality Ode”, Tintern Abbey                                     |
| • Robert Browning     | “My Last Duchess”, “Andrea del Sarto”                                |
| • Thomas Hardy        | Tess of the d’ Urbervilles   |
| • TS Eliot            | The Waste Land   |
| • G.B. Shaw           | Saint Joan   |
| • Virginia Woolf      | “A Room of One’s Own”  |
| • William Golding     | Lord of the Flies  |
| • Walt Whitman        | “When Lilacs Last in the Dooryard Bloomd”, “Crossing Brooklyn Ferry” |
| • Arthur Miller       | Death of a Salesman  |
| • Toni Morrison       | Beloved  |
| • Mulk Raj Anand      | Untouchable  |
| • Kamala Das          | “An Introduction”, “The Old Playhouse”                               |
| • Girish Karnad       | Hayavadana   |
| • Salman Rushdie      | Midnight’s Children  |
| • Chinua Achebe       | Things Fall Apart  |
| • Margaret Atwood     | Edible Woman   |
| • Derek Walcott       | Dream on Monkey Mountain   |

#### III. English Language Teaching:

1. ELT in India: (History and status of English in India; English as Second Language, English as Foreign Language, and English as Global Language).
2. Methods and Approaches: (Grammar Translation method, Direct method, Audio-Lingual method; Structural approach, Communicative language teaching)
3. Teaching of Language Skills: (Teaching of Listening, Speaking, Reading, and Writing Skills; Teaching of Grammar and Functional English; Teaching of Vocabulary; Classroom techniques; Use of authentic materials) Teaching literature.
4. Testing and Evaluation: (Principles, Types, Objectives of testing and evaluation)
5. Phonetics and Phonology; Syntax and Structure.

#### IV. Literary comprehension - (Excerpts from poetry and prose for comprehension)

## Written Examination Syllabus for the post of Degree College Lecturers in Residential Educational Institutions Societies

### 3. Paper - II: Mathematics

#### I. Real Analysis

Finite, Countable and Uncountable sets - Real Number system  $\mathbb{R}$  - Infimum and Supremum of a subset of  $\mathbb{R}$  - Bolzano- Weierstrass Theorem- Sequences- Convergence- Limit Superior and Limit Inferior of a Sequence- Sub sequences- Heine- Borel Theorem- Infinite Series - Tests of Convergence-Continuity and Uniform continuity of a real valued function of a real variable- Monotonic Functions- Functions of Bounded Variation- Differentiability and Mean Value Theorems- Riemann Integrability-Sequences and Series of Functions

#### II. Metric Spaces

Metric spaces - Completeness- Compactness- Connectedness - Continuity and Uniform continuity of a function from one metric space into another-Topological Spaces - Bases and Subbases - Continuous functions

#### III. Elementary Number Theory

Primes and Composite numbers - Fundamental Theorem of Arithmetic - Divisibility - Congruences- Fermat's theorem - Wilson's Theorem - Euler's Phi - Function

#### IV. Group Theory

Groups- Subgroups- Normal Subgroups- Quotient groups- Homomorphisms- Isomorphism Theorems-Permutation groups- Cyclic groups- Cayley's theorem. Sylow's theorems - Their applications

#### V. Rings and Fields

Rings- Integral domain- Fields- Subrings - Ideals - Quotient rings - Homomorphisms - Prime ideals-Maximal ideals - Polynomial rings - Irreducibility of polynomials - Euclidean domains- Principal ideal domains-Algebraic, Normal, Separable extensions of fields- Galois Theory

#### VI. Vector Spaces

Vector Spaces, Subspaces - Linear dependence and independence of vectors - basis and dimension -Quotient spaces - Inner product spaces - Orthonormal basis - Gram- Schmidt process.

#### VII. Functional Analysis

Normed Linear Spaces- Banach Spaces -Inner Product Spaces- Hilbert Spaces-Linear Operators- Linear Functionals- Open Mapping Theorem- Closed Graph Theorem- Uniform Boundedness theorem- Hahn- Banach Theorem

#### VIII. Theory of Matrices

Linear Transformations - Rank and nullity - Change of bases- Matrix of a Linear Transformation -Singular and Non-singular matrices - Inverse of a matrix - Eigenvalues and Eigenvectors of a matrix and of a Linear Transformation - Cayley- Hamilton's theorem- Quadratic forms- Signature and Index

#### IX. Complex Analysis

Algebra of Complex Numbers - The Complex Plane - Complex Functions and Their Analyticity - Cauchy-Riemann equations - Mobius transformations- Power Series-Complex Integration - Cauchy's Theorem - Morera's Theorem - Cauchy's Integral Formula - Liouville's Theorem - Maximum Modulus Principle - Schwarz's Lemma - Taylor's Series - Laurent's Series-Calculus of Residues - Evaluation of Integrals

#### X. Ordinary Differential Equations

Ordinary Differential Equations (ODE) of First order and First degree - Different methods of solving them - Exact Differential equations and Integrating factors ODE of First order and Higher degree - Equations solvable for  $p$ ,  $x$  and  $y$  - Clairaut's equations -Singular Solutions- Linear Differential Equations with Constant Coefficients and Variable Coefficients- Variation of Parameters

#### XI. Partial Differential Equations

Formation of Partial Differential Equations (PDE) - Lagrange and Charpit's methods for Solving first order PDEs - Cauchy problem for first order PDEs- Classification of Second Order PDE's - General Solution of Higher Order PDEs with Constant Coefficients

#### XII. Solid Geometry

The Plane- Right line- Sphere- Cones and Cylinders

## Written Examination Syllabus for the post of Degree College Lecturers in Residential Educational Institutions Societies

### 4. Paper - II: Statistics

1. **Probability:** Sample space, events, relations among events, classical and relative frequency definitions of probability, probability as a measure. Basic results on probability of events. Conditional probability and Baye's theorem. Independence of events.

Random variables (discrete and continuous). Distribution function and its properties. Joint distribution of two and more random variables. Marginal, conditional distributions and densities. Expectation of random variables, moments and generating functions. Conditional expectation. Characteristics function and its properties. Inversion theorem. Statement of continuity theorem.

Convergence of a sequence of events. Borel - Cantelli lemma, Borel 0-1 law and statement of Kolmogorov 0-1 law with applications. Convergence of a sequence of random variables. Convergence in law, in probability, with probability one and in quadratic mean and other inter-relationships. Convergence in law of  $X_n + Y_n$ ,  $X_n Y_n$  and  $X_n / Y_n$ . Definition and examples of weak law of large numbers. Khintchine's theorem and strong law of large numbers.

Statement of CLT. Lindberg-Levy and Liapunov forms of central limit theorems, statement of Lindberg - Feller form of CLT with simple illustrations.

Stochastic processes with examples. Markov Chains transition probability matrix and classification of states of a Markov chain with examples.

2. **Distribution Theory :** Theoretical distribution - Binomial, Poisson, negative binomial, geometric, hypergeometric, multinomial, rectangular, normal, lognormal, exponential, gamma, beta, Cauchy, weibull and Pareto distributions with properties.

Transformation of random variables. Distribution of Chi - squares, t and F distributions and their properties. Distribution of  $\bar{X}$  and  $s^2$  for samples coming from normal population. Distribution of order statistics and range. Joint and marginal distribution of order statistics. Distribution of sample quantiles.

Multivariate normal distribution and its marginal and conditional distribution with examples. Simple correlation and lines of regression.

3. **Estimation:** Unbiasedness, sufficiency, consistency and efficiency of a point estimate with examples. Statement of Neyman's factorization criterion with applications. Minimum variance unbiased estimation, Crammer - Rao lower bound and its applications. Rao - Blackwell theorem, completeness and Lehman - Scheffe theorem. Estimation by method of maximum likelihood, moments and statement of its properties. Confidence intervals for the parameters of normal, exponential, binomial and Poisson distribution.

4. **Testing of Hypotheses:** Concepts of tests of statistical hypothesis, types of error, level of significances, power, critical region and test function. Concepts of MP and UMP tests. Neyman - Pearson lemma and its applications, one parameter exponential family of distributions. Concepts of unbiased and consistent tests. Likelihood ratio (LR) criterion with simple applications (including homogeneity of variances). Statements of asymptotic properties of LR tests. Large sample tests of population means, proportions and correlation coefficients. Relation between confidence intervals, and hypothesis testing. Wald's SPRT for testing a simple null hypothesis against simple alternative hypothesis and its OC and ASN functions. SPRT procedure for binomial, Poisson, normal and exponential distributions.

5. **Non - Parametric Tests :** Non - parametric tests for (i) one sample case: sign test, Wilcoxon signed rank test for symmetry, runs test for randomness, Kolmogorov - Smirnov (k-s) test for goodness of fit (ii) two sample case: sign and Wilcoxon tests for paired

comparisons. Wilcoxon - Mann Whitney test and K -S test and test for independence based on spearman's rank correlation. Kruskal-Wallis test and Friedman's test.

**6. Multivariate Tests:** Principal Component Analysis, Factor analysis, Canonical Correlation, Cluster analysis. Multivariate tests based on Hotelling's  $T^2$  and Mahalanobis  $D^2$  statistics for one sample problem, two sample problem and classificatory problems between two normal populations based on Fisher's discriminant function.

**7. Sampling Techniques:** Estimation of population mean, population total and variance of the estimator in the following sampling methods: simple random sampling with and without replacements and equal and unequal probabilities. Horwitz Thompson and Yates and Grundy estimators. Selection of sample and determination of sample size. Stratified random sampling, proportional and optimum allocations and comparisons. Systematic sampling with  $N=nk$  and comparisons in populations with linear trend. Cluster sampling with clusters of equal and unequal sizes. Two stage sampling with equal and unequal first stage units. Ratio and regression estimation in case of simple random sampling and stratified random sampling. Non - sampling errors.

**8. Linear Models and Analysis of Experimental Designs:** Gauss - Markov linear model, BLUE for linear functions of parameters Gauss - Markov theorem, analysis of multiple regression models, multiple and partial correlations. Tests of hypothesis on regression and correlation parameters, tests of sub - hypothesis. Aitken's generalized least squares. Concept of multicollinearity.

Introduction of selecting the best regression equation, all possible regressions: backward, stepwise regression procedures. Variations on these methods. Probit and logit analysis, Introduction to non-linear regression model building, least squares in non-linear case, estimating the parameters, non-linear growth models.

Statement of Cochran's theorem for quadratic forms, analysis of variance one - way classification model, two - way classification model with one - observation per cell with more than one (equal) observations per cell with interaction. Fisher's least significance difference (LSD) method. Analysis of covariance one-way and two - way classification. Fundamental principles of experimental designs. Analysis of completely randomized design (CRD), Randomized Block Design (RBD), and Latin Square design (LSD). Analysis of RBD and LSD with one and more than one observation missing.

Estimation of main effects, interactions and analysis of  $2^2$ ,  $2^3$ ,  $2^4$ ,  $2^n$  and  $3^2$  factorial experiments. Total and partial confounding of  $2^2$ ,  $2^3$ ,  $2^4$  and  $3^2$  factorial designs. Concept of balanced partial confounding. Fractional factorial designs. Split plot design and its analysis.

Balanced incomplete block design (BIBD) - parametric relations, Intra - block analysis and recovery of inter block information. Partially balanced incomplete block design with two associate classes (PBIBD (2)) - parametric relations and intra -block analysis. Youden Square design, Lattice design and intra - block analysis of simple lattice design.

**9. Optimization Techniques - I :** Meaning and scope of Operations research, formulation of Linear programming problem (LPP), rule of steepest ascent, and  $\theta$ -rule, optimum solution for Linear programming problem by graphical method and simplex algorithm using artificial variables (Big M/penalty method and two phase simplex methods). Dual of a symmetric Linear programming problem and reading the optimal solution to the dual from the optimum simplex table of primal. Complementary slackness theorem, dual simplex algorithm.

Definition of transportation problem, initial basic feasible solution by North West, matrix minimum methods and VAM. Optimal solution through MODI tableau for balanced and unbalanced transportation problem, degeneracy in transportation problem, transportation problems as a special case of linear programming problem. Assignment problem as a special case of transportation problem and LPP. Optimal solution using Hungarian method.

Sequencing: Optimal sequence of 'n' jobs on two and three machines without passing.

**10. Optimization Techniques - II :**Non-linear programming problem - Formulation, generalized Lagrange multiplier technique, Kuhn - Tucker necessary and sufficient conditions for optimality of an NLPP.

Game theory: 2 person zero sum game, pure strategies with saddle point, principles of dominance and games without saddle point.

Introduction to simulation, generation of random numbers for uniform, Normal, Exponential, Cauchy and Poisson distributions. Estimating the reliability of the random numbers, simulation to queuing and inventory problem.

Queuing Theory: Introduction, essential features of Queuing system, operating Characteristics of Queuing system (transient and steady states). Queue length, General relationships among characteristics. Probability distribution in queuing systems, distribution of Arrival and inter arrival. Distribution of death (departure) process, service time .Classification of Queuing models and solution of Queuing models; M/M/1:  $\infty$ /FIFO and M/M/1: N/FIFO.

## Main Examination Syllabus for the post of Degree Lecturers in Residential Educational Institutions Societies

### 5. Paper - II: Physics

#### I. Mathematical Methods of Physics

Dimensional analysis, vector algebra and vector calculus. Linear algebra, matrices, Cayley-Hamilton Theorem. Eigenvalues and eigenvectors. Linear ordinary differential equations of first & second order, special functions (Hermite, Bessel, Laguerre and Legendre functions). Fourier series, Fourier and Laplace transforms. Elements of complex analysis, analytic functions; Taylor & Laurent series: poles, residues and evaluation of integrals. Elementary probability theory, random variables, binomial, Poisson and normal distributions. Central limit theorem.

#### II. Classical Mechanics

Newton's laws. Dynamical systems, Phase space dynamics, stability analysis. Central force motions. Two body collisions-scattering in laboratory and centre of mass frames. Rigid body dynamics-moment of inertia tensor. Non-inertial frames and pseudo forces. Variational principle. Generalized coordinates. Lagrangian and Hamiltonian formalisms and equations of motion. Conservation laws and cyclic coordinates. Periodic motion: small oscillations, normal modes. Special theory of relativity-Lorentz transformations, relativistic kinematics and mass-energy equivalence.

#### III. Electromagnetic Theory

Electrostatics: Gauss's law and its applications, Laplace and Poisson equations, boundary value problems. Magneto statics: Biot-savart law, Ampere's theorem. Electromagnetic induction. Maxwell's equations in free space and linear isotropic media; boundary conditions on the 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. Dynamics of charged particles in static and uniform electromagnetic fields. Charges particles in inhomogeneous fields.

#### IV. Quantum mechanics

Wave-particle duality. Schrodinger equation (time-dependent and time-independent). Eigenvalue problems (particle in a box, harmonic oscillator, etc.). Tunnelling through a barrier. Wave function in coordinate and momentum representations. Commutators and Heisenberg uncertainty principle. Dirac notation for state vectors. Motion in a central potential: Orbital angular momentum, angular momentum algebra, spin, addition of angular momenta; Hydrogen atom. Stern-Gerlach experiment. Time independent perturbation theory and applications. Variational method. Time dependent perturbation theory and Fermi's golden rule. Selection rules. Identical particles. Pauli exclusion principle. Spin-statistics connection.

#### V. Thermodynamics and statistical Physics

Laws of thermodynamics and their significance. Thermodynamic potentials, 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 its connection with thermodynamic quantities. Classical and quantum statistics. Bose and Fermi gases. Principle of detailed balance. Black body radiation and Planck's distribution law

#### VI. Electronics

Semiconductor devices (diodes, junctions, transistors, field effect devices, homo- and hetero junction devices), device structure, device characteristics, frequency dependence and applications. Optoelectronic devices (solar cells, photo detectors, LEDs). Rectifiers and power supplies. Feedback amplifiers and their frequency response. Oscillators, Multivibrators. Operational amplifiers and their applications, Digital techniques and applications (Logic circuits, registers, counters and Comparators). A/D and D/A converters. Microprocessors, micro controller basics. Fundamentals of AM communication, FM communication and Fibre optic communication and their techniques.

#### VII. Atomic & Molecular Physics

Quantum States of an electron in an atom. Electron spin. Spectrum of Helium and alkali atom. Relativistic corrections for energy levels of hydrogen atom, hyper fine structure

and isotopic shift, width of spectrum lines, LS & JJ couplings. Zeeman, Paschen-Bach & Stark effects. Frank-Condon principle. Electronic rotational, vibrational and Raman spectra of diatomic molecules. Selection rules. Lasers: spontaneous and stimulated emission, Einstein A & B coefficients. Optical pumping, Population inversion, rate equation. Modes of resonators and coherence length.

### VIII. Condensed Matter Physics

Bravais lattice. Reciprocal lattice. Diffraction and the structure factor. Bonding of solids. Elastic properties, Phonons, lattice specific heat. Free electron theory and electronic specific heat. Response and Relaxation phenomena. Drude model of electrical and thermal conductivity. Hall Effect and thermoelectric power. Electron motion in a periodic potential, band theory of solids; metals, insulators and semiconductors. Superconductivity: Type-I and type-II superconductors. Josephson junctions. Superfluidity. Defects and dislocations. Ordered phases of matter: translational and orientation order, kinds of liquid crystalline order. Quasi crystals.

### IX. Nuclear and Particle Physics

Basics of radio activity. Basic nuclear properties; size, shape and charge distribution, spin and parity. Binding energy, Semi-empirical mass formula, liquid drop model. Nature of the nuclear force, form of nucleon-nucleon potential, charge independence and charge symmetry of nuclear forces. Deuteron problem. Evidence of shell structure, single-particle shell model, its validity and limitations. Elementary ideas of alpha, beta and gamma decays and their selection rules. Fission and fusion. Nuclear reactions. Reaction mechanism, compound nuclei and direct reactions.

### X. Mathematical Methods of Physics

Green's function. Partial differential equations (Laplace, wave and heat equations in two and three dimensions). Elements of computational techniques: root of functions, interpolation, and extrapolation, integration by trapezoid and Simpson's rule, solution of first order differential equation using Runge-Kutta method. Finite difference methods. Tensors. Introductory group theory.

### XI. Classical Mechanics

Basic concepts of Dynamical systems, Poisson brackets and canonical transformations. Symmetry, invariance and Noether's theorem. Hamilton-Jacobi theory.

### XII. Electromagnetic Theory

Dispersion relations in Plasma. Lorentz invariance of Maxwell's equation. Transmission lines and wave guides. Radiation from moving charges and dipoles and retarded potentials.

### XIII. Quantum Mechanics

Spin-Orbit coupling, fine structure. WKB approximation. Elementary theory of scattering: Phase shifts, partial waves, Born approximation. Relativistic quantum mechanics: Klein-Gordon and Dirac equations. Semi-classical theory of radiation.

### XIV. Thermodynamics and Statistical Physics

First- and second-order phase transitions. Diamagnetism, paramagnetism and ferromagnetism. Ising model. Bose-Einstein condensation. Diffusion equation. Random walk and Brownian motion. Introduction to non equilibrium processes.

### XV. Condensed Matter Physics

Phase contrast microscopy, Thermo gravimetric analysis. Differential scanning calorimetry. Theory and applications of Mossbauer effect. Electron Spin Resonance (ESR), Nuclear Magnetic Resonance (NMR), Chemical shift and applications. X-ray diffraction technique, scanning electron microscopy and transmission electron microscopy and their applications.

### XVI. Nuclear and Particle Physics

Classification of fundamental forces. Elementary particles and their quantum numbers (charge, spin, parity, isospin, strangeness, etc.). Quark model, baryons and mesons. C, P, and T invariance. Applications of symmetry arguments to particle reactions. Parity non-conservation in weak interaction. Relativistic kinematics.



## Written Examination Syllabus for the post of Degree College Lecturers in Residential Educational Institutions Societies

### 6. Paper - II: Chemistry

#### Inorganic chemistry:

- I. Atomic structure and chemical bonding - structure and bonding in homo and hetero nuclear molecules. Application of VSEPR, Valence Bond and Molecular orbital theories in explaining the structures of simple molecules.
- II. Chemistry of main group (I to VII & Nobel gases) elements.
- III. Chemistry of transition elements and inner transition elements.
- IV. General principles of metallurgy: Occurrence of metals, Concentration of ores - levigation, magnetic separation, froth floatation, leaching, Extraction of crude metal from concentrated ore - conversion to oxide, reduction of oxide to the metal, Thermodynamic principles of metallurgy - Ellingham diagram limitations, applications. Extraction of iron, copper and zinc from their oxides, Electrochemical principles of metallurgy, Oxidation and reduction, Refining of crude metal - distillation, liquation, poling, electrolysis, zone refining and vapour phase refining, Uses of aluminium, copper, zinc and iron. Alloys: Inter-metallic compounds
- V. Concept of Symmetry in Molecules - Symmetry Operations - Symmetry Elements : Rotational Axis of Symmetry and Types of Rotational Axes, Plane of Symmetry and types of Planes, Improper Rotational Axis of Symmetry, Inversion Center and Identity Element. Molecular Point Groups: Definition and Notation of Point Groups, Classification of Molecules into  $C_1$ ,  $C_s$ ,  $C_i$ ,  $C_n$ ,  $C_{nv}$ ,  $C_{nh}$ ,  $D_n$ ,  $D_{nh}$ ,  $D_{nd}$ ,  $S_n$ ,  $T_d$ ,  $O_h$  &  $I_h$ .
- VI. Coordination Chemistry - IUPAC nomenclature, bonding theories - Werner's theory, EAN rule, VBT, Crystal Field Theory - Crystal Field splitting patterns in various geometries, Factors affecting  $CFSE$ . Calculation of  $CFSE$  - Jahn Teller effect - Isomerism in complexes. Spectral and magnetic properties of Coordination complexes - Russell Sanders coupling - term symbols - charge transfer spectra of complexes.
- VII. Stability of metal complexes - Stepwise and overall stability constants - Factors affecting the stability of metal complexes - Chelate effect. Pearson's theory of hard and soft acids and bases (HSAB).
- VIII. Reaction mechanism of metal complexes - Inert and labile complexes - Ligand substitution reaction of octahedral complexes - Acid hydrolysis, Base hydrolysis - Conjugate base mechanism - Anation reactions - Substitution reactions of square planar complexes - Trans effect - Electron transfer reactions - Inner and outer sphere mechanisms.
- IX. Metal carbonyls, Nitrosyls and Metallocenes - Structure and bonding.
- X. Bio-inorganic chemistry - Metal complexes as oxygen carriers - Hemoglobin and myoglobin - Oxygen transport - Non heme proteins - Hemerythrin and hemocyanin.
- XI. Analytical chemistry - Chromatography - General principles involved in separations by Paper, Thin layer, Column Chromatography, GC and HPLC.

#### Physical Chemistry:

- I. Solutions and colligative properties: Types of solutions, Expressing concentration of solutions mass percentage, volume percentage, mass by volume percentage, parts per million, mole fraction, molarity and molality, Solubility: Solubility of a solid in a liquid, solubility of a gas in a liquid, Henry's law, Vapour pressure of liquid solutions: vapour pressure of liquid - liquid solutions. Raoult's law as a special case of Henry's law - vapour pressure of solutions of solids in liquids, Ideal and non-ideal solutions, Colligative properties and determination of molar mass - Relative lowering of vapour pressure, elevation of boiling point, Depression of freezing point, Osmosis and osmotic pressure - reverse osmosis and water purification. Abnormal molar masses - van't Hoff factor. Phase equilibria - Phase rule and its application to one component and two component systems

- II. Acids and bases: Acids, bases and salts- Arrhenius, Bronsted-Lowry and Lewis concepts of acids and bases. Ionisation of Acids and Bases - Ionisation constant of water and its ionic product- pH scale ionisation constant of weak acids and weak bases- relation between  $K_a$  and  $K_b$ . Di and poly basic acids and di and poly acidic Bases- Factors affecting acid strength- Common ion effect in the ionization of acids and bases- Hydrolysis of salts and pH of their solutions. Buffer solutions.
- III. Thermodynamics: Brief review of concepts of I and II laws of thermodynamics. Concept of entropy. Entropy as a state function. Calculation of entropy changes in various processes. Entropy changes in an ideal gas. Entropy changes on mixing of ideal gases. Entropy as a function of V and T. Entropy as a function of P and T. Entropy change in isolated systems- Clausius inequality. Entropy change as a criterion for spontaneity and equilibrium. Third law of thermodynamics. Evaluation of absolute entropies from heat capacity data for solids, liquids and gases. Standard entropies and entropy changes of chemical reactions. Helmholtz and Gibbs free energies (A and G). A and G as criteria for equilibrium and spontaneity. Physical significance of A and G. Driving force for chemical reactions- relative signs of  $\Delta H$  and  $\Delta S$ . Thermodynamic relations. Gibbs equations. Maxwell relations. Temperature dependence of G. Gibbs- Helmholtz equation. Pressure dependence of G. Chemical potential: Gibbs equations for non-equilibrium systems. Material equilibrium. Phase equilibrium. Clapeyron equation and Clausius-Clapeyron equation. Conditions for equilibrium in a closed system. Chemical potential of ideal gases. Ideal-gas reaction equilibrium- derivation of equilibrium constant. Temperature dependence of equilibrium constant - The Van't Hoff equation.
- IV. Electrochemistry: Conductance and its applications, Derivation of Nernst equation. Chemical and concentration cells (with and without transference). Liquid junction potential - derivation of the expression for L J P - its determination and elimination. Applications of EMF measurements: Solubility product, potentiometric titrations, determination of transport numbers, equilibrium constant measurements. Decomposition potential and its significance. Electrode polarization - its causes and elimination. Concentration over potential. Concept of activity and activity coefficients in electrolytic solutions. The mean ionic activity coefficient. Debye-Huckel theory of electrolytic solutions. Debye-Huckel limiting law. Calculation of mean ionic activity coefficient. Limitations of Debye-Huckel theory. Extended Debye-Huckel law. Theory of electrolytic conductance. Derivation of Debye-Huckel-Onsager equation - its validity and limitations. Concept of ion association - Bjerrum theory of ion association (elementary treatment) - ion association constant - Debye-Huckel-Bjerrum equation.
- V. Quantum chemistry: Black body radiation- Planck's concept of quantization- Planck's equation, average energy of an oscillator. Wave particle duality and uncertainty principle - significance for microscopic entities. Emergence of quantum mechanics. Wave mechanics and Schrödinger wave equation. Operators - operator algebra: Commutation of operators, linear operators, Complex functions, Hermitian operators. Operators and Eigen functions and Eigen values. Degeneracy. Linear combination of Eigen functions of an operator. Well behaved functions. Normalized and orthogonal functions. Postulates of quantum mechanics. Physical interpretation of wave function. Observables and operators. Measurability of operators. Average values of observables. The time dependent Schrodinger equation. Separation of variables and the time-independent Schrodinger equation. Theorems of quantum mechanics: Real nature of the Eigen values of a Hermitian operator - significance. Orthogonal nature of the Eigen values of a Hermitian operator- significance of orthogonality. Expansion of a function in terms of Eigen values. Eigen functions of commuting operators - significance. Simultaneous measurement of properties and the uncertainty principle. Particle in a box- Particle in one and three dimensional box. Plots of  $\psi$  and  $\psi^2$  discussion, Degeneracy of energy levels. Comparison of classical and quantum mechanical particles. Calculations using wavefunctions of the particle in a box- orthogonality, measurability of energy, position and momentum, average values and probabilities.
- VI. Chemical kinetics: Theories of reaction rates - Collision theory, Transition state theory, Reaction coordinate, activated complex and the transition state. Thermodynamic formulation of transition state theory. Unimolecular reactions and Lindeman's theory.

- VII. Complex reactions - Opposing reactions, parallel reactions and consecutive reactions. Chain reactions- general characteristics, steady state treatment - H<sub>2</sub> - Br<sub>2</sub> reaction. Derivation of rate law. Effect of structure on reactivity- Linear free energy relationships. Hammett and Taft equations - substituent ( $\sigma$  and  $\sigma^*$ ) and reaction constant ( $\rho$  and  $\rho^*$ ) with examples. Michaelis-Menten mechanism of enzyme catalyzed reactions - derivation of kinetic equation and its applications.
- VIII. Photochemistry: Electronic transitions in molecules - The Franck Condon principle. Electronically excited molecules- singlet and triplet states. Radiative life times of excited states-theoretical treatment. Measured lifetimes. Quantum yield and its determination. Actinometry - ferrioxalate and uranyl oxalate actinometers. Derivation of fluorescence and phosphorescence quantum yields. E-type delayed fluorescence- evaluation of triplet energy splitting ( $\Delta E_{ST}$ ). Laws of photo chemistry, Photo physical processes, photo physical kinetics of unimolecular reactions. Calculation of rate constants of various photo physical processes, State diagrams, photochemical primary processes. Types of photochemical reactions- electron transfer, photo dissociation, addition, abstraction, oxidation and isomerisation reactions with examples. Effect of light intensity on the rates of photochemical reactions. Photosensitization. Quenching- Stern Volmer equation. Experimental set up of a photochemical reaction. Introduction to fast reactions- Principles of flash photolysis.
- IX. Solid state chemistry: General characteristics of solid state. Classification of crystalline solids based on different binding forces, probing the structure of solids: X-ray crystallography, Crystal lattices and unit cells. Bravais lattices- primitive and centred unit cells, Number of atoms in a unit cell (primitive, body centred and face centred cubic unit cell), Close packed structures: Close packing in one dimension, in two dimensions and in three dimensions- tetrahedral and octahedral voids- formula of a compound and number of voids filled- locating tetrahedral and octahedral voids, Packing efficiency in simple cubic, bcc and in hcp, ccp lattice. Calculations involving unit cell dimensions density of the unit cell. Imperfections in solids- types of point defects- stoichiometric and non-stoichiometric defects. Magnetic properties of solids- classification of magnetic materials, Magnetic susceptibility, Langevin diamagnetism, Weiss theory of para magnetism. Magnetic properties of solids - classification of magnetic materials, Magnetic susceptibility, Langevin diamagnetism, Weiss theory of para magnetism
- X. Electronic properties of metals, insulators and semi conductors: Electronic structure of solids, Band theory, band structure of metals, insulators and semiconductors. Electrons holes and excitons. The temperature dependence of conductivity of extrinsic semi conductors. Photoconductivity and photovoltaic effect.
- XI. Superconductivity. Occurrence of superconductivity. Destruction of superconductivity by magnetic fields- Meissner effect. Types of superconductors. Theories of super conductivity- BCS theory.

#### Organic Chemistry:

- I. IUPAC nomenclature of organic molecules. Isomerism - classification of isomers.
- II. Classification, preparations and properties of alkane, alkenes, alkynes, cyclo alkanes, aromatic hydrocarbons, halogen compounds, hydroxy compounds, carbonyl compounds, carboxylic acids and its derivatives.
- III. Stereo chemistry: Molecular representations (Wedge, Fisher, Newman and Saw-horse projection formula) their description and interconversions. Stereoisomers - classification- configuration- R,S Nomenclature, criteria for chirality, Axial chirality of allenes, spiranes, alkylidenes, Cycloalkanes, chiral biaryls - Atropisomerism. Planar chirality of ansa compounds and trans- cyclooctene. Helical chiral compounds. Determination of absolute configuration by chemical correlation methods. Determination of configuration in E,Z- nomenclature. Spectral and chemical methods for determination of E, Z- configuration, including aldoxime and ketoximes. Asymmetric synthesis: Topicity, pro-chirality, stereoselectivity, enantioselectivity and diastereoselectivity. Asymmetric aldol reaction and Diel's alder reaction.
- IV. Introduction to conformational isomerism, Klyne - Prelog terminology for conformers and torsion angles, dihedral angle, Steric strain and the concept of dynamic

stereoisomerism. Study of conformations of acyclic compounds like ethane, butane, dihalobutanes, halohydrin, ethylene glycol, butane-2, 3-diol, amino alcohols and 1,1,2,2-tetrahalobutanes. Study of conformations of cyclic compounds -cyclo pentane, cyclohexane, cyclohexanone, and its derivatives.

- V. Nature of bonding in organic molecules and aromaticity, delocalized chemical bonding, conjugation, cross conjugation, resonance, hyperconjugation, tautomerism, Huckel's Rule and the concept of aromaticity- Aromaticity, non-aromaticity and anti aromaticity. Aromaticity of benzenoid and nonbenzenoid compounds, alternant and non-alternant hydrocarbons, Azulenes, Fulvenes and Annulenes. Metallocenes- Ferrocene.
- VI. Reactive intermediate: Generation, detection, structure, stability and reactivity of carbocation, carbanion, free radical, carbene and nitrene. Molecular rearrangements: definition and classification, molecular rearrangements involving 1). Electron deficient carbon: Wagner - Meerwein, Pinacol-Pinacolone, allylic and Wolf rearrangement. 2). Electron deficient Nitrogen: Hofmann, Lossen, Curtius, Schmidt and Beckmann rearrangements. 3) Electron deficient Oxygen: Baeyer-Villiger oxidation. 4). Base catalysed rearrangements: Benzylic acid, Favorski, Tran annular, Sommelet-Hauser and Smiles rearrangement.
- VII. Organic reaction mechanism: Mechanism, stereochemistry and energy profile diagram of Addition reactions to polar and non polar double bonds. Substitution reactions: Mechanism, rate law, stereochemistry and factors affecting on aliphatic and aromatic reactions. Elimination reactions- mechanism, rate law, stereochemistry, orientation and factors affecting on E1, E2, E1cB, pyrolytic syn elimination and a-elimination, elimination vs substitution. Detection of reaction mechanism by product isolation, isotopic labelling, chemical trapping and crossover experiments.
- VIII. Oxidation- Swern, Cr (VI) oxidants, Oxidative cleavage of 1,2-diols - Periodic acid and Lead tetraacetate.
- IX. Reductions - Wilkinson's catalytic hydrogenation, LiAlH<sub>4</sub>, NaBH<sub>4</sub>, BH<sub>3</sub>, AlH<sub>3</sub> and DIBAL.
- X. Synthetic strategies: Target selection, terminology, disconnection approach, C-C bond disconnections.
- XI. Heterocyclic chemistry: importance as drugs, nomenclature, classification based on size of the ring, number and nature of hetero atoms. Synthesis and reactivity of Pyrrole, furan, Thiophene, pyridine, Indole, Benzothiophene, Quinoline, Isoquinolines.
- XII. Alkaloids and Terpenoids- importance as drugs, isolation of natural products by steam distillation, solvent extraction and chemical methods. Structure determination and synthesis of papaverine, nicotine and quinine. General methods in the structure determination of Terpenes, isoprene rule, special isoprene rule, structure determination of a-Terpenol and camphor.
- XIII. Organic photochemistry: photochemical energy, Frank-Condon principle, Jablonski diagram, Electronic transitions, photosensitization, quenching, quantum efficiency, quantum yield, photochemistry of carbonyl compounds n $\pi$ \* and p $\pi$ \* transitions. Norrish type-I and Norrish type-II cleavages. Paterno-Buchi reactions, Photoreduction, photochemistry of enones- hydrogen abstraction, rearrangements of  $\alpha,\beta$ -unsaturated ketones and cyclohexadienones, photochemistry of p-benzoquinones, Dienes - photochemistry of 1,3-butadiene, (2+2) additions, Di-p-methane rearrangement, photochemistry of aromatic compounds, excited states of benzene and its 1,2-, 1,4-additions.
- XIV. Pericyclic reactions: Classification, Stereochemistry of pericyclic reactions, Molecular Orbitals and Symmetry of ethylene, 1,3-butadiene, 1,3,5-hexatriene, allylic, 1,3-pentadienyl and 1,3,5-heptatrienyl p- systems. Analysis of pericyclic reactions by PMO, FMO and orbital correlation methods.
- XV. Basic principles, concepts of UV, IR, <sup>1</sup>H NMR, <sup>13</sup>C NMR and Mass spectroscopic methods - structure determination of organic compounds by UV, IR, <sup>1</sup>H NMR, <sup>13</sup>C NMR and Mass spectroscopic methods.
- XVI. Green chemistry: Principles of Green chemistry, and its approaches.

## Written Examination Syllabus for the post of Degree College Lecturers in Residential Educational Institutions Societies

### 7. Paper - II: Botany

#### I. Phycology, Mycology, Bacteria and Viruses

**Phycology** : Thallus organization ; cell ultra structure ; reproduction (vegetative, sexual, asexual) ; criteria for classification of algae : pigments, reserve food, flagella ; classification, salient features of Chlorophyta, Charophyta, Xanthophyta, Bacillariophyta, Phaeophyta and Rhodophyta ; algal blooms and toxic algae, algal biofertilizers ; algae as food, and feed and role of algae in industry.

**Mycology** : General characters of fungi ; substrate relationship in fungi ; cell ultrastructure ; unicellular and multicellular organization ; cell wall composition ; nutrition (saprobic, biotrophic, symbiotic) ; reproduction (vegetative, asexual, sexual) ; heterothallism ; heterokaryosis parasexuality ; Molecular aspects in classification.

General account of Mastigomycotina, Zygomycotina, Ascomycotina, Basidiomycotina, Deuteromycotina ; fungi in industry, medicine and as food ; fungal diseases in plants and humans ; Mycorrhizae ; fungi as biocontrol agents.

Bacteria- ultrastructure and biochemistry of cell wall, nutritional types, reproduction, Plasmids.

Viruses- Characters and ultrastructure of virions and symptomatology and transmission of plant viruses. Mollicutes general characters of spiroplasmas and phytoplasmas Importance of microorganisms : Microbes in medicine, agriculture and environment.

#### II. Bryophyta, Pteridophyta and Gymnosperms

Bryophyta : Morphology, structure, reproduction and life history ; distribution ; classification., of Marchantiales, Jungermaniales, Anthocerotales, Sphagnales, Funariales and Polytrichales ; economic and ecological importance.

Pteridophyta : Morphology, anatomy and reproduction ; classification of Psilopsida, Lycopsidea, Sphenopsida and Pteropsida; evolution of stele ; heterospory and origin of seed habit; general account of fossil pteridophytes.

Gymnosperms- Introduction and classification, Structure and reproduction of Cycadales, Ginkgoales, Coniferales, Ephedrales, Welwitschiales and Gnetales.

#### III. Taxonomy Of Angiosperms

The species concept : Taxonomic hierarchy, species, genus, family and other categories ; principles used in assessing relationship, delimitation of taxa and attribution of rank.

Salient features of the International Code of Botanical nomenclature.

Taxonomic tools : Herbarium ; floras ; histological, cytological, phytochemical, serological, biochemical and molecular techniques ; computers and GIS.

Systems of angiosperm classification : Phenetic versus phylogenetic systems ; cladistics in taxonomy ; relative merits and demerits of major systems of classification.

Study of the following families- Magnoliaceae, Malvaceae, Rutaceae, Apocynaceae, Asclepiadaceae, Lamiaceae, Amaranthaceae and Poaceae.

#### IV. Plant Anatomy And Embryology

Shoot development: Organization of the shoot apical meristem (SAM); control of cell division and cell to cell communication; control of tissue differentiation especially xylem and phloem ; secretory ducts and laticifers.

Phyllotaxy and leaf differentiation

Root Development: Organization of root apical meristem (RAM); vascular tissue differentiation; homeotic mutants in Arabidopsis and Antirrhinum,

Male gametophyte: Structure of anthers; microsporogenesis, role of tapetum; pollen development and gene expression; male sterility; sperm dimorphism and hybrid seed production; pollen germination, pollen tube growth and guidance ; pollen storage ; pollen allergy, pollen embryos.

Female gametophyte: Ovule development; megasporogenesis; organization of the embryo sac, structure of the embryo sac cells.

Pollination, pollen - pistil interaction and fertilization : Floral characteristics, pollination mechanisms and vectors; self-incompatibility; double fertilization.

Seed development and fruit growth: Endosperm development during early, maturation and desiccation stages; embryogenesis, cell lineages during late embryo development; storage proteins of endosperm and embryo; polyembryony; apomixis; embryo culture; fruit maturation.

Dormancy: Seed dormancy; overcoming seed dormancy; bud dormancy.

Senescence and programmed cell death (PCD): Types of cell death, PCD in the life cycle of plants, metabolic changes associated with senescence and its regulation; influence of hormones and environmental factors on senescence. Embryology related to taxonomy.

## V. Plant Resource Utilisation and Conservation

Origin, evolution, botany, cultivation and uses of (i) Food forage and fodder crops (ii) fibre crops (iii) medicinal and aromatic plants and (iv) vegetable oil-yielding crops. Ethnobotany - Scope and objectives of ethnobotany.

Important fire-wood and timber - yielding plants and non-wood forest products (NWFPs) such as bamboos, rattans, raw materials for paper-making, gums, tannins, dyes, resins and fruits.

Role of plants in Medicine- morphology, active principles and medicinal value of the following plants- Andrographis, Asparagus, Phyllanthus, Gymnema.

Principles of conservation; extinctions; environmental status of plants based on International Union for Conservation of Nature.

Strategies for conservation - in situ conservation : International efforts and Indian initiatives ; protected areas in India - sanctuaries, national parks, biosphere reserves, wetlands, mangroves and coral reefs for conservation of wild biodiversity.

Strategies for conservation - ex situ conservation : Principles and practices; botanical gardens, field genebanks, seed banks, in vitro repositories, cryobanks; general account of the activities of Botanical Survey of India (BSI), National Bureau of Plant Genetic Resources (NBPGR), Indian Council of Agricultural Research (ICAR), Council of Scientific and Industrial Research (CSIR) and the Department of Biotechnology (DBT) for conservation, non-formal conservation efforts.

## VI. -Plant Ecology

Climate, soil and vegetation patterns of the world: Life zones; major biomes and major vegetation and soil types of the world.

Vegetation organization: Concepts of community; analytical and synthetic characters of community.

Population characters, interactions of species- positive and negative interactions of species.

Ecological succession: types, changes involved in succession, concept of climax.

Biotic and abiotic interactions, habitat and niche, allopatric and sympatric speciation.

Ecosystem organization: Structure and functions; primary production methods of measurement of primary production, ; energy dynamics (trophic organization, energy flow pathways, ecological efficiencies); food chains, food web and ecological pyramids, global biogeochemical cycles of C, N, in terrestrial and aquatic ecosystems.

Biological diversity: Concept and levels; speciation and extinction; IUCN categories of threat; distribution and global patterns, hot spots; endemism, inventory.

Air, water and soil pollution: Kinds, sources, effects on plants and ecosystems.

Climate change: Green house gases (CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, CFCs: sources, trends and role); ozone layer and ozone depletion ; consequences of climate change (CO<sub>2</sub> fertilization, global warming, sea level rise, UV radiation).

Ecosystem stability : Concept (resistance and resilience); ecological perturbations (natural and anthropogenic) and their impact on plants and ecosystems ; ecology of plant invasion ; Biogeographical zones of India, Flora of Telangana - vegetational types.

## VII. -Cell Biology

Ultrastructure and functions of cell organelles. Cell wall, Plasma membrane Plasmodesmata, Chloroplast, Mitochondria, Plant Vacuoles, Nucleus, Ribosomes, Cell cycle and apoptosis : Control mechanisms; role of cyclins and cyclin dependent kinases; retinoblastoma and E2F proteins; cytokinesis and cell plate formation; mechanisms of programmed cell death. Mitosis and meiosis its significance

Other cellular organelles: Structure and functions of microbodies, Golgi apparatus, lysosomes, endoplasmic reticulum.

Techniques in cell biology: Immuno techniques; in situ hybridization, FISH, GISH; Electron microscopy.

## VIII. Cytogenetics

Chromatin organization : Chromosome structure and Packaging of DNA, molecular organization of centromere and telomere; nucleolus and ribosomal RNA genes ; euchromatin and heterochromatin ; karyotype analysis ; banding patterns ; specialized types of chromosomes ; polytene, lampbrush, B-chromosomes and sex chromosomes ; molecular basis of chromosome pairing.

Structural and numerical alterations in chromosomes : Duplication, deficiency, inversion and translocation; autopolyploids ; allopolyploids ; evolution of major crop plants.

Genetics of prokaryotes and eukaryotic organelles : genetic recombination in phage ; genetic transformation, conjugation and transduction in bacteria ; genetics of mitochondria and chloroplasts cytoplasmic male sterility.

Gene structure and expression : Genetic fine structure ; cis - trans test ; Benzer's experiment; introns and their significance ; RNA splicing ; regulation of gene expression in prokaryotes and eukaryotes.

Mutations : Spontaneous and induced mutations ; physical and chemical mutagens ; molecular basis of gene mutations ; transposable elements in prokaryotes and eukaryotes ; mutations induced transposons ; site-directed mutagenesis ; DNA damage and repair mechanisms.

Plant Breeding: Principles and methods of plant breeding ; Marker assisted breeding.

Biostatistics : Mean, Variance, Standard deviation, Standard error, Student's t' test, chi-square and ANOVA.

Molecular cytogenetics : Nuclear DNA content; C-value paradox; cot curve and its significance; restriction mapping - concept and techniques ; multigene families and their evolution.

## IX. Plant Physiology

Energy flow : Principles of thermodynamics, free energy and chemical potential, redox reactions, structure and functions of ATP.

Fundamentals of enzymology : General aspects, allosteric mechanism, regulatory and active sites, isoenzymes, kinetics of enzymatic catalysis, Michaelis - Menton equation and its significance.

Membrane transport and translocation of water and solutes: Plant water relations, mechanism of water transport through xylem, passive and active solute transport, membrane transport proteins.

Signal transduction: Receptors and G-proteins, phospholipid signaling, role of cyclic nucleotides, calcium-calmodulin cascade, diversity in protein kinases and phosphatases.

Photochemistry and photosynthesis: Photosynthetic pigments and light harvesting complexes, photo oxidation of water, mechanisms of electron and proton transport, carbon assimilation - the Calvin cycle, photorespiration and its significance, the C4 cycle, the CAM pathway, biosynthesis of starch and sucrose.

Respiration and lipid metabolism : Glycolysis, the TCA cycle, electron transport and ATP synthesis, pentose phosphate pathway, glyoxylate cycle, alternative oxidase system, structure and function of lipids, fatty acid biosynthesis, synthesis of membrane lipids, structural lipids and storage lipids and their catabolism.

Nitrogen fixation and metabolism : Biological nitrogen fixation, nodule formation and nod factors, mechanism of nitrate uptake and reduction, ammonium assimilation.

Photobiology : Photochromes and cryptochromes, photophysiology of light -induced responses, cellular localization.

Plant growth regulators and elicitors : Physiological effects and mechanism of action of auxins, gibberellins, cytokinins, ethylene, abscisic acid, brassinosteroids, polyamines, jasmonic acid and salicylic acid.

The flowering process : Photoperiodism, endogenous clock and its regulation, floral induction and development - genetic and molecular analysis, role of vernalization.

Stress physiology : Plant responses to biotic and abiotic stress; mechanisms of biotic and abiotic stress tolerance, HR and SAR, water deficit and drought resistance, salinity stress, metal toxicity, freezing and heat stress, oxidative stress.

Coping with biotic stress: Chemical control, Biological control, IPM

## **X. Biotechnology and Genetic Engineering**

Plant Biotechnology - Principles, scope and applications.

Plant cell and tissue culture : General introduction, scope, cellular differentiation, and totipotency.

Organogenesis and adventitious embryogenesis : Morphogenesis; somatic embryogenesis.

Somatic hybridization : Protoplast isolation, fusion and culture.

Applications of plant tissue culture : Clonal propagation, artificial seed, production of hybrids and somaclones, production of secondary metabolites / natural products, cryopreservation and germplasm storage.

Recombinant DNA technology : Gene cloning principles and techniques, genomic / c DNA libraries, vectors, DNA synthesis and sequencing, polymerase chain reaction, DNA fingerprinting and DNA markers.

Genetic engineering of plants: Transgenic plants, Methods of gene transfer - Agrobacterium - mediated and microprojectile, chloroplast transformation, intellectual property rights, ecological risks and ethical concerns.

Microbial genetic manipulation : Bacterial transformation, selection of recombinants and transformants, genetic improvement of industrial microbes.

Genomics and proteomics : High throughput sequencing, genome projects, bioinformatics, functional genomics, microarrays.



## Written Examination Syllabus for the post of Degree College Lecturers in Residential Educational Institutions Societies

### 8. Paper - II: Zoology

#### I. General Concepts:

1. Levels of structural organization - Unicellular, multi cellular and colonial forms, Prokaryotic and Eukaryotic cells, Levels of organization of tissues, Organs & systems.
2. Acoelomata, Pseudocoelomata, Coelomata, Proterostomia and Deuterostomia.
3. Concepts of species and hierarchical taxa, Biological nomenclature, Classical methods of taxonomy of animals.

#### II. Non-Chordata:

1. General characters and classification of invertebrates up to order level.
2. Protozoa - Locomotion, Nutrition and reproduction in protozoa, Protozoan diseases of man- Kalaazar, Amoebiasis, Malaria, Trypanosomiasis.
3. Porifera - Canal system in Porifera, Skeleton in Porifera, Reproduction in sponges.
4. Coelenterata - Polymorphism, Metagenesis, Coral formation, Obelia.
5. Helminthes - Common Helminthic parasites of Man - Fasciola hepatica, Schistosoma, Taenia solium, Echinococcus granulosus, Ascaris, Ancylostoma, Trichinella - their life cycles, Pathogenesis and clinical significance. Parasitic adaptations in Helminths.
6. Annelida - Excretory system in Annelida, Coelom formation, Coelom and coelomoducts, Metamerism.
7. Arthropoda - Mouthparts of insects, Ommatidium, Useful and harmful insects, Metamorphosis in insects, Apiculture and Sericulture in India, Crustacean larvae, Peripatus.
8. Mollusca - Respiration, Torsion and Detorsion, Pearl formation.
9. Echinodermata - Echinoderm larvae, Water vascular system.

#### III. Chordata:

1. General characters and classification of chordates up to order level, Origin of chordates, Phylogeny and affinities of Hemichordata, Retrogressive metamorphosis.
2. Vertebrate integument and its derivatives, Comparative account of Digestive, Respiratory, Circulatory, Excretory and Reproductive systems of vertebrates.
3. Pisciculture in India, Common edible fishes.
4. Origin and evolution of Amphibia, Neoteny or Paedogenesis.
5. Important snakes of India, Identification of Poisonous and non- Poisonous Snakes, Poisonous Apparatus, Dinosaurs.
6. Flight adaptations and Migration in birds. Archeopteryx, Poultry.
7. Adaptive radiation in Mammals, Dentition in Mammals.

#### IV. Cell Biology:

1. Prokaryotic and Eukaryotic cell, Plasma membrane - Ultra structure & function.
2. Structure and function of intracellular organelles - Nucleus, Mitochondria, Golgi bodies, Lysosomes, Endoplasmic reticulum, Peroxisomes, Vacuoles, Cytoskeleton and its role in motility.
3. Organization of genes and chromosomes - Operon concept, unique and repetitive DNA, structure of chromatin and chromosomes, Heterochromatin, Euchromatin, transposons.
4. Cell division - Mitosis and meiosis, Cell cycle & its regulation.
5. DNA replication, Repair and Recombination - Unit of replication, Replication origin and Replication fork, DNA damage and Repair mechanism, Recombinant DNA technology, Transgenesis & Cloning.
6. Protein synthesis - Genetic code, Initiation, Elongation and termination.
7. Regulation of gene expression - Lac operon.

**V. Genetics:**

1. Mendel's law of inheritance - Gene interactions, Epistasis and Linkage.
2. Gene mapping methods - Linkage-Complete and Incomplete linkage, Linkage maps, Recombination, Mapping with molecular markers, Somatic cell hybrids.
3. Crossing over - Types (Somatic or mitotic crossing over and Germinal or meiotic crossing over) theories about the mechanism of crossing over, Tetrad analysis and cytological detection of crossing over.
4. Mutations - Types (Spontaneous and Induced), Causes and detection, Mutant types (Lethal, Conditional/biochemical, Loss of function, Gain of function, Germinal versus somatic mutants), Molecular basis of mutations.
5. Chromosomal aberrations (Deletion, Duplication, Inversion and Translocation, Ploidy and their genetic implications), Autosomal abnormalities (Down's syndrome, Trisomy-13, -18), Sex anomalies (Turner's syndrome, Klinefelter's syndrome, Hermaphroditism).
6. Human genetics - Human karyotyping, Genetic disorders due to mutant genes (Huntington's chorea), Sickle-cell anaemia (SCA), Inborn errors of metabolism - Phenylketonuria, Alkaptonuria .

**VI. System and Cell physiology:**

1. Blood and Circulation - Blood corpuscles, Haemopoiesis, Plasma function, Blood groups, Haemoglobin, Haemostasis.
2. Cardiovascular system - Neurogenic, Myogenic heart, Cardiac cycle, Tachycardia and Bradycardia.
3. Respiratory system - Transport of gases, Exchange of gases, Mechanism of respiration.
4. Nervous system - Neuron, Conduction of nerve impulse, Synaptic transmission, Neurotransmitters.
5. Muscle - Ultra structure of skeletal muscle, Mechanism of muscle contraction.
6. Sense organs - Eye and Ear.
7. Excretory system - Structure & function of mammalian Kidney and Nephron, Micturition.
8. Osmoregulation - Osmoregulation in Aquatic & Terrestrial animals, Hormonal control of Osmoregulation.
9. Digestive system - Digestion, Absorption, Assimilation and Egestion.
10. Endocrinology and Reproduction - Endocrine glands, Types of hormones & Mechanism of hormonal action, Hormonal regulation of reproduction in mammals.
11. Outline classification of organic compounds (Carbohydrates, Proteins and Lipids).
12. Order of protein structure - Primary, Secondary, Tertiary and Quaternary; Ramachandran plot.
13. Glycolysis (EMP), Krebs's cycle (TCA CYCLE), Electron transport system (Oxidative phosphorylation), Pentose phosphate pathway, Gluconeogenesis.

**VII. Evolution:**

1. Origin of life - Theories and Evidences of organic evolution, The modern synthetic theory.
2. Population genetics (Gene pool, Gene frequency), Hardy Weinberg's law.
3. Genetic drift and Convergent evolution, Adaptive radiation.
4. Isolation and Speciation.
5. Evolution of Horse and Man.
6. Zoogeographical realms of the world.

**VIII. Developmental biology:**

1. Spermatogenesis and Oogenesis.
2. Fertilization, Cleavage, Gastrulation, Formation of germ layers, Parthenogenesis.

3. Formation and Function of Foetal membranes.
4. Placenta - Definition and Function.
5. Types of Placenta.
6. Development of Frog and chick.

#### **IX. Histology:**

1. Histology of mammalian Tissues and Organs -Epithelial, connective, blood, bone, cartilage, skin, stomach, intestine, liver, pancreas, kidney, testis and ovary.

#### **X. Ecology:**

1. Concepts of Ecosystem.
2. Biogeochemical cycles (Carbon, Nitrogen and Phosphorous).
3. Influence of environmental factors on animals, Energy flow in Ecosystem, Food chains, food web and trophic levels.
4. Animal Associations (Neutralism, Mutualism, Symbiosis, Commensalism, Parasitism, Predation and Competition).
5. Ecological succession.
6. Environmental pollution- Air, water, land, noise, radioactive, thermal. Effects of pollution on ecosystem, Prevention of pollution
7. Wildlife in India- Conservation, Chipco movement.
8. Biodiversity- Economic significance, Conservation, Hot spots of India.

#### **XI. Immunology:**

1. Cells of the immune system- Lymphoid cells, Mono nuclear cells, Granulocytic cells, Mast cells.
2. Organs of the immune system- Primary and secondary lymphoid organs, Lymphatic system.
3. Antigens- Antigenic determinants or epitopes, immunogenicity, Haptens.
4. Humoral immunity -immunoglobulin (fine structure of immunoglobulin and immunoglobulin classes), The complement system, Classical and alternate pathway, Inflammation.
5. Innate (Non-specific immunity) - Anatomical barriers, Phagocytosis, Natural killer cells (NK cells), Interferons.
6. Cell mediated immunity- Mechanism of cell mediated immunity, Brief account on Antigen presentation, Major Histocompatibility complex.
7. Antigen-Antibody interactions- Affinity, Avidity, Cross-reactivity, Precipitation reactions, Agglutination reactions and ELISA.
8. Brief account on Immunological Hypersensitivity disorders:
  - a) Tolerance and Autoimmunity
  - b) Transplantation
  - c) Immunodeficiency diseases - HIV.
  - d) Immunization (Active and Passive immunity)

## Written Examination Syllabus for the post of Degree College Lecturers in Residential Educational Institutions Societies

### 9. Paper - II: Computer Science

1. **Computer Organization:** Memory Organizations, CPU Organisation, Assembly Language, Microprogramming, Input-Output Organization, Intel 8086 Computer.
2. **Programming:** Programming in C, Object oriented programming concepts including classes, Polymorphism, Inheritance, and Programming in C++, Java and Python.
3. **Data Structures:** Arrays, Records, Linked Lists, Trees, Binary Tree Traversal, Binary Search Trees, and Graphs.
4. **Design and Analysis of Algorithms:** Algorithm complexity, Algorithms Design Techniques - Divide and Conquer, Greedy Method, Dynamic Programming, Backtracking, Branch and Bound, NP-Hard and NP-Complete Problems.
5. **Principles of Programming Languages:** BNF, Variables, Data Types, Control Structures, Scope and Extent, Data Abstraction, Concurrency concepts, Exception Handling, Functional Programming, and Logic Programming.
6. **Compiler Design:** Types of grammar, Phases of compiler, Lexical Analysis, Parsing Techniques, Code generation and Optimization.
7. **Operating Systems:** Introduction, Process and CPU Scheduling, Process Synchronization, Deadlocks, Disk and Memory Management, Virtual Memory, File System Interface and Implementation, Protection and Security.
8. **Database Management Systems:** Introduction, Relational Model and Languages, Data Modeling, Database Design Theory and Methodology, SQL/ PLSQL, Transaction Processing & Concurrency control and Database Recovery & Security.
9. **Computer Graphics:** Line Drawing, Graphic Primitives and Polygons, 2D Transformations, Windows and Clipping, 3-D Graphics, Curves and Surfaces.
10. **Computer Networks:** Introduction, Seven Layers in OSI Model, Network Protocols, Internetworking, and TCP/IP Model.
11. **Distributed Operating Systems:** Goals, Client-Server Model, Synchronization in distributed systems, Distributed Process Management and File Systems, Distributed Shared Memory.
12. **Software Engineering:** Software Characteristics, Software Process Models, Analysis, Design, Coding, Testing, and Software Quality Assurance.
13. **Object oriented Analysis and Design:** Introduction to UML, Basic Structural Modeling, Classes and Object Diagrams, Behaviour Modeling and Architecture Modeling.
14. **Network Security:** Data Encryption and Decryption, Symmetric Key algorithms like DES, IDEA and AES, Public Key Cryptography, RSA algorithm, Digital Signatures & Authentication, Firewalls and VPN.

## Written Examination Syllabus for the post of Degree College Lecturers in Residential Educational Institutions Societies

### 10. Paper - II: Geology

**1. Geomorphology & Field Geology:** Fundamental concepts of geomorphology, Geomorphic processes, Weathering, soils, mass wasting, Streams and valleys, drainage patterns and their significance, groundwater, glacial cycle, wind, lakes, seas, earthquakes, volcanoes and mountains, application of geomorphology to various fields of earth sciences.

Field Geology: Toposheet, geological map, field work and sampling, compass, geological mapping procedures. Surveying Principles and methods surveying, chain survey, prismatic survey, plane table survey and theodolite survey. Dumpy's level.

**2. Crystallography, Mineralogy & Optical Mineralogy:** External symmetry of crystals: symmetry elements, classification of crystals into systems and classes, diffraction of crystals, Braggs' law. Physical properties of minerals, classification of minerals, structural and chemical principles of crystals / minerals, physical and optical characters and paragenesis of mineral groups- Olivine, pyroxene, amphibole, feldspars, quartz, chlorite, mica, spinel, epidote and garnet groups, optical properties of common rock forming silicate minerals.

**3. Structural geology and Geotectonics:** Stress-strain relationship of elastic, plastic and viscous materials. Principles of geological mapping, measurement of strike and dip, Structural analysis of folds, cleavages, lineation's, joints, and faults, superposed deformation, mechanism of folding and faulting, Unconformities, structural behavior of igneous rocks, diapirs and salt domes, fundamentals of petrofabric analysis.

Earth and solar system, planetary evolution of earth and its internal structure, Heterogeneity of the earth's crust, Major tectonic features of the oceanic and continental crust, Continental drift, mid oceanic ridges, deep sea trenches, continental shield areas and mountain chains. Paleomagnetism, seafloor spreading and plate tectonics, Island arcs, oceanic islands and volcanic arcs, isostasy, orogeny, geosynclines, and seismic belts of the earth, seismicity and plate movements, Geodynamics of the Indian plate.

**4. Palaeontology & Stratigraphy:** Micro-palaeontology, origin and evolution of life, classification and uses of micro fossils. Plant fossils: Gondwana flora and their significance, Invertebrate and vertebrate palaeontology, fossils and their morphology, distribution with geological time period.

Principles of Stratigraphy, geological time scale, modern methods of stratigraphic correlation, Precambrian Stratigraphy of India, Stratigraphy of the Palaeozoic, Mesozoic and Cenozoic formations of India. Gondwana system and Gondwana land, origin of Himalaya and evolution of Siwalik basin, Deccan traps, Quaternary Stratigraphy, rock record, paleoclimates and paleogeography.

**5. Igneous Petrology & Geochemistry:** Origin of magmas, phase equilibrium in igneous systems, Bowen's reaction principle, Magmatic evolution and differentiation, Structures and textures of igneous rocks, Classification of igneous rocks, Magmatism and tectonics, Igneous rock suites- Ultramafic rocks, Basic rocks, Intermediate rocks, Acidic rocks and Alkaline rocks.

Geochemistry, Elements, Meteorites, Primary geochemical differentiation of earth, Goldschmidt's geochemical classification of elements, Periodic table, Magmatism as geochemical process, Major elemental distribution in igneous rocks, Trace element distribution in igneous rocks, Sedimentation as a geochemical process, Metamorphism as a geochemical process, Isotope geochemistry, Atmospheric geochemistry.

**6. Metamorphic Petrology & Thermodynamics:** Metamorphism, factors and kinds of metamorphism and metamorphic processes; Classification of metamorphic rocks and

nomenclature, Structures and textures, zones, grades, and facies of metamorphism, Phase relations and phase diagrams for metamorphic mineral assemblages, processes and products of Contact, Regional, thermal, dynamo-thermal metamorphisms, metasomatism, granitization, typical Indian rocks.

Objectives of thermodynamics, inter-relationship between petrogenetic processes and thermodynamics, Role of thermodynamics in geochemistry, Phase rule, 'pressure-temperature-depth relations' among various metamorphic facies and ultra metamorphism, Paired metamorphic belts, Metapelitic and metabasic minerals and mineral assemblages, First law of thermodynamics, Second law of thermodynamics, P-T diagrams, geothermobarometry, pressure(P)-temperature(T)-time(t) paths.

**7. Sedimentology & Petroleum Geology:** Sedimentary environments- fluvial, glacial, eolin and lacustrine environments, transitional environments including deltaic, beach and tidal flats, marine environments including shelf (clastic and non-clastic) and deep sea sedimentary environment, Evolution of sedimentary basins, Tectonic setting of sedimentary basins.

Petroleum Geology, Constitution and Genesis of hydrocarbons, conversion of organic matter to petroleum, variety of petroleum hydrocarbons and gas hydrates, Reservoir rocks, Migration and accumulation of oil, structural traps, stratigraphic traps and combination traps, salt domes, methods of Exploration and exploitation of petroleum, Geographic and stratigraphic distribution of oil and gas, global distribution, petroliferous basins in India.

**8. Ore Genesis, Mineral Deposits and Mineral economics:** Modern concept of ore genesis, principal ore mineral groups, plate tectonics and ore deposits, ore textures, Paragenetic sequences and zoning in metallic ore deposits, ore microscopy, application of geothermobarometry, fluid inclusions in ores, Role and application of stable isotopes in ore genesis, Petrological ore associations with Indian examples, orthomagmatic ores of mafic-ultramafic association, diamonds in kimberlites, REE in carbonatites, chromite in chromitites and basic rocks, PGE in ultramafic and basic rocks, Chemical and clastic sedimentation, stratiform and stratabound ore deposits (Mn, Fe, non-ferrous ores), placer concentrations, Ores related to weathering and weathered surfaces, laterite, bauxite and manganese nodules.

Study of geology, nature of occurrence and the genesis of the following ore deposits with special reference to India- Iron, Chromite, Manganese, Copper, gold, Lead and Zinc, Bauxite, Magnesite, Barites, Mica, Asbestos, decorative stones, *Mineral based Industries:* Iron and steel; *Refractories:* Ceramic, electrical and insulators, glass.

Strategic, critical and essential minerals. India's status in mineral production. Change in pattern of mineral consumption, National Mineral Policy. Mineral concession rules, Marine mineral resources and law of sea, Conservation and substitution of minerals.

**9. Environmental Geology:** Concepts and principles, Natural hazards, preventive/precautionary measures-floods, landslides, earthquakes, rivers and coastal erosion. Impact assessment of anthropogenic activities such as urbanization, open-cast mining and quarrying, river-valley projects, disposal of industrial radioactive waste, excess withdrawal of groundwater, use of fertilizers, dumping of ores, mine waste and flyash, Organic and inorganic contamination of groundwater and their remedial measures, soil degradation and remedial method, Environmental protection-legislative measures in India, factors for groundwater subsidence.

**10. Engineering Geology** Mechanical properties of rocks and soils, Geological investigations for river-valley projects-dams and reservoirs, tunnels-types, methods and problems, Bridges-types and foundation problems, shoreline engineering, landslides-classification, causes, prevention and rehabilitation, Earthquake resistant structure, Problems of groundwater in engineering projects and Geotechnical case studies of major projects in India.

**11. Mineral Exploration and Fuels:** Methods of surface and subsurface exploration, prospecting for economic minerals and fuels-drilling, sampling, and assaying. Geophysical techniques – gravity, electrical, magnetic, air borne, and seismic surveys, Instrumental techniques of detection and measurement of radioactivity, Radioactive methods for

prospecting and assaying of mineral deposits. Geomorphological and remote sensing techniques, Geobotanical and geochemical methods. Bore hole logging and survey. Origin of coal, Stratigraphy of coal measures, Fundamentals of coal petrology, peat, lignite, bituminous and anthracite, Industrial application of coal, Indian coal deposits, Origin, accumulation, migration and entrapment of natural hydrocarbons, characters of reservoir rocks, structural, stratigraphic and mixed traps, geographical and geological distribution of petroliferous basins of India. Gas hydrates and Coal Bed Methane occurrences, Mineralogy and geochemistry of radioactive minerals, distribution of radioactive minerals in India, Radioactive methods in petroleum exploration-well logging techniques, nuclear waste disposal-geological constraints.

**12. Hydrogeology:** Origin of water, Hydrological cycle, water table, Rock properties affecting groundwater, Types of aquifers, Porosity, permeability, specific yield and retention, hydraulic conductivity, transmissivity, storage and storage coefficient. Water level fluctuation and causative factors, methods of pumping tests and analyses, evaluation of aquifer parameters, artificial recharge of groundwater, groundwater legislation, groundwater quality and groundwater pollution, arsenic and fluoride problems, quality criteria for groundwater use, salt water intrusion in coastal aquifers and remedial methods, surface geophysical methods-seismic, gravity, geoelectrical and magnetic, subsurface geophysical methods-well logging for delineation of aquifers and estimation of water quality, Watershed management.

**13. Photo Geology, Remote Sensing, GIS and GPS:** Elementary idea about photogeology: electro-magnetic spectrum, types & geometry of aerial photographs; factors affecting aerial photography; Fundamentals of remote sensing; remote sensing systems; remote sensing sensors; signatures of rocks, minerals and soils. Application of remote sensing in geosciences and geomorphological studies, Types of Indian and Foreign Remote Sensing Satellites, Digital image processing; fundamental steps in image processing; elements of pattern recognition and image classification, Geographic Information System (GIS), components of GIS; product generation in GIS; tools for map analysis; integration of GIS with remote sensing. Geographic positioning system (GPS), scope of GPS, advantages and uses of GPS in different fields.

**14. Mining Geology:** Alluvial, open-pit and underground mining methods; mine organization and operation; mine hazards. Sampling techniques, drilling methods, estimation of ore reserves, Cost of mining; future costs and profits; life of mine; present value of mine. Environmental issues with mining.

## Written Examination Syllabus for the post of Degree College Lecturers in Residential Educational Institutions Societies

### 11. Paper - II: Bio-Chemistry

- I. Chemistry of Biomolecules: Classification, structure & characteristics of amino acids, carbohydrates and lipids. Classification and structural organization of proteins, polysaccharides and lipids. Biological role and importance of polypeptides, lipids and polysaccharides. Structure of purines, pyrimidines, nucleosides and nucleotides. Stability & formation of phosphodiester bond. Watson & Crick model, Different forms of DNA. DNA super coiling. Types of RNA. Structure of t-RNA. Denaturation & renaturation of DNA,  $T_m$  and hyperchromic effect. Chemical and enzymatic susceptibility of nucleic acids. Structure and properties vitamins, Metabolism of amino acids, lipids and nucleotides. Metabolic diseases.
- II. DNA replication, transcription and translation. DNA polymerases of pro- and eukaryotes in DNA replication. Genetic code. Transcription in pro and eukaryotes and its regulation. Post transcriptional processing. Operon concept. Ribosome structure. Protein synthesis. Inhibitors of transcription and translation.
- III. Cell structure and organization: Cell structure and organization. ECM. Biomembranes structure and function. Transport across cell membranes. Mechanisms of Muscle contraction and nerve transmission.
- IV. Enzymes: Nomenclature & classification of enzymes, cofactors and coenzymes. Enzyme kinetics. Factors affecting the rate of the reaction: Catalytic mechanisms of Lysozymes, RNase, chymotrypsin, trypsin, & carboxypeptidase. Law of thermodynamics, biological oxidation, High energy compounds. Electron transport chain. Photosynthesis.
- V. Bioanalytical Techniques: Principles & applications of colorimetry & UV-Visible spectrophotometry. Fluorimetry, Principle and applications of ORD, CD, MS, AAS, Microscopy, Flow cytometry, electrophoresis, centrifugation. Application of isotopes in biochemical analysis. Counting radioactivity. Chromatographic techniques: Principles & applications of techniques based on partitioning, Ion-exchange and affinity chromatography.
- VI. Molecular methods: Polymerase chain reaction (PCR), Real-time PCR. Fluorescent in situ hybridization (FISH), RFLP, RAPD. DNA finger-printing, DNA microarrays. DNA sequencing. DNA probes. Blotting techniques and their applications.
- VII. Endocrinology & Physiology: Organization of the endocrine system. Classification and mechanism of action of hormones. Structure and organization of Muscle and nervous system. Clinical Biochemistry and Nutrition: Abnormal electrolyte composition of blood in disease. Major cardiac, liver and thyroid diseases. Disorders of kidneys. Cardiac function tests, Liver function tests, Renal function tests, Gastric, pancreatic and intestinal function tests. Thyroid function tests.
- VIII. Microbiology and Molecular Biology: Classification of bacteria, Gene transfer mechanisms in bacteria, Bacteriophages: Structure, composition and life cycle of bacteriophages. Viruses: General features, Cultivation of viruses in animals & tissue culture. Life cycles of animal viruses (SV-40, Adenovirus, Poliovirus, Retroviruses (RSV / HIV). Plant viruses -TMV. Gene organization and regulation in prokaryotes & eukaryotes.
- IX. Genetic Engineering: Restriction endonucleases, Cloning and expression Vectors, overview of cloning methods, Methods of isolation of DNA, ligation, introduction of rDNA, genomic and cDNA libraries, selection of clones. Fusion proteins. Expression of recombinant protein in bacteria, yeast and cultured animal cells.
- X. Immunology: Components of immune system, Classification, structure & biological properties of immunoglobulin. Isotype, allotype and idiotypic variations. Theories of antibody formation, generation of antibody diversity. Humoral & cell mediated immune response. Complement activation and types (alternate, classical, lectin pathways) and its regulation. Immune disorders, Type I, II, III and IV Hypersensitivity. Auto-immune diseases, ELISA, RIA and monoclonal antibodies.



**XI.** Bioinformatics: Introduction to Biological databases. Sequence based approach (Pair-wise alignment, multiple sequence alignments), SNPs in human diseases.

**XII.** Transcriptome, genomic comparison. Antisense Oligos. siRNA/RNAi in expression analysis. Proteomics: Protein sequencing methods, structure, modeling, Protein motif & domain prediction: phylogenetic comparison & analysis. Protein arrays LC-MS-MALDI analysis.

**XIII.** Cell Signaling and Cancer: Cell growth and Cell cycle, Cell cycle regulation and cancer. tumor promoters and tumor suppressors. Stem cells. Cell differentiation: Fibroblast and muscle cell differentiation. Growth factors (EGF, NGF, IGF, PDGF, erythropoietin). Totipotency. Cell Signaling: Basic concepts of signal transduction. Classification of different signaling molecules. G-proteins, Second messengers-. Signaling cascades & regulation of growth, proliferation. Inhibitors of cell signalling pathways & Apoptosis. Cancer: Tumor suppressors and tumor promoters. Discovery of oncogenes, proto-oncogenes. Modes of action of oncogenes – G proteins. Stress signaling in plants (biotic), Stress signaling in plants (abiotic), Plant hormones and their mechanism of action, Signaling in yeast, STAT pathway in yeast. animal cell culture and their applications.

## Written Examination Syllabus for the post of Degree College Lecturers in Residential Educational Institutions Societies

### 12. Paper - II: Bio-Technology

- I. **CELL BIOLOGY:** Diversity of cell size and shape. Cell theory, microscopic techniques for study of cells. Sub-cellular fractionation and criteria of functional integrity. Cellular organelles-Plasma membrane, cell wall, Mitochondria, Chloroplast, Nucleus and other organelles and their organization, structure and functions. Cell motility-cilia, flagella of eukaryotes. Transport of nutrients, ions and macromolecules across membranes. Liposomes, drug delivery systems, cellular energy transactions-role of mitochondria and chloroplast. Molecular assemblies like membranes; structure and functional aspects. Ribosome's, extra cellular matrix. Cell cycle – Overview of eukaryotic cell cycle, regulation of cell cycle by cell growth and extra cellular signals. Cell cycle check points. Regulators of cell cycle progression – MPF, cyclins and cyclin-dependent kinases. Cell death and proliferation – Apoptosis: definition, differences between apoptosis and necrosis and mechanism. Cancer: Types and Classification, Development and Properties of Cancer cells. Somatic mutations in cancer cells. Mechanisms of biotic (bacterial, fungal, insect) and abiotic (salt, drought and temperature) stress in plants. Signal transduction: types of receptors, second messengers (calcium, phosphoinositides, MAP kinase pathway, and Nitric oxide). Meiosis, Gametogenesis, fertilization and Development of chick embryo.
- II. **BIOMOLECULES AND ANALYTICAL TECHNIQUES:** - Chemical foundations of Biology water, pH, pK, acids, bases, buffers, weak bonds, covalent bonds. Principles of thermodynamics. Classification, structure and functions of carbohydrates, amino acids, proteins, nucleic acids and lipids. Chromatography Methods; partition, ion exchange, and affinity methods, criteria for purity, proteins and nucleic acids sequencing methods, Hormones, vitamins and minerals. Analytical techniques: Principle, instrumentation and applications of VIS/UV, IR, NMR, LASER Raman Spectroscopy MASS Spectroscopy, Fluorescence Spectroscopy, Differential colorimetry, X-ray Crystallography, Ultra centrifugation, Electron Cryomicroscopy and Scanning Tunneling microscopy. Methods of cell study; confocal microscopy, Flowcytometry and FACS (fluorescence activated cell sorter) and atomic force microscopy. Radiochemical methods; Stable and radioactive isotopes, measurement of radioactivity by Liquid scintillation counting, Radio immune assay, GM counters and autoradiography, ELISA. Specific activity and precursor-product relationship. Tracer studies and Effect of radiation on cells.
- III. **MOLECULAR BIOLOGY:** - DNA Structure, replication, repair and recombination, Transcription, regulation and post transcriptional modifications in Prokaryotic and Eukaryotic genomes. Transcriptional and post-transcriptional gene silencing. Translation and regulation in Prokaryotes and eukaryotes, co-translation and post-translational modifications of proteins. Protein Localization-Synthesis of secretory and membrane proteins, import into nucleus, mitochondria, chloroplast and peroxisomes, Biology of Cancer-Oncogenes and Tumour Suppressor genes, Structure, function and mechanism of action of pRB and p53 tumor suppressor proteins. Antisense oligonucleotides, molecular targets of drug action and Ribozyme Technology. Homologous Recombination-Holliday model gene targeting, gene disruption, FLP/FRT and Cre/Lox recombination RecA and other recombinases. Molecular Mapping of Genome, Genes, mutation and mutagenesis, site directed mutagenesis and Human genome project, Transposons
- IV. **BIOSTATISTICS:** - Frequency distribution, Distribution of data binomial, poisson and normal. Measures of central tendency-mean, median, mode and standard deviation-probability distribution-regression-correlation- Analysis of variance-tests of significance-T-test, F-test, Chi-square test.

**BIOINFORMATICS:-** Biological databases, ORF finding, EST analysis, gene identification, microsatellite repeat patterns, BLAST, FASTA, Mutation matrix, global Vs local alignments, Dot plots, PAM and BLOSUM matrices, Multiple sequence modeling, alignments dendrograms, phylograms, protein structure prediction methods, molecular modeling, Primer design, QSAR, Drug designing.

- V. MICROBIOLOGY:** -Discovery of the microbial world; Distinguishing features of prokaryotic and eukaryotic genomes; general role of microorganisms in transformation of organic matter and in the causation of diseases; Microbial taxonomy; Classification, Nomenclature and new approaches to microbial taxonomy; Pure culture techniques; sterilization methods; Principles of microbial nutrition and composition of culture media; culture enrichment techniques; Growth and its mathematical expression; synchronized cultures, Culture collection and maintenance of cultures; Purple and green bacteria Rickettsias; Chlamydia and Mycoplasma. Archea; Viruses: structure and replication of viruses; DNA viruses and RNA viruses; Viroids and Prions; Viruse and their Genetic System; Bacteriophages; RNA phages; Retroviruses, Biomass and Bioenergy, Biofuels from microbes, biofertilizers and biopesticides.
- VI. GENETICS:-** Mendel's principles, applications of Mendel's principles, Chromosome Theory of Heredity (Sutton-Boveri), Inheritance patterns, phenomenon of Dominance, Inheritance patterns in Human (Sex-linked, Autosomal, Mitochondrial, Unifactorial, Multi-factorial). . Linkage & Crossing over - Chromosome theory of Linkage, kinds of linkage, linkage groups, types of Crossing over, mechanism of Meiotic Crossing over, kinds of Crossing over, theories about the mechanism of Crossing over, cytological detection of Crossing over, significance of Crossing over. Allelic Variation & Gene function – Multiple allele, Genetic interaction, Epistatic interactions, Non-Epistatic inter-allelic genetic interactions, Atavism/Reversion, Penetrance (complete & incomplete), Expressivity, Pleiotropism, Non-Mendelian inheritance – Evidences for Cytoplasmic factors, cytoplasmic inheritance, Epigenetics, extranuclear inheritance (mitochondrial, chloroplast), non- chromosomal inheritance, maternal inheritance, uniparental inheritance.
- VII. IMMUNOLOGY:-** Phylogeny of immune System; Innate and acquired immunity; Hematopoietic and differentiation, cells and organs of the immune system; Lymphocyte trafficking; Antigenicity and super antigens; Immunoglobulin types, structure and function, Antigen-antibody interactions; Blood groups, Cell migration and Homing, Immuno globulin and gene organization. Major histocompatibility complex, BCR and TCR and generation of diversity; Complement system, Antigen processing and presentation, generation of humoral and cell mediated immune responses; Activation of B- and T- lymphocytes, Cytokines and their role in immune regulation; Cell mediated cytotoxic, Hyper sensitivity, Auto immunity, Transplantation, Tumor Immunology, AIDS and other Immunodeficiency; Hybridoma Technology, Psychoneuro-immunology, Single chain antibodies, theories of antibody diversity, Vaccines – Concept of immunization, routes of vaccination. Types of vaccines – Whole organism (attenuated and inactivated) and component vaccines (synthetic peptides, DNA vaccines, recombinant vaccines, subunit vaccines, conjugate vaccines. Vaccinedelivery systems.
- VIII. BIOPROCESS ENGINEERING:-** Fermentation-types of fermentors and bioreactor design, cell concentration and stirring. Filtration, methods of cell disruption. Downstream processing, industrial applications of bioprocess. Synchronized and continuous culturing. Industrial production of glutamic acid, citric acid, ethanol, penicillin, lactic acid,  $\alpha$ -amylase, protease, tetracycline, vitamin B12 and riboflavin. Purification and crystallization of products.
- ENZYME TECHNOLOGY:-** Discovery classifications and nomenclature of enzymes. Techniques of enzymes isolation and assay, Intracellular localization of enzymes, Isoenzymes, Multienzyme complexes and multifunctional enzymes Physico-chemical characterization of enzymes, Enzymes kinetics, kinetics of enzymes of inhibition. Allosterism, Enzyme memory, Various techniques used for the immobilization of enzymes and their applications in Biotechnology. Purification of enzymes and their applications, Single cell proteins. Industrial application of enzyme, applications in biosensors.

- IX. ENVIRONMENTAL BIOTECHNOLOGY:-** Ecological balance, resiliency of ecosystem and sustainable development, environmental pollution and global problems, water, air, soil pollution and their impacts on environment. Biotechnological approaches for management of pollution, waste water treatment: aerobic and anaerobic processes, bioremediation of contaminated soils and waste land, biotechnological treatment for industrial effluents and solid wastes. GEMS (Genetically Engineered micro organisms) for bioremediation.
- X. GENETIC ENGINEERING:-** Discovery, properties and application of Restriction enzymes, Cloning and expression vectors, Purification of plasmids, genomic DNA and mRNA. Genomic and cDNA Library construction and screening of recombinants by hybridization methods, Reporter assays, protein engineering- site directed mutagenesis, adding disulfide bonds – changing asparagines to other amino acids modification of metal cofactor requirements. Increasing of specific activity Stability to thermal and salinity conditions, Phage Display library and yeast two hybrid system. Gene transfer methods, gene tagging, Role of gene tagging analysis; Gene Therapy, Gene silencing methods (RNA interference), Biochips and functional genomics.
- XI. PLANT BIOTECHNOLOGY:-** Selection of explants, micropropagation techniques in plant tissue culture suspension culture, single cell. Anther, pollen and ovary culture for production of haploid plants. Cryopreservation for germplasm conservation. Plant Transformation technology, Transgene stability and gene silencing. Application of plant Transformation for productivity and performance. Metabolic Engineering and Industrial products: Plant secondary metabolites, industrial enzymes, biodegradable plastics, therapeutic proteins, antibodies, edible vaccines. Molecular marker assisted selection and Breeding: RFLP maps, SSR markers, STS, microsatellites, SCAR (sequence characterized amplified regions), SSCP (single stand conformational polymorphism), AFLP, GM Crops
- XII. ANIMAL BIOTECHNOLOGY: -** Animal cell culture technology, simple and complex growth media, cell culture techniques, primary and established cell lines. Biology and characterization of the cultured cells, measuring growth parameters, maintenance of cell culture, Measurement of viability and cytotoxicity, cell separation. Scaling-up of animal cell culture. Cell synchronization. Cell cloning and micromanipulation. Cell transformation. Stem cell cultures, embryonic stem cells and their applications. Cell culture based vaccines. Organ and histotypic cultures. Apoptosis, measurement of cell death. Biodegradation of Toxicants, Diagnostic aids, organ perfusion studies, Embryo transfer, stem cell biology, GM animals. Principles and preparation of DNA and RNA probes and their applications: Study and expression of cloned genes in prokaryotes and eukaryotic systems. Microbial production of interferon, human growth hormone, insulin in *E.coli*. Genetic Engineering – Social, ethical and moral implications, national and international guidelines/regulations. Biotechnology patents and safeguarding human and animal health.

## Written Examination Syllabus for the post of Degree College Lecturers in Residential Educational Institutions Societies

### 13. Paper - II: History

#### I. Ancient India:

1. History; Definition, Scope, Nature, Sources and Methods.
2. Pre and Proto History - Stone ages and Chalcolithic Cultures.
3. Harappan Civilization - Characteristic features, Major cities - socio-economic conditions, Harappan Script, Religious practices - Decline.
4. Iron Age - Aryan Migrations - Second Urbanization.
5. India in 6th Century BC; Early States, Sixteen Mahajanapadas, Rise and Growth of Magadha - Society, Economy - Jainism, Buddhism, Ajivikas and Lokayatas.
6. Mouryan Age: Chandragupta Mourya and Ashoka, Mouryan Polity, Administration, Dhamma, Socio-Economic conditions - Decline.
7. Pre Satavahanas: Sangam Age and Satavahana Age; Political history, Administration, Society, Economy and Culture- Post Satavahana period - Chedi (Kharavela) Ikshvakus, Vakatakas, Abiras, Kshatrapas and Vishnukundis, Kushans (Kanishka).
8. Gupta Age: Political History, Administration, Socio-Economic conditions, Growth of Culture, Art and Architecture, Literature - Decline.
9. India in the Seventh Century A.D.; Pushyabhutis (Harsha), Pallavas, Chalukyas and Rashtrakutas - Political History, Society, Economy and Culture.

#### II. Medieval India:

10. India between 650 A.D. to 1200 A.D.- Rajputs, Arab and Turkish Invasions - Later Pallavas, Chalukyas, Chola Art, Architecture and Chola Administration - Society, Economy and Culture.
11. Age of Delhi Sultanate 1206 A.D. - 1526 A.D. - Political History, Administrative System, Changes in Society and Economy- Bhakti and Sufi Movements
12. Age of Vijayanagara - Origin, Political History, Krishnadevaraya, Socio and Economic conditions, Culture, Art, Architecture, Decline - Bahamanis.
13. Moghul Age (1526-1707) - Political History, She Shah, Akbar, Administration, Society, Economy, Culture- Decline - Marathas and Shivaji.

#### III. Modern India

14. Establishment of British Power in India - Early resistance - Hyder Ali, Tippu Sultan.
15. British paramountcy in India - Policies of Governor Generals, Impact of British policy on Indian Agriculture and Economy.
16. Socio - Religious Reforms Movements - Brahma Samaj - Arya Samaj, Satyashodhak Samaj and others- Educational policies of the British and their Impact.
17. 1857 Revolt; Causes Results and Significance.
18. Rise and Growth of Indian National Movement - Nationalist Movement I Phase from 1885 A.D. - 1905 A.D. - Indian National Congress; Moderates, Extremists and Early Revolutionaries II phase at 1905-1920 - Vande Mataram Movement Home Rule - Role of Tilak and Anie Beasant- Later phase of Revolutionary Movement. III Phase 1920-1947 - Non Co-operation Movement, Emergence of Gandhi, Civil Disobedience, Salt Satyagraha, Quit India Movement- Subhash Chandra Bose - Constitutional Reforms- Dr. B. R. Ambedkar - Declaration of Independence - Role of Women in Indian National Movement.

#### IV. Modern World:

19. Industrial Revolution- Significance and Results.
20. American War of Independence - Causes, Results, Significance.
21. French Revolution - Causes, Effects, Significance.
22. National Liberation Movements in Italy and Germany in the 19th Century - Mazzini, Cavour, Garibaldi, Bismarck.
23. World War-I - Causes and Effects - League of Nations.

24. The Russian Revolution of 1917 - Causes, Results and Significance.
25. The world between the Two World Wars - Nazism in Germany, Fascism in Italy, Turkey under MustafaKamal Pasha.
26. Developments in China 1911-1949 - Nationalist Revolution of 1911 - Communist Revolution of 1948 - Japan under Meiji Era -Vietnam Revolution.
27. World War-II - Causes and Effects - United Nations Organisation.

#### **V. History of Telangana**

28. Pre History
29. Pre Satavahana, Satavahana, Post Satavahana - Ikshvakus, Vakatakas, Abiras and Vishnukundis.
30. Telangana from 7th Century to 11th Century- Chalukyas of Badami, Vemulavada, Mudigondi andKalyana.
31. Age of Kakatiya's; Origin, Political History, Administration, Socio Economic, Religious conditions, Art and Architecture and Literature and their Subordinates.
32. Padma Nayaka's and Musunoori.
33. Qutubshahis - Administration, Religion, Art, Architecture and Literature.
34. Asafjahis - Administration, Economy, Culture and Society, British Paramountcy on Hyderabad State.
35. Freedom Movement in Telangana, Telangana Armed Struggle.

## Written Examination Syllabus for the post of Degree College Lecturers in Residential Educational Institutions Societies

### 14. Paper - II: Economics

#### I . Micro Economics

##### 1. Demand Analysis

Definitions, Nature and Scope of Economics - Micro and Macro Economic Analyses - Concepts of Demand and Law of Demand - Determinants and Types of Demand - Demand Function - Shifts in Demand - Concepts of Supply and Law of Supply - Market Equilibrium - Elasticity of Demand: Concept and Types- Price, Income and Cross Elasticities of Demand - Measurement Methods of Price Elasticity of Demand

##### 2. Utility Analysis

Cardinal and Ordinal Utility Approaches - Law of Diminishing Marginal Utility - Law of Equi-Marginal Utility - Consumer Surplus - Indifference Curve Analysis: Assumptions, Properties, Budget Line and Consumer's Equilibrium - Derivation of Demand Curve with the help of Indifference Curves - Price, Income and Substitution Effects - Hicks and Slutsky Versions - Revealed Preference Theory

##### 3. Production Analysis

Production, Production Function and Factors of Production - Law of Variable Proportions - Isoquant, Isocost Curves and Producer's Equilibrium - Laws of Returns to Scale - Economies and Diseconomies of Scale - Cost Analysis: Cost Curves in Short Run and Long Run - Revenue Analysis - Relationship among Average Revenue, Marginal Revenue and Elasticity of Demand

##### 4. Market Structure Analysis

Concepts of Firm, Industry and Market - Classification of Markets - Objectives of the Firm - Equilibrium of a Firm - Shut-Down Point - Perfect Competition: Concept, Characteristics, Equilibrium of Firm and Industry - Optimum Firm - Monopoly: Concept, Types, Characteristics and Equilibrium of the Firm - Price Discrimination - Bilateral Monopoly - Monopolistic Competition: Concept, Characteristics, Equilibrium

of the Firm and Selling Costs

##### 5. Oligopoly, Duopoly and Factor Pricing Analysis

Oligopoly: Concept, Characteristics and Price Rigidity - Oligopoly Models - Duopoly: Concept and Characteristics - Duopoly Models - Marginal Productivity Theory of Distribution - Distribution Theories of Rent, Wages, Profit and Interest

#### II . Macro Economics

##### 1. National Income Analysis

Concept, Nature & Scope and Importance of Macro Economics - Concept of Circular Flow of Incomes- National Income Analysis: Concepts and Components - Methods of Measurement of National Income- Importance of and Difficulties in the Estimation of National Income - Limitations of National Income as a Measure of Welfare - Social Accounting

##### 2. Theories of Income and Employment

Classical Theory of Employment: Say's Law of Markets and Pigou's Wage Cut Policy - Keynesian Theory of Income and Employment: Effective Demand, Aggregate Demand Function and Aggregate Supply Function - Consumption Function: Average Propensity to Consume and Marginal Propensity of Consume - Factors Determining Consumption Function - Savings Function: Average Propensity to Save and Marginal Propensity to Save - Concepts of Multiplier, Accelerator and Super-Multiplier

##### 3. Theories of Investment and Interest Rate

Capital and Investment - Types and Determinants of Investment - Marginal Efficiency of Capital - Ex-Post and Ex- Ante Investment and Savings - Classical, Neo-Classical and Keynesian

Theories of Interest - Simultaneous Determination of Interest and Real Income through IS-LM Framework

#### **4. Supply of Money and Demand for Money**

Meaning, Functions and Classification of Money - Measures of Money Supply - Demand for Money - Classical Theories of Money: Fisher's and Cambridge Versions of Quantity Theory of Money - Keynesian, Baumol and Milton Friedman Approaches to Demand for Money

#### **5. Inflation and Trade Cycles**

Inflation: Concept and Types - Causes and Measurements of Inflation - Effects (Consequences) of Inflation - Measures to Control Inflation - Phillips Curve, Deflation and Stagflation - Trade Cycles: Concept, Nature and Causes - Phases and Remedial Measures of Trade Cycles - Models of Business Cycles : Samuelson, Hicks and Kaldor

### **III . Public Finance**

#### **1. Introduction to Public Finance**

Role of State in Economic Activities, Planning and Development - Nature, Scope and Evolution of Public Finance - Public, Private and Merit Goods - Multiple Theory of Public Household - Principle of Maximum Social Advantage

#### **2. Public Revenue and Taxation**

Public Revenue: Sources and Classification - Direct and Indirect Taxes - Progressive, Proportional and Regressive Taxes - Canons of Taxation - Characteristics of a Good Tax System - Impact and Incidence of Taxation - Effects of Taxation - Approaches to Taxation

#### **3. Public Expenditure and Public Debt**

Public Expenditure: Classification and Principles - Determinants of Public Expenditure - Theories of Public Expenditure: Wagner and Peacock-Wiseman - Effects of Public Expenditure - Public Debt: Nature, Sources and Classification - Effects and Redemption of Public Debt - Debt Trap

#### **4. Fiscal Policy and Federal Finance**

Fiscal Policy: Concept, Objectives and Tools - Fiscal Policy and Monetary Policy - Federal Finance: Concept and Features - Centre-State Financial Relations - Transfer of Resources from Centre to State and Local Bodies - Functions of Finance Board - Current Finance Board's Recommendations

#### **5. Budget**

Budget: Concepts, Classification and Types - Revenue Account and Capital Account - Budget Deficits: Concepts, Types and Implications - Fiscal Responsibility and Budget Management (FRBM) - Budgeting in India

### **IV. International Economics**

#### **1. Theories of International Trade**

International Trade and Inter-Regional Trade - Inter-Industry Trade - Gains from Trade - Trade as an Engine of Economic Growth - Role of International Trade in Economic Development - Classical and Neo-Classical Theories of International Trade - Theory of Factor Price Equalisation - Heckscher-Ohlin Theory of International Trade

#### **2. Terms of Trade and Barriers to Trade**

Concepts of Terms of Trade - Factors Affecting Terms of Trade - Uses and Limitations of Terms of Trade - Secular Deterioration Hypothesis of Terms of Trade: Singer and Prebisch - Gunnar Myrdal Views on Terms of Trade - Tariffs, Quotas and Subsidies: Their Effects - Impact of Tariffs on Partial and General Equilibrium Analyses - Political Economy of Non-Tariff Barriers and Their Implication

#### **3. Balance of Payments**

Concepts of Balance of Trade and Balance of Payments - Factors Affecting Balance of Trade - Differences Between Balance of Trade and Balance of Payments - Components of Balance of



Payments- Equilibrium and Disequilibrium in Balance of Payments - Types of Disequilibrium - Causes and Consequences of Disequilibrium in Balance of Payments - Remedial Measures for Correcting Disequilibrium in Balance of Payments - Devaluation - Recent Trends in India's Balance of Payments

#### **4. Exchange Rates**

Foreign Exchange Market - Exchange Rates: Concept and Types - Relative Merits and Demerits of Fixed and Flexible Exchange Rates - Theories of Exchange Rates Determination: Mint Parity and Purchasing Power Parity (PPP) - An Overview of Different Methods of Exchange Rate Determination in India

#### **5. International Monetary System and International Finance**

International Liquidity - Lending Operations of International Financial Institutions: IMF, World Bank (IBRD), IDA, IFC, ADB and BRICS - Euro-Dollar and Euro-Currency Markets - International Trade Institutions: GATT and WTO - Impact of WTO on Indian Economy

### **V. Economics Of Development And Growth**

#### **1. Socio-Economic and Institutional Aspects of Economic Development**

Concepts of Economic Growth, Development, Underdevelopment and Deprivation - Distinction Between Growth and Development - Objectives of Economic Development - Sustainable Development and Inclusive Growth - Indicators (Measures) of Economic Development

#### **2. Factors of Economic Development**

Factors Hindering Economic Development - Factors Promoting Economic Development - Population and Economic Development - Population Explosion - Theories of Demographic Transition - Malthusian Population Theory - Optimum Theory of Population - Human Resource Development and Economic Development - Natural Resources and Economic Development - International Aspects of Economic Development

#### **3. Theories of Growth and Development**

Classical Theories of Economic Growth: Adam Smith, Ricardo and J. S. Mill - Karl Marx Theory of Economic Development - Schumpeter's Theory of Economic Development - Rostow's Theory of Economic Growth - Hansen's Theory of Secular Stagnation

#### **4. Strategies of Economic Development and Growth**

Big Push Theory - Balanced Growth Strategies of Rodan, Nurkse and Lewis - Unbalanced Growth Strategy of Hirschman - Critical Minimum Effort Thesis - Low Level Equilibrium Trap - Theories of Social and Technological Dualism

#### **5. Growth Models**

Harrod-Domar Growth Model - Kaldor's Growth Model - Joan Robinson's Growth Model - Gunnar Myrdal's Model - Choice of Techniques: AK Sen - Technical Progress: Hicks and Harrod

### **VI. Indian Economy**

#### **1. Basic Structure and Demographic Features of Indian Economy**

Basic Features of Indian Economy: Growth, Trends and Structural Changes in Indian Economy - Demographic Features of Indian Population - Size, Growth and Composition of Population and Their Implications on Indian Economy - Concepts of Demographic Transition and Demographic Dividend - Sectoral and Occupational Distribution of Population in India - Population Policy of India - Human Resource Development: Education and Health - Human Development Index

#### **2. National Income, Income Inequalities, Poverty and Unemployment**

Estimation of National Income in India - Trends and Composition of National Income in India - Income Inequalities in India: Magnitude, Causes, Consequences and Remedial Measures - Poverty in India: Concept, Types, Trends, Causes and Consequences - Unemployment in India: Concept, Types, Trends, Causes and Consequences - Poverty Alleviation and Employment Generation Programmes in India.

### **3. Planning and Public Policy**

Concept, Types and Importance of Planning - Major Objectives of Five Year Plans in India - Review of Five Year Plans : Achievements and Failures - Current Five Year Plan - NITI Aayog - Economic Reforms: Liberalisation, Privatisation and Globalisation - A Critical Evaluation of Economic Reforms- Regional Imbalances: Causes, Consequences and Remedial Measures - Rural-Urban Disparities: Migration

### **4. Agricultural Sector**

Nature and Importance of Agriculture in Indian Economic Development - Trends in Agricultural Production and Productivity - Agricultural System in India and Land Reforms - Green Revolution - Cropping Pattern - Agricultural Finance - Agricultural Marketing - Agricultural Pricing - Food Security in India

### **5. Industrial and Service Sectors**

Structure, Growth, Trends and Importance of Indian Industry - Problems of Indian Industry - Medium, Small Scale and Micro Enterprises (MSME) : Growth, Role and Problems (Including Sickness Problem)- Industrial Policies of 1948, 1956 and 1991 - FEMA and Competition Board of India - Disinvestment Policy - Foreign Direct Investment - Concept and Components of Service Sector - Infrastructural Development: Transport, Energy, Communication and Information Technology

## **VII . Telangana Economy**

### **1. Telangana Economy: Human Resources**

Economic History of Telangana - Economic Features of Telangana - Demographic Features of Telangana - Occupational Distribution of Population in Telangana - Sectoral Distribution of Population- Migration - Human Resource Development: Education and Health

### **2. Gross State Domestic Product, Poverty and Unemployment**

Growth and Trends in Gross State Domestic Product and Per Capita Income in Telangana: Districtwise Analysis - Sectoral Contribution to Gross State Domestic Product - Inequalities in the Distribution of Income and Wealth - Poverty in Telangana: Trends, Causes and Consequences - Unemployment in Telangana: Trends, Causes and Consequences - Poverty Alleviation and Employment Generation Programmes in Telangana - Other Welfare Programmes in Telangana

### **3. Agricultural Sector**

Growth of Agriculture in Telangana Economy - Trends in Agricultural Production and Productivity - Determinants of Agricultural Productivity - Cropping Pattern - Agrarian Structure and Land Reforms- Irrigation: Sources and Trends - Mission Kakatiya - Agricultural Credit and Rural Indebtedness - Agricultural Marketing - Food Security in Telangana

### **4. Industrial Sector**

Structure of Telangana Industry - Growth and Pattern of Industrial Development in Telangana - Industrial Policy of Telangana State - Special Economic Zones (SEZ) - Role of Small Scale Industries in Telangana Economy - Problems & Remedial Measures of Small Scale Industries: Issue of Sickness- Industrial Finance in Telangana

### **5. Service and Infrastructural Sectors**

Growth and Trends in Tertiary Sector in Telangana - Growth and Pattern of Development of Service Sector in Telangana - Infrastructural Development in Telangana: Transport, Energy, Communication & Information Technology and Tourism - Regional Imbalances: Causes, Consequences & Remedial Measures

## **VIII. Quantitative Methods For Economic Analysis**

### **1. Mathematical Foundations of Economic Analysis**

Need and Importance of Quantitative Methods in Economics - Meaning and Basic Concepts of Mathematics: Constants and Variables - Functions: Linear, Non-Linear Functions - Equations and Graphs of Linear, Quadratic and Cubic Functions - Concept of Derivative -- Rules of Differentiation with respect to Cost, Revenue, Price and Demand Functions - Application of Maxima and Minima in Economic Analysis

### **2. Introduction to Statistics**

Meaning, Basic Concepts and Uses of Statistics - Population and Sample - Frequency Distribution, Cumulative Frequency - Graphic and Diagrammatic Representation of Data - Types of Data: Primary and Secondary Data - Methods of Collecting Data: Census and Sampling Methods (Random and Non-Random Sampling Methods)

### **3. Measures of Central Tendency and Dispersion**

Measures of Central Tendency: Mean, Median, Mode, Geometric Mean and Harmonic Mean - Properties of Good Average - Comparison of Different Averages - Measures of Dispersion - Absolute and Relative Measures of Dispersion: Range, Quartile Deviation, Mean Deviation, Standard Deviation, Coefficient of Variation and Variance

### **4. Correlation and Regression**

Correlation: Meaning and Types - Karl Pearson's Correlation Co-efficient - Spearman's Rank Correlation - Regression: Meaning and Uses of Regression - Estimation and Interpretation of Regression Line

### **5. Index Numbers and Time Series Analysis**

Index Numbers: Meaning and Uses - Types of Index Numbers - Methods of Index Numbers: Laspeyres, Paasche and Fisher - Analysis of Time-Series: Meaning and Uses - Components of Time Series Analysis: Secular, Seasonal, Cyclical and Irregular Variations - Methods of Measurement of Secular Trends: Graphic, Semi-Averages, Moving Averages and Least Squares Methods

## **IX . Banking And Economics Of Infrastructure**

### **1. Commercial and Central Banking**

Commercial Banks: Concept and Types - Functions and Principles of Commercial Banks - Balance Sheet of Commercial Banks - Process of Credit Creation - Social Responsibility, Importance and Growth of Commercial Banks in India - Central Banking - Functions of Reserve Bank of India - Concept and Objectives of the Monetary Policy - Instruments of Monetary Policy - Financial Sector Reforms in India

### **2. Financial and Investment Banking**

Concept, Types, Functions and Growth of Non-Banking Financial Intermediaries - Their Impact on Indian Economy - Measures Taken to Control Their Operations - Development Bank: Concept, Functions and Importance - Functioning of Different Development Banks - Investment Banking - Merchant Banking

### **3. Money Market and Capital Market (Financial Markets)**

Money Market: Concept and Characteristics - Components and Sub-Markets of Money Market - Functions of Money Market - Recent Trends and Importance of Money Market in India - Capital Market: Concept, Functions and Importance - Components of Capital Market: Primary and Secondary Markets - Stock Exchange: Concept and Functions - SEBI and Its Functions

### **4. Infrastructure and Economic Development**

Concept of Infrastructure - Infrastructure as a Public Good - Special Characteristics of Public Utilities - Importance of Infrastructure in Economic Development - Trends in the Growth of Infrastructure in India - Classification of Infrastructure: Social and Physical Infrastructure - Social Infrastructure: Education, Health and Hygiene - Human Resource Development: Concept, Scope and Importance - Education in India: Planning, Policies and Financing - Trends in the Growth of Education in India - Health in India: Planning, Programmes and Importance

## **5. Physical Infrastructure**

Types of Physical Infrastructure - Concept of Energy - Sources of Energy: Renewable & Non-Renewable and Conventional & Non-Conventional Energy - Sources of Commercial Energy: Coal, Oil & Gas and Electric Power - Transport - Modes / Categories of Transport: Roadways, Railways, Airways and Waterways - Role of Transportation in Economic Development - Information and Communication Technology (ICT): Concept, Growth, Trends and Importance

## **X . Economics Of Environment**

### **1. Introduction to Environmental Economics**

Concepts of Ecology and Environment - Interaction Among Ecology, Environment and Economy - Micro Economic Theory of Environment - The Pricing of the Environmental Variables - Pareto Optimality and Market Failure in the Presence of Externalities - Bio-Diversity: Meaning, Uses, Effects and Conservation

### **2. Resource Allocation**

Natural Resources: Meaning, Features, Classification and Importance - Economics of Exhaustible, Non-Exhaustible Resources - Problems of Resource Allocation - Natural Resources Depletion: Optimal Rate of Depletion - Common Property Resources: Problems - Conservation of Resources - Implications of Ecological Imbalances

### **3. Environmental Valuation**

Valuation of Non-Market Goods and Services: Measurement Methods - Environmental Degradation: Concept and Causes - Valuation of Environmental Degradation - Direct and Indirect Methods - Degradation of Land (Soil), Forest and Natural Resources: Causes and Effects - Cost-Benefit Analysis of Environmental Policies and Regulations

### **4. Sustainable Development**

Impact of Environment on GNP - Limits to Growth - Sustainable Development: Concept and Rules - Modern and Neo-Classical Views on Sustainable Development - Peoples Movement for Sustainable Development - Development vs Sustainable Development

### **5. Environmental Pollution and Policies**

Environment and Economy Interaction - Industrial and Agricultural Technology: Its Impact on Environment - Different Types of Pollution: Their Causes and Effects - Environmental Policy and Conservation and Protection of Eco-System - Implementation of Environmental Policies in India - Global Environmental Issues.

## Written Examination Syllabus for the post of Degree College Lecturers in Residential Educational Institutions Societies

### 15. Paper - II: Political Science

#### I. Political Science - Basic Concepts

- Political Science: Nature and Scope - Inter disciplinary Character.
- Key Concepts: State, Sovereignty, Power, Nation.
- Political Ideas: Rights, Liberty, Equality, Law and Justice.
- Democracy: Meaning and Theories and Democracy, Electoral System.
- Forms of Government: Unitary and Federal, Parliamentary and Presidential.

#### II. Political Theory

- Political Ideologies: Liberalism, Neoliberalism, Marxism, Socialism and Fascism.
- Role of Ideology and end of Ideology.
- Nationalism and Internationalism.
- Theories of Development: Marxian, Liberal and Gandhian

#### III. Political Thought

- Greek Political Thought: Plato and Aristotle.
- Medieval Political Thought: Aquinas and St. Augustine.
- Modern Political Thought: Machiavelli and Bodin.
- Contractual Political Thought: Hobbes, Locke and Rousseau
- Indian Political Thought: Manu, Kautilya, Buddha, Gandhi, Phule and Ambedkar

#### IV. Comparative Politics

- Comparative Politics: Nature, Scope and Approaches.
- Constitutionalism: Western and Non- Western.
- Organs of Government: Legislature, Executive and Judiciary.
- Party Systems and Pressure Groups
- Power, Authority and legitimacy.

#### V. Political Sociology

- Political Socialization and Political Culture
- Political Development and Political Modernization.
- Political Elite and Theories.
- Political Communication: Changing Role of Media.
- Political Stratification: Caste, Class and Gender.

#### VI. Indian Government and Politics

- Nationalist Movement and Making of the Constitution.
- Salient Features and Ideological foundations of Indian Constitution.
- Federalism and Centre - State Relations.
- Development Strategies in India: Planning
- Union Executive, Legislature and Judiciary: President, Prime Minister, ^/ Council of Ministers, Lok Sabha and Rajya Sabha, Supreme Court and Judicial Review
- Contemporary Socio- Political Movements: Peasant, Dalit, Tribal Backward, Environmental, Regional and Sub: Regional Movements. Statehood Movements

#### VII. State and Local Governments

- Frame work for the study of State Politics.
- State Executive & Legislature: Governor, Chief Minister and State Legislature

- Panchayati Raj: Genesis and Development - Structure and Functions, 73rd Amendment of Indian Constitution
- Urban Local Government: Structure and functions, 74th Amendment of Indian Constitution

#### **VIII. Public Policy and Political Analysis**

- Public Policy: Nature, Scope and Importance - Public Policy as a Policy Science.
- Theories of Public Policy: Group theory, Incrementalism, Elite theory, Decision-making theory.
- Policy making Institutions: Legislature, Executive and Judiciary - Planning Board
- Policy Process: Role of Media, Political Parties and Pressure Groups.
- Policy Evaluation.

#### **IX. International Relations**

- Approaches to the study of International Relations.
- Colonization and Decolonization: Rise of Third world, Problems & Prospects
- Elements of National Power.
- International Security: Disarmament, Arms control, Diplomacy, Cold War, war and Conflict Resolution.
- International Organization

A. UNO: Aims, objectives, structure and its changing role in the contemporary world.

B. SAARC, ASEAN and EU

- Indian Foreign Policy: Non-Alignment, Relations with neighbors and security concerns and Globalization.
- Contemporary issues in International Relations: Human Rights, Environmental Issues, climate Change and Terrorism
- International Financial Institutional: World Bank, IMG & WTO.

## Written Examination Syllabus for the post of Degree College Lecturers in Residential Educational Institutions Societies

### 16. Paper - II: Commerce

**I. Financial Management:** Meaning, Nature, Objectives and Scope of Financial Management - Capital Budgeting, Process, Techniques - Sources of Finance, Cost of Capital - Cost of various sources of finance - Leverages: Operating and Financial leverages - Capital Structure Theories - Dividend decisions - Working Capital Management - Cash, Receivables and Inventory Management.

**II. Financial and Management Accounting:** Accounting Standards - Corporate Reporting - Accounting for price level changes - Human Resource Accounting - Responsibility Accounting - Analysis of Financial Statements - Techniques: Comparative and Common Size statements, Trend analysis, Ratio analysis, Funds Flow and Cash Flow analysis - Marginal Costing and Decision Making.

**III. Cost Accounting and Control:** Cost concepts and Classification - Installation of costing system - Elements of Cost: Material, Labour and Overheads - Methods of Costing - Techniques of costing: CVP, Standard Costing and Budgetary control - Uniform costing - Inter-firm comparisons and Activity Based costing - Cost Control, Cost Reduction and Cost Audit.

**IV. Managerial Economics:** Meaning, Nature and Scope of Managerial Economics - Demand Analysis, Production and Cost Analysis - Market Structure: Perfect and Imperfect Markets.

**V. Organisation Theory and Behaviour:** Organisation concept and theories - Individual vs. Group Behaviour - Motivation and Morale - Communication: Types and Barriers - Leadership: Styles and Theories.

**VI. Marketing Management:** Meaning, Concepts, Nature and Scope - Marketing Environment - Consumer Behaviour and Market Segmentation - Product, Price, Promotion and Channel management.

**VII. Human Resource Management:** HR Functions - HR Planning - Job analysis - Recruitment and Job Evaluation - Training and Development methods - Performance Appraisal Methods - Trade Unions and Collective Bargaining.

**VIII. Business Environment:** Meaning and Components of Business Environment - Industrial Policies (including Telangana State Industrial Policy) - Liberalisation, Privatisation and Globalisation - Indian Capital and Markets - Foreign Direct Investment - FEMA and WTO.

**IX. Quantitative Techniques:** Correlation and Regression - Sampling and Sampling methods - Probability and Probability Distributions - Hypothesis Testing - Parametric Tests ( Z, t-test and ANOVA) and Non-parametric Tests (Chi-square test).

**X. IT and e-Commerce:** e-Commerce business models - Internet and web technologies - e-payment methods, e-cash, e-cheques, credit cards, smart cards and debit cards.

## Written Examination Syllabus for the post of Degree College Lecturers in Residential Educational Institutions Societies

### 17. Paper - II: Journalism Communication and Journalism (Syllabus for the Post of Journalism)

#### **Unit-I Communication concepts, models and theories**

Communication concepts, theories (-effects, attitude, critical, cultivation, Marxist, normative, agenda setting, framing, diffusion of innovations, uses and gratifications, etc). Communication models .Semeiotics.

#### **Unit-II History of Media**

Historical understanding of media in the world. Origin growth and present status of press, film, radio, television and new media in India. Origin, growth and present status of media in Telangana. Contribution of prominent social reformers, freedom fighters and journalists to growth of press in India. Reports of various committees and commissions on communication/media related issues and their impact.

#### **Unit-III Reporting**

Journalism- basic concepts and terms. Concept of news. editing techniques and practices, Typography, principles of design, headlines, photo editing, basics of photo journalism, printing processes, trends in newspapers and magazines, readership surveys, ownership patterns, media and various social, political and cultural movements. Reporting: Agriculture, poverty, health, environment, science & technology, defence, industry.

#### **Unit-IV International Communication:**

History of international communication. NWICO debate. MacBride Commission Report. International Communication in the context of globalization and cultural imperialism. International Communication Organizations, intercultural communication.

#### **Unit-V Broadcasting systems**

Public service broadcasting, growth of private TV and radio channels, trends, policy issues, regulatory mechanisms, globalization, cultural issues, development issues, and gender issues, ethical and political issues. Broadcasting vs. Narrowcasting, News Broadcasters Association.

#### **Unit-VI Communication Research**

Types of research, steps in research process, Communication research methodology- proposal writing, content analysis, semeiotics, survey, sampling techniques, qualitative methods, case study, experimental research, ratings research; formative, process and summative research, statistical analysis including various tests and report writing. Online research. Research in different areas of communication-print, broadcasting, advertising, PR, and ICTs

#### **Unit-VII Development Communication**

Trends in development communication, experiences and case studies at national and international level, Theories and models of development communication, human development, development indices, sustainable development, traditional folk media, community radio, role of NGOs in development and health communication.

#### **Unit-VIII New Media Technologies.**

New media technologies and their impact on various fields in society, digital divide, blogging, podcast, online journalism, pornography and cyber law.

#### **Unit-IX Advertising**

Advertising industry in India and world, marketing research; social, economic and cultural impact of advertising on Indians society and Internet advertising.

#### **Unit X Public Relation**

Changing trends in public relations, process and models of public relations, experiences and case studies of corporate communications. Corporate communication- principles, practices and trends. Organizational communication, case studies.



### **Unit-XI Film Theory and Criticism**

Origin and growth of film medium. Brief history of Indian cinema. Film theories and criticism, social, political, cultural and gender issues in Indian films. Film genres and trends; and prominent film personalities and their contribution.

### **Unit-XII Media Law and Ethics**

Various provisions relating to media in Indian Constitution. Acts, Ordinances and IPC sections relating to media, Right to Information Act, Press Council and ethics of journalism.

### **Unit-XIII Radio Production**

Radio production: Programmes for various audiences, Different Programme formats, creating audio space, sound perspective, voice casting, types of music, use of sound effects. Production crew and their functions: Role of producer. Production planning and execution. Radio studio, acoustics, recording equipment, types and use of microphones, Use of Digital Technology in production.

### **Unit-XIV Television Production**

Television technology: broadcasting standards, TV Studio lay out, Production equipment- TV production-studio and field production, TV staff and crew, their functions. Programme formats, Proposal writing, Script writing. TV Production process. TV language and grammar. Classification of shots. Television news production, Editing: Linear and Non-linear, voice over, dubbing, mixing and final mastering.

## Written Examination Syllabus for the post of Degree College Lecturers in Residential Educational Institutions Societies

### 18. Paper - II: Psychology

#### UNIT I.

*Introduction:* Schools of Psychology: Structuralism, Functionalism, Psychoanalysis, Behaviorism, and Gestalt, Methods of Psychology: Introspection, Observation, Case Study, Interview, Survey and Experimental Method, Contemporary Approaches to Psychology - Cognitive Approach, Humanistic Approach and Existential Approach, Goals and Fields of Psychology (Pure and Applied).

Biological Basis of Behavior: Nervous System - The Structure of Neuron, Central Nervous, Autonomic Nervous System, and Hormonal Basis of Behavior - The Major Endocrine Glands and their Functions, Influence of Heredity and Environment on Behavior.

Sensation: Sensory Thresholds; Characteristics of Sensation; Types of Sensation; Measurement of sensations (Absolute Threshold, Signal detection theory, Difference Threshold, Sensory Adaptation), Attention - Nature and concept of Attention, Different Aspects of Attention - Span, Division, Distraction and Fluctuation, Voluntary and Involuntary Attention, Determinants of Attention - Internal and External Factors.

Perception: Principles of Perceptual Organization, Perceptual Constancies and Depth Perception - Monocular and Binocular Cues, Movement Perception, Internal and External factors influencing Perceptual Experience, Distortions in Perception: Illusions & Hallucinations.

Learning: Concept of Learning Curve, Theories of learning - Classical and Instrumental Conditioning, Sign learning, Learning by Insight and Observation, Role of Motivation, Reward and Punishment in Learning, Transfer of Learning, Efficient Methods of Learning.

#### UNIT II.

**Memory:** Meaning and Significance of Memory, Types of Memory, Methods of Measuring Memory, Information Processing Model of Memory, **Forgetting:** Curve of Forgetting, Theories of Forgetting: Decay theory and Interference Theory, Methods of Improving Memory, **Thinking:** Nature and types of thinking, Theories - Bruner & Sullivan, Reasoning - Deductive Reasoning (Conditional, Syllogistic) and Inductive Reasoning (Causal Inferences, Categorical Inferences); aids and obstacles to reasoning, **Problem Solving** Problem cycle, types of problem solving, Impediments to Problem Solving, Problem solving strategies - algorithm, heuristics and biases, Means-End Analysis, Computer simulation, **Creativity** - Characteristics of Creative People; Stages of Creative Thinking. **Emotion and Motivation:** Definition and Nature of Emotions, Development of Emotions, Theories of Emotion - James-Lange, Cannon-Bard and Schachter-Singer, Concept, Theories of motivation. **Intelligence:** Brief history of Testing Movement - contribution of Binet, Theories of Intelligence - Thorndike, Spearman, Thurstone, Sternberg, and Gardner, Measurement of Intelligence - Concept of IQ, Types of Intelligence Tests, Individual differences in Intelligence (Heredity and Environment) **Personality:** Concept of Personality, Personality Assessment - Interviews, Projective tests, Behavioural Assessment, and Personality Inventories, Theoretical approaches to personality - Type Theories, Trait theories and Type cum Trait Theories; Psychoanalytic Approach; Humanistic Approach; Cognitive Behavioural Approach, Big Five Factor Theory.

#### UNIT III.

**Statistics in Psychology:** Measures of Central Tendency and Dispersion; Characteristics of a Distribution - Skewness and Kurtosis; Meaning of Probability; Normal Distribution - Characteristics and Applications; Methods of Sampling - Probabilistic and Non Probabilistic sampling; Sampling Distribution; Sampling error and non-sampling error; Hypothesis - meaning and types; Type I and Type II errors; Procedure for testing of Hypothesis; Test of Significance (large sample and small sample) - for single mean and differences of mean; Test of Significance for single proportion and differences of proportion. Analysis of variance (ANOVA) one way ANOVA and two way ANOVA; Linear Correlation - Product moment and Rank correlation. Special correlations - Bi-serial Correlation, and Point Bi-serial correlation; Partial correlation and Multiple correlation. Simple Regression and Multiple regression. Interpretation of regression coefficients. Non Parametric Statistics - Chi Square test, Sign test, and Median test. Analysis of Covariance.

#### UNIT IV.

**Social Psychology:** Nature and scope of Social Psychology, levels of social behaviour, mechanisms of social interaction. Brief introduction to concepts and application of S-R theory, field theory

and role theory. Social perception, theories of attribution social attitudes, their formation and development. Theories of attitude changes. Prejudice and methods of reducing prejudice. Types of group processes - cohesiveness conformities dynamic, Prosocial behaviour, Leadership, leadership styles and effectiveness. Decision making. Emotional intelligence and interpersonal relations. Applications of Social Psychology – Rural development - human factors in rural development attitudinal basis of rural development factors in acceptance of innovative practices. Social Psychological basis of education. Social factors in academic achievement, Cognitive functioning and intelligence Psychological basis of poverty and Deprivation, studies of Disadvantaged groups, method of alleviating poverty, Educational problems of students from Disadvantaged sectors. Environmental Psychology-Concepts and issues of attitudes, awareness and information of environmental pollution. Steps in protecting environment and reducing less pollution.

#### UNIT V.

**Experimental Psychology:** Different concepts used in Experimental Psychology (including variables & operational definitions); Psychophysical methods, Lab Report writing as per APA Guidelines (including Citations); Introduction to other Guidelines and style Manuals; Techniques of Experimental Control; Application of Research Designs and interpretation of research problems/studies .

#### UNIT VI.

**Experimental Design:** Meaning of Experiment, and Experimental Design; Advantages and disadvantages of experimental designs, Types of Experimental design: Completely randomized design, Randomized Block design, Factorial design, Latin square design; Internal validity and external validity of experimental designs, factors that influence the internal validity and external validity of experimental designs; Meaning of confounding, Types of confounding, Methods of controlling extraneous variables in Experimental design. Concomitant Variation; Single case experimental designs; Ex-post-facto research designs; Non experimental designs; Advantages and Disadvantages of Experimental designs over Non Experimental designs; Types of Non experimental designs – Quasi experimental designs, Correlational designs, Contrast designs, and Case study designs.

#### UNIT VII.

**Abnormal Psychology:** Adjustment and Maladjustment - Concept of Adjustment and Maladjustment, Causes of Maladjustment; Conflicts - Types; Stress - Nature; Types of Stress, Sources of Stress; Immune System & Stress; Personality & Stress; Coping with Stress - Types of Coping; Extreme Maladjustment- Dimensions; Classification - DSM V and ICD 10; Anxiety related- Post Traumatic Stress Disorder, Phobias and panic disorder, Generalized Anxiety Disorder, Obsessive Compulsive Disorder, Somatic symptom Disorder, Conversion Disorders, Dissociative Amnesia, Dissociative Identity Disorder, Mood Disorders - Depression – Characteristics and Symptoms, Bipolar Disorder - Characteristics and Symptoms, Schizophrenia – Symptoms- Positive, Negative and Cognitive Deficits; Types

#### UNIT VIII.

**Approaches and Treatment:** Biological Approaches - Brain Dysfunction, Biochemical Imbalances, Genetic Abnormalities, Drug Therapies, ECT & Brain stimulation techniques, Psychosurgery. Psychological Approaches - Psychodynamic, Behavioural, Cognitive, Humanistic, Family Systems Approach, Sociocultural Approaches - Cross cultural issues; Culturally specific therapies, Prevention Programs; Common elements in Effective treatments, Suicide – Type of attempts, gender differences, Risk factors- Mental disorders, Negative life events, Suicide contagion, Personality and Cognitive factors, Biological factors, Prevention.

#### UNIT IX.

**Child Psychology:** Principles of Development, Hereditary and Environmental Influences on Development, Aspects of Prenatal and Post-natal Development – Milestones of Development, Hazards of Development and Developmental Delays, Physical Development. Cognitive development: perspectives of Piaget and Vygotsky, Language development, Information Processing; Intelligence, Emotional development, Moral development – Kohlberg's Theory, Personality development – Overview of Freud and Erikson, Emergence of self and development of self-concept and self-esteem; Development of Gender Roles.

#### UNIT X.

##### **Adolescent Psychology:**

Importance of adolescent psychology, Characteristics and principles of adolescence development, Havinghurst – developmental tasks of adolescence, Puberty - Growth Spurt, Sexual maturation, Psychological effects of pubertal development-concerns about body image. Challenges to early and late development. Changes in the adolescent brain. Sleep patterns in adolescence. Adolescent health – importance of nutrition and exercise. Adolescent sexuality - sexual orientation, sexual morality, sexual behaviour, need for adequate sex education.

**Cognitive development** – Piaget’s formal operational stage. Changes in reasoning, thinking and decision making. Metacognition – aid to self regulatory learning. Development of identity -Erikson’s stage of identity vs role confusion, Marcia’s ego identity statuses, Rosenberg’s model of identity, Importance of self concept and self esteem in adolescence, factors affecting self-concept. Sex role identity.Moral development - Kohlberg’s post conventional morality.Peers - functions, peer pressure;friends – stability of friendship.

**Issues, Challenges, & Problems** - Risk Behaviours: STDs; Teenage Pregnancy, Addiction to Technology, Substance abuse; Juvenile delinquency; Violence and rape; Poverty and low educational attainment; Adolescent stress- external and internal stressors, Obesity and eating disorders.

## Written Examination Syllabus for the post of Degree College Lecturers in Residential Educational Institutions Societies

### 19. Paper - II: Microbiology

#### I. General Microbiology

History of Microbiology. Contributions of Scientists. Types, application and importance of microscopy. Structure of microbial cells. Methods of sterilization: Physical methods - chemical methods and their application. Pure culture techniques. Preservation methods and Maintenance of Microbial cultures. Microbiological media and cultivation of microorganisms. Microbial identification methods. Principles of bacterial taxonomy and classification. Microbial growth curve. Measurement of Growth. Synchronous cultures- methods of synchronous culturing. Continuous culturing methods, factors effecting growth. Phenomenon of bacterial sporulation. Microbial nutrition, respiration and fermentation. Distribution, characteristics and reproduction of algae and fungi.

#### II. Virology

Structure and Classification of bacterial, plant and animal viruses, Methods of cultivation, detection, Propagation and maintenance of viruses. Some important viruses: Influenza virus, Adeno virus, HBV, HIV, T2 phase, TMV, Replication of viruses, Tumor viruses, Interferons and viral interference.

#### III. Molecular Biology and Microbial Genetics

DNA structure and replication. Transcription and translation. Concept of ribozyme. Genetic code and Wobble hypothesis, Gene regulation. Cloning and expression vectors. Construction and screening of genomic and cDNA libraries. PCR, Gene chips and Microarray. DNA markers, fingerprinting and gene therapy. DNA sequencing. Expression of recombinant proteins Protein-protein and protein-DNA interaction. Applications of recombinant DNA technology. Types of mutagens, molecular basis and analysis of mutations, site directed mutagenesis. DNA damage and repair mechanisms. Recombination in bacteria by Transformation, Conjugation, Transduction. Transposable elements. Cell cycle and programmed cell death. Signal transduction, Protein folding & roles of Molecular chaperones. Databases, Sequence and structure analysis of DNA and Proteins. Primer design. Protein engineering and drug designing.

#### IV. Biochemistry and Techniques

pH and its biological relevance. Redox potentials, Electron transport, oxidative phosphorylation. Classification, chemical structure of important carbohydrates. Properties of amino acids, structure, confirmation and properties of proteins. Enzyme nomenclature, classification, Enzyme activity and inhibition. Enzyme kinetics - Michaelis-Menton kinetics. Optical methods - colourimetry and spectrophotometry, fluorimetry, optical rotation, Circular dichroism, NMR, ESR spectroscopy, X-ray diffraction, types of mass spectrometry. Chromatographic techniques, diffusion, dialysis, cell disruption methods, centrifugation techniques, electrophoreses and blotting techniques. Radio isotopes - detection and measurement.

#### V. Immunology and chemotherapy

Types of Immunity, primary and secondary organs of immune system, cells of immune system. Types, structure, properties and functions of antigens and antibodies, antigen antibody reactions. Major Histocompatibility Complex (MHC) and transplantation. Polyclonal and monoclonal antibodies. Hypersensitivity, Autoimmunity. Tumor immunology, Immunological tolerance and immuno-suppression, Immune deficiency diseases. Immunotherapy of infectious diseases, immunization. Types of antimicrobial agents and mode of action. Therapeutic agents, Chemical, non-medicinal antimicrobials- sanitizers, disinfectants, antiseptics. Antibiotics. . Antiviral agents. Microbiological assays.

## **VI. Industrial Microbiology**

Exploitation of microbes in industry. Screening, strain development. Types of fermentations processes, scaleup of fermentations. Up and Down stream process. Fermentation productions- Ethanol, Beer, Wine and other alcoholic drinks, amino acids, antibiotics, organic acids, vitamins, enzymes, probiotics, solvents and vaccine. Microbial products from genetically modified (cloned) organisms. QA, QC, GLP, GMP, Patents & IPR

## **VII. Food Microbiology**

Dairy Microbiology and microbial products of milk, Fermented foods, Bacteriological examination of milk, fresh foods and canned foods, Food preservation methods and spoilage. Current and future implications concerning food safety, hazards and risks. Probiotics, Prebiotics and their significance in human beings and animals.

## **VIII. Environmental and Agriculture Microbiology**

Ecological significance. Microbiology of water and sewage treatment. Role of microorganisms in nutrient cycling, Mineralization, Soil humus formation, Nitrogen metabolism, Phosphate solubilization. Biofertilizers, Biopesticides, Biodegradation of pollutants. Plant-microbe interactions, Animal-microbe interactions: Rumen microbiology, termite microbial communities, Microbes in the production of energy from agricultural and domestic wastes.

## **IX. Medical Microbiology**

Principles of Medical Microbiology, Normal flora of human body. Properties of pathogenic microorganisms, Principles of diagnostic microbiology, Use of lab animals in diagnostic microbiology. Bacterial and viral infections (Air born, water born, food born, insect born, zoonotic and direct contact), Mycosis, Toxins.

## Written Examination Syllabus for the post of Degree College Lecturers in Residential Educational Institutions Societies

### 20. Paper - II: Public Administration

1. Public Administration – Genesis and growth, meaning, nature, scope and significance; Public and Private Administration; New Public Administration- Minnowbrook I, II & III.
2. Theories of Public Administration - Oriental, Classical, Scientific Management, Bureaucratic, Human Relations, Behavioural, Socio-Psychological, Ecological, New Public Management, New Public Service and Social Justice Approach.
3. Principles of Administration – Hierarchy, Span of Control, Unity Of Command, Delegation, Decentralization, Coordination, Line and Staff, Supervision, Communication, Public Relations.
4. Comparative Public Administration – Nature, Scope and Evolution, Comparative study of the Administration of UK, USA, and India. Development Administration - Nature, Scope, Elements, Models, Changing Dynamics of Development Administration in India, Millennium and Sustainable Development Goals.
5. Union Government and Administration in India – Evolution- Mauryan, Gupta, Moghul, British period; President, Prime Minister, Council of Ministers, Prime Minister’s Office, Central Secretariat, Cabinet Secretariat, Election Commission, Finance Commission, Comptroller and Auditor General.
6. State Administration - Governor, Chief Minister, Council of Ministers, Secretariat, Chief Secretary, Departments and Directorates.
7. District Administration – Organisation of District Administration, Role of District Collector in Development, Reorganisation of Districts in Telangana State.
8. Local Government – Meaning, Nature, Scope; 73<sup>rd</sup> and 74<sup>th</sup> Constitutional Amendment Acts; Organisation, Powers and functions of Local Government Institutions, Challenges to Local Government Institutions in India, Working of Panchayat Raj Institutions and Urban Local Bodies in Telangana state
9. Personnel Administration - Objectives of personnel administration, classification of services, recruitment, Union Public Service Commission and Telangana State Public Service Commission - Training, Promotion, Discipline, Morale; Staff Associations, Employer - Employee relations
10. Financial Administration - Budget, Principles of Budget, Forms of Budget, Preparation and Execution of Budget, Finance Ministry, Parliamentary Committees- Public Accounts Committee, Estimates Committee.
11. Control over Administration - Legislative, Executive, Judicial control and Citizen control; Good Governance - Transparency and Accountability in Administration - Right to Information Act, Citizen Charter; Public Grievances and Redressal machinery in India – Central Vigilance Commission, Central Bureau of Investigation, Lokpal, Lokayukta, Anti-Corruption Bureau and Consumer Protection Mechanism; Administrative Reforms.
12. Welfare Administration- Centre and State Social Welfare institutions and Constitutional bodies; Social Welfare National, State policies and programmes - SC, ST, OBC, Minorities, Women, Child, Differently abled and Old age.
13. Public Policy - Introduction to Public Policy, Theories- Systems, Structural- Functional, Incremental, Elite, Group Theory; Public Policy Making: Role of Legislature, Executive, Judiciary, Bureaucracy, Political Parties, Pressure Groups, Mass Media; Policy Impact and Policy Evaluation- Land Reforms, Irrigation, Education, Health, Food Security and Social Security Policies.
14. Research Methodology - Social Science Research - Importance and Objectivity in Social Science Research; Research Methods – Historical, Analytical, Descriptive, Exploratory, Case Study Method; Research Design; Data Collection - Primary and Secondary Sources; Data Analysis, Interpretation and Report Writing.
15. Emerging Trends in Public Administration – Values and Integrity in Public Administration, Citizen driven administration, Public-Private Partnership, Disaster Management.

## Written Examination Syllabus for the post of Degree College Lecturers in Residential Educational Institutions Societies

### 21. Paper - II: Sociology

#### Part I: Sociological Concepts

- Nature and Scope of Sociology, Sociological Perspectives
- Human Society, Individual and Society, Social Group, Community, Association
- Social Structure, Status and Role, Norms, Culture, Socialization and its agencies and theories, Social Institutions, Social Control
- Social Process: Associative and Dissociative Social Process
- Inequality, Social Differentiation, Social Stratification and its theories and dimensions, Social Mobility
- Social Change: Factors and Theories of Social Change, Evolution, Development, Progress

#### Part II: Sociological Thought and Theory

- Sociological Thought: Nature, Development and Social Context Contributions of Auguste Comte, Karl Marx, Herbert Spencer, Emile Durkheim, Max Weber and Vilfredo Pareto
- Sociological theory: Nature and types- Paradigms in Sociology
- Structural Functionalism: Radcliffe Brown, Bronislaw Malinowski, Talcott Parsons and Robert K Merton
- Neo Functionalism: Jeffrey Alexander
- Structuration and Post Modernism: Anthony Giddens, Jacques Derrida and Michel Foucault
- Conflict and Neo Marxism: Karl Marx, Georg Simmel, Lewis Coser, Ralf Dahrendorf, Randal Collins, Jürgen Habermas, Louis Althusser
- Interactionist Perspective:
- Symbolic Interactionism: George Herbert Mead, Charles Horton Cooley, Herbert Blumer
- Phenomenology: Alfred Shultz, Peter Berger, Niklas Luhmann
- Ethnomethodology: Harold Garfinkel, Erving Goffman
- Exchange Theory: George Homans, Peter Blau

#### Part III: Indian Society

- Composition of Indian Society: Cultural, Religious, Regional and Linguistic Diversity, Unity in Diversity
- Foundations of Indian Society: Hindu View of Life, Purusharthas, Varna Dharma and Ashram Dharma
- Marriage and Family in India: Types and Forms of Hindu Marriage, Hindu Marriage as a Sacrament, Marriage Legislation, Marriage among Muslims and Christians, Types of family, Family in rural and urban setting, Changing trends in marriage and family
- Caste, Religion, Economy and Polity: Varna, Jati and Caste- Theories, Features and Functions of Caste system, Cultural and Structural view of Caste System, Social mobility in Caste System, Changing Trends and Future of Caste System, Religion and Ritual System, Socio-Religious Movements, Jajmani System, Land Reforms, Leadership and Polity
- Social change in contemporary India: Sanskritization, Westernization, Modernization and Secularization, Great and Little Tradition, Tradition and Modernity
- Development: Economic development, Human Development, Social Development, Sustainable Development, Nation Building
- Indian experience of development- Five Year Plans- Social consequence of Economic Development- Socio cultural repercussions of Globalization- Social Tensions and Social Resilience
- Contemporary Issues and Debates Population Explosion, Poverty, Slums, Displacement, Ecological Degradation, Environmental Pollution, Health Problems and Health Care Delivery, Familial Problems: Gender Inequality, Domestic Violence, Dowry, Divorce and Inter-Generational problems, Crime and Delinquency, White Collar Crime, Corruption, Drug Addiction, Youth Unrest, Suicides, Issues of Migration

#### Part IV Research Methodology

- A. Nature of Social Phenomenon, Scientific Method, Applicability of Scientific Method to Social Phenomenon, Objectivity and Subjectivity, Reliability and Validity, Theory, Fact and Hypothesis
- B. Selection of Research Problem, Social Survey, Research Design and its types, Field work, Pre-test, Sample and its types
- C. Techniques and Methods data Collection: Observation, Questionnaire, Schedule, Interview, Participant Observation, Case Study, Content Analysis, Life History, Historical Method
- D. Techniques of Data Analysis, Classification and Tabulation, Diagrammatic and Graphic Presentation
- E. Statistics in Social Research: Measures of Central Tendency, Measures of Dispersion, Correlation Analysis, Measures of Association and Test of Significance
- F. Research Report

#### Part -V: Rural Sociology



- **Approaches to the study of Rural Society:**  
Rural -Urban differences Ruralism Peasant studies
- **Agrarian Institutions:**  
Land ownership and its types Agrarian relations and Mode of production debate Jajmani system and Jajmani relations Agrarian class structure
- **Panchayati Raj System:**  
Panchayat before and after 73rd Amendment Rural Leadership and Factionalism Empowerment of people
- **Social Issues and Strategies for Rural Development:**  
Bonded and Migrant Labourers Pauperization and Depeasantisation Agrarian unrest and Peasant movements
- **Rural Development and Change:**  
Trends of Changes in rural society Process of change: Migration - Rural to Urban and Rural to Rural Mobility: Social / Economic Factors of change

#### Part-VI: Industry and Society

- **Industrial Society in the Classical Sociological Tradition:** Division of Labour Bureaucracy Rationality Production relations Surplus value Alienation
- **Industry and Society:**  
Factory as a social System Formal and informal organization Impact of Social structure on industry Impact of industry on society
- **Industrial Relations:**  
Changing profile of labour Changing labour-management relations Conciliation, adjudication, arbitration Collective bargaining Trade unions Workers' participation in management (Joint management Councils) Quality circles
- **Industrialization and Social change in India:**  
Impact of industrialization on family, education and stratification Class and class conflict in industrial society Obstacles to and limitations of industrialization
- **Industrial Planning:**  
Industrial Policy Labour legislation Human relations in industry

#### Part-VII: Sociology of Development

- **Conceptual Perspectives on Development:**  
Economic growth Human development Social development Sustainable development
- **Theories of Underdevelopment:**  
Liberal: Max Weber, Gunnar Myrdal Dependency: Centre-periphery (Frank), Uneven development (Samir Amin), World-System theory (Wallerstein)
- **Paths of Development:** Modernization, Globalisation Socialist Mixed Gandhian
- **Social Structure and Development:**  
Social Structure as a facilitator/ inhibitor Development and socio-economic disparities Gender and development
- **Culture and Development:**  
Culture as an aid / impediment Development and displacement of tradition Development and upsurge of ethnic movements

#### Part-VIII: Population and Society

- **Theories of Population Growth:**  
Malthusian Demographic transition
- **Population Growth and Distribution in India:** Growth of Indian population since 1901 Determinants of population
- **Concepts of Fertility, Mortality, Morbidity and Migration:** Age and Sex composition and its consequences Determinants of fertility Determinants of mortality, infant, child and maternal mortality Morbidity rates Determinants and consequences of migration
- **Population and Development:**  
Population as a constraint on and a resource for development Socio-cultural factors affecting population growth
- **Population Control:**  
Population policy: Problems and perspectives Population education Measures taken for population control.

**Written Examination Syllabus for the post of Degree College Lecturers in  
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**22. Paper:II: BUSINESS ADMINISTRATION**

**UNIT - 1: MANAGEMENT:** Meaning -Role & Importance - Functions of Management- Planning & Types of Plans - Decision Making - Organizing - Formal and Informal Organization Structure - Span of Management - Delegation of Authority - Centralization and Decentralization - Communication - Process, Channels & Barriers - Leadership -&Theories - Coordination - Controlling.

**UNIT - 2: ORGANIZATIONAL BEHAVIOUR (OB):** Concept & Significance - OB Models - Understanding and Managing Individual Behaviour - Perception - Values - Attitudes - Learning - Understanding and Managing Group Behaviour - Interpersonal Relations - Group Dynamics & Team Building - Organization Culture - Concept & Determinants - Managing Change - Conflict Management -Stress Management.

**UNIT - 3: MANAGERIAL ECONOMICS:** Fundamental Concepts - Law of Demand - Demand Analysis - Demand Forecasting - Production Function - Cost Function - Market Structure and Pricing - Perfect Market, Imperfect Market, Monopoly & Oligopoly- Pricing Policies and Methods - Profit Concepts & Measurement - Break Even Point.

**UNIT - 4: BUSINESS ENVIRONMENT:** Meaning - Constituents of Internal & External Environment - Liberalization - Privatization -Globalization - Foreign Trade and EXIM Policy - Foreign Capital & Collaborations - Monetary & Fiscal Policies - Free Trade Vs Protectionism - Cartelization - WTO.

**UNIT - 5: HUMAN RESOURCE MANAGEMENT:** Meaning - HRM Vs HRD - Human Resource Planning - Job Analysis - Job Description - Recruitment and Selection - Induction - Training and Development - Job Evaluation - Concept & Methods - Performance Appraisal - Meaning & Methods - Motivation - Concept, Theories, & Techniques - Compensation Management.

**UNIT - 6: STRATEGIC MANAGEMENT:** Meaning & Importance - Mc Kinsey 7S Framework - Corporate Governance - Strategy Analysis & Strategy Formulation - Business Portfolio Analysis - Strategic Control & Evaluation - Strategic Alliances.

**UNIT - 7: MARKETING MANAGEMENT:** Concepts of Market & Marketing - Marketing Environment - Marketing Mix - Consumer Behaviour - Determinants & Models - Market Segmentation - Targeting & Positioning - Branding - Product Life Cycle - Promotion Mix - Services Marketing -Marketing Research -New Trends in Marketing.

**UNIT - 8: PRODUCTION MANAGEMENT:** Role & Scope of Production Management - Product Selection - Process Selection - Facilities Location - Lay out Planning - Work and Job Design - Operation Planning and Control - Mass Production - Batch Production and Job Shop Production - Planning and Control Process - Network Analysis - PERT & CPM - Value Engineering - Business Process Re-engineering - Quality Assurance - Supply Chain Management-Concept.

**UNIT - 9: QUANTITATIVE TECHNIQUES:** Relevance of QT in Decision-Making - Research Process - Central Tendency - Dispersion - Data Collection (including Sampling Methods) - Probability Distributions - Concepts; Discrete Probability Distributions; & Continuous Probability Distributions -- Test of Hypothesis - Chi-square Test & ANOVA - Business Forecasting Methods - Correlation, Regression, & Time Series Analysis - Report Writing.

**UNIT - 10: OPERATIONS RESEARCH:** Meaning - Importance - Role - Linear Programming - Minimization and Maximization Methods - Graphic Method - Transportation and Assignment Problems - Goal Programming - Dynamic Programming - Inventory Control Models - Queuing Models - Decision Theory - Game Theory - Simulation.

**UNIT - 11: FINANCIAL, COST & MANAGEMENT ACCOUNTING:** *Accounting Concepts - Principles - Conventions - Accounting Standards - Indian Accounting Standards (IND AS)- Cost Accounting - Classification of Cost -Cost Sheet - Standard Costing - Process Costing - Job & Batch Costing - Preparation and Analysis of Financial Statements - Inflation Accounting - Cost-Volume-Profit Analysis.*

**UNIT - 12: FINANCIAL MANAGEMENT:** Meaning & Importance - Objectives - Sources of Finance - Investment Decisions - Financing Decisions - Dividend Decisions Ratio Analysis - Working Capital Management - Cash Management - Receivables Management - Inventory Management.

**UNIT - 13: INFORMATION TECHNOLOGY FOR MANAGERS:** Hardware & Software - Operating Systems - Functions & Types - DBMS - Network Topologies - Types of Networks - Management Information System - SDLC - Data Analytics.

**Written Examination Syllabus for the post of PHYSICAL DIRECTOR (DEGREE COLLEGE) in Residential Educational Institution Societies**

**23. Paper: Physical Education**

I. Meaning & Definitions of Physical Education, - Aims and objectives- Foundations of Physical Education – Biological, Philosophical, psychological and Sociological aspects; need and importance of physical education; philosophy of physical education; socialization process – sports as cultural heritage of mankind – sports for all health for all; Physical education in ancient Greece & Athens,- physical education in India; Olympic movement – Historical development of Ancient and modern Olympic games.

II. Essential of Physical Education; concepts and principles of class management-Qualities and qualifications of physical educational personnel – duties & responsibilities; Organisation and administration of physical educational programme in educational; Institutions tournaments; Management of infrastructure, equipments, finance and personnel, Registers & Records methods of teaching; Principles of planning physical educational lessons- pupil- teacher relationship; Construction of physical education time-table. Principles of curriculum planning, curriculum designs, techniques of supervision; Techniques of Sports Management, Demonstration, Conference, Projects, Workshops, Bulletin and Public Relations and Administrations.

III. Research in Physical Education: Introduction to Research – Meaning – Definition – Nature and Scope – Characteristics – Need and importance of research in Physical Education.; Locating and selection of a Research problem, hypothesis formulation- types of testing; Collection of data, tools, sampling techniques Methods of Research – Historical research – Experimental research – Survey method & Case study method; Descriptive and Inferential Statistical Techniques for data analysis and interpretation.

IV. Anatomy and Physiology: Joints and their movements – Planes and axes – Classifications, Posture – Common deformities. Classification of Muscles; Structure and functions of Muscles, Tendons and types of Muscle fibres. Muscular Contraction – Role of Actin, Myosin, Sarcoplasm; Nervous system – co-ordination of muscular activity – Neuromuscular function; Motor and plate – Motor units – Neuromuscular transmission; Cardiovascular and Cardio-Respiratory system, Endocrine system, Hormones – Pituitary, Thyroid, Adrenal – Glands and their location – Parathyroid, Pancreas; Effect of exercise on body organs and systems ; Doping – Ergogenic Aids – Doping – National Anti-Doping Agency (NADA) – Effect of Exercise on Muscular, Cardio-respiratory and Endocrinal systems; Types of Sports injuries – Skin – abrasion, laceration, contusion, blisters, Haematoma – Bone injuries - Fracture and dislocations, Muscle injuries – sprain, Strains and cramps.

V. Kinetic & Kinematic Principles: Kinetic & Kinematic Principles, Meaning of equilibrium, Motion and force, Limitations upon the application of mechanical principles of fundamentals of sports. Factors which determine the degree of stability – Relationship of centre of gravity to equilibrium – Significance of equilibrium in sports; Motion – Newton's Laws of Motion – Laws of Gravitation and freely falling bodies, path of projectiles, special application of principles of projectiles to short put and long jump – of Rotary Motion and Linear Motion; Force – Definition and Meaning of the term Force – Factors of Force (Magnitude, direction and application) to sports – Centrifugal and centripetal forces and their application to sports; Friction; Work, power and Energy –

Work done and Energy expended, Kinetic Energy, Potential Energy; Analysis of Activities – Mechanical and scientific analysis of techniques of different sports styles – Walking, running, jumping and throwing.

VI. Test, measurement and Evaluation: Need and use of Measurement and Evaluation in Physical Education; Criteria of a Good Test; Establishing procedure of validity, Reliability, objectivity and Norms; Tests for fitness – Physical Fitness Tests – Speed test, Rogers Strength tests, Cardiovascular fitness tests (coopers tests, Tuttle pulseratio test, hard ward step tests), AAHPERD Youth fitness tests Muscular endurance tests (Bent – knee situps) ; Motor ability – General motor ability ( Barrow and Scot) – Cozen Athletic ability – Motor educability – Indiana motor fitness test – Cozens motor ability tests.; Anthropometric measurements – General Body Measurements Height, weight, Circumferences length, leg length – Girth measurement – Body composition – Fat – Body mass – BMI, BMR Skin fold callipers; Game Skill Tests – Schmithals – French Field Hockey Test, Football Skill Test : Mc Donald Volleying Soccer Test, Volleyball Skill Test : Brady Volleyball ; Test, Russell – Lounge Volleyball Test, Basketball Skill Test : Badminton Test, Johnson Basketball Test.

VII. Sports Psychology : Meaning, concept, nature Definitions of Sports Psychology. Need and importance; Personality and types of Personality- well built sports personality; Emotions- positive, and negative emotions Motivation – Intrinsic and Extrinsic motivation; Role of motivation in sports; The principles of learning – theories of learning, laws of learning. Theory of use and disuse; Emotional Aspects of Sports Anxiety – reasons of anxiety – Measurers to control anxiety; Anxiety and coaching intervention –  
(i) Pre-competition Preparation (ii) Psychological intervention during competition (iii) Post Competition Evaluation – Arousal – Activation performance and emotion; Aggression and Hostility – Models of aggression – Aggression as an instinct – Frustration – Assessment of aggression – Reason for aggression in sports – factors to control aggression; Arousal and activation – Role of activation in sports – drive theory – sports performance

VIII. Sports training : Meaning, objectives and principles of sports training and talent identification; Various Training Methods - Strength, Speed and Flexibility Development – Strength Training. Speed Training. Endurance Training; isotonic - Isometric Interval Training Planning, and per iodisation of Training Process load over load principle Aerobic training; Anaerobic training, Weight training, Fartlek Training, Interval training, Plyometric training, Resistance training, Pressure training; High Altitude training, Functional training, Repetition method of training, and Transfer of training effects; Specific training programme for development of various motor qualities.

IX. Nutrition, Therapy and Yoga: Food – Components / Ingredients Nutrients, Balanced diet, Diet before, During and after the activity. Diet and performance; First Aid and Physiotherapy – First-Aid – Guiding principles of First-Aid; Physiotherapy – Physiotherapy – Meaning definition and principles of physiotherapy, importance of physiotherapy in sports; Yoga –Yoga and its relevance to Physical Education; Yoga Asanas, Pranayama, Mudras and Kriyas – Yoga Vignan – A general survey of the preventive, promotive and curative aspects of Yoga techniques, Like Bronchial Asthama, Hypertenstions, Arthritis and Diabetes; Meditations and Concentration – Meaning of Meditation, Concentration and their experiences – types of Meditation – Role of Meditation in relaxations; Effect of Yogic Practices on Different systems.

X. Officiating and Coaching : Meaning, Concept and Definitions – Qualifications and Qualities of good official and Coach – Duties and responsibilities an official and coach.

XI. Rules, Regulations, Dimensions and officiating of the Following Games: a) Ball-Badminton, b) Cricket, c) Football, d) Hockey, e) Kabaddi, f) Kho-Kho, g) Tennis, h) Track and Field, i) Basketball, j) Badminton, k) Handball, l) Volleyball, m) Table - Tennis n) Gymnastics, o) Swimming, p) Archery, q) Fencing r) Rifle / Pistol Shooting.

**Written Examination Syllabus for the post of LIBRARIAN (DEGREE COLLEGE) in  
Residential Educational Institutions Societies**

**24. Paper II: Library & Information Science:**

**Unit-1: Foundations of Library and Information Science**

Five Laws of library Science; Types of Libraries and their functions; Library Movement in Telangana, Important libraries in Telangana; Library legislation in India; Library Extension Services; Library Association in India, UK and USA - ILA, IASLIC, SIS, LA and ALA; National & International organizations promoting Library Development-RRRLF, NASSDOC, NISCAIR, DESIDOC, IFLA and UNESCO

**Unit-2: Information, Communication and Society**

Data, Information and Knowledge; Information as a Resource / Commodity; Role of Information in Socio-Economic Development; Information Society, Knowledge Society; Knowledge Management; Information Generation, Collection, Storage and Dissemination; Communication -Channels, Barriers; National Knowledge Commission; Intellectual Property Rights; Copyright; Right to Information Act

**Unit-3: Information Sources**

Source of Information-Primary, Secondary and Tertiary; Documentary and Non-documentary; Reference Sources- Dictionaries; Encyclopedias; Geographical Sources; Biographical Sources; Year Books / Almanacs, Directories and Handbooks; Statistical sources; Bibliographies, Union Catalogues, Indexing and Abstracting Periodicals; Serial Publications; E-Documents - e-Books; E-Journals; Databases-Bibliographic; Numeric; and Full text

**Unit-4: Information Services**

Information services- Bibliographic services, Indexing and Abstracting services, CAS, SDI, Document Delivery Services, Referral services; Online Services; User Education and User Studies; Information. Seeking Behaviour and Information Needs; Information Literacy.

**Unit-5: Information Processing (Classification and Cataloguing)**

Organization of knowledge/information; Modes of formation of subjects; Library classification-Canons, Laws and Principles; Notation & Mnemonics; Fundamental categories; Call Number; Common isolates; Library classification Schemes-DDC, UDC, and CC; Library Cataloguing-Canons, Laws and Principles; Library cataloguing codes-CCC and AACR-II; Bibliographic standards: ISBD, MARC and CCF; Indexing-Pre-Coordinate , Post-Coordinate; Vocabulary control - Thesaurus, Lists of Subjects Headings; Information Storage & Retrieval (ISAR): Search Strategies; Boolean Operators; Evaluation of ISAR

**Unit-6: Library Management**

Management-Principles, Functions, Schools of Thought; Organizational Structure; Planning ; Decision making; System study-Analysis, evaluation and design; Collection Development (Books Serials, non-book, Material)- Principles of book selection; acquisition procedures; ISBN, ISSN; Maintenance; Preservation & Conservation; Human Resources Management; Financial Management-Resources generation, Budgeting, Cost and Cost-Benefit analysis; PERT, CPM; Library Buildings, equipment & furniture; Marketing information products and services; Total Quality Management (TQM)

**Unit-7: Fundamentals of Information Technology**

Information Technology -Software and Hardware; storage devices; Software - Operating Systems; Application Software; Client-Server Technology; Different types of Servers.; Communication Technology - Telecommunications; Modem; Router; Wi Fi; Transmission Media; Networking Concepts - Topologies- LAN, MAN, WAN; Communication Tools and Techniques - Fax, E-mail, Tele Conferencing, Video Conferencing, Voice Mail. Hyper Text and Hyper Media. List Serve / Electronic groups.; Standards; Protocols and Formats; Interoperability; Internet Basics - WWW; Web Browsers; Search Engines; Internet Connectivity; Data Security- Computer Viruses.

**Unit-8: Library Automation and Networks**

Library Automation -Areas of Automation; Hardware and Software selection; OPAC; Resource Sharing and Library Networks-ERNET, NICNET, DELNET, INFLIBNET; OCLC; Library Consortia; Information systems- INIS, AGRIS, PUBMED, INSPEC; Software for Library Automation.

**Unit-9: Digital Libraries**

Digital Library Initiatives; Digitization - Software & hardware; Standards; File formats; Metadata; Digital Collection Management - e-books; e-journals; Databases; Electronic Thesis & Dissertations; Resource Discovery - Search engines; search tools & techniques; Digital Rights Management, copyright & plagiarism

**Unit-10: Research Methodology**

Types of Research; Scientific Method; Hypothesis, Data Collection; Sampling techniques; Methods of Research-Historical, Case Study, Survey, experimental method etc.; Data Analysis & Interpretation; Report Writing; Bibliometric, Scientometrics and Webometrics.

## ANNEXURE - III

## INSTRUCTIONS TO CANDIDATES:

A) GENERAL INSTRUCTIONS TO CANDIDATES

- 1) Candidates are directed to follow the Board Website ([www.treirb.telangana.gov.in](http://www.treirb.telangana.gov.in)) regularly to know the latest developments regarding the Recruitment, dates of Examination, calling of candidates for verification of Certificates/ Medical Boards, Results etc.
- 2) The Hall Ticket must be presented for entry into the examination hall along with one original valid Photo identification card issued by Government i.e., Passport, Pan Card, Voter ID, Aadhaar Card, Government Employee ID or Driving License etc., without fail.
- 3) Candidates are strictly not allowed inside the Examination centre after closing the gate.
- 4) EDIT OPTION TO THE CANDIDATES: The applicants should follow the TREI-RB website regularly to utilize the edit option to rectify the mistakes viz., Bio-data particulars/Data corrections/omissions etc., in the application, if the facility is given by the Board. If the edit option facility is not utilized by the candidates, the TREI-RB is not responsible and the data already available is treated as final. After the due date, data corrections through online/paper representations or corrections on the Nominal Rolls in the examination hall will not be accepted under any circumstances. No correspondence will be entertained in this matter.
- 5) There will be a common examination for Paper-I i.e., General Studies as decided by the Board, whenever required.
- 6) The candidates must note that his/her admission to the examination is strictly provisional. The mere fact that an Admission to the examination does not imply that his/her candidature has been finally cleared by the Board or that the entries made by the candidate in his/her application have been accepted by the Board as true and correct. The candidates have to be found suitable after verification of original certificates; and other eligibility criteria. The Applicants have to upload his/her scanned recent colour passport photo and signature to the Application Form. Failure to produce the same photograph, if required, at the time of verification, may lead to disqualification.
- 7) The candidates are not allowed to bring any Electronic devices such as Smart/Mobile phones, Calculators, tablets, iPad, Bluetooth, pagers, watches to examination centre. Loaning and interchanging of articles among the candidates is not permitted in the examination hall and any form of malpractice will not be permitted in the exam hall.
- 8) The candidates are expected to behave in an orderly and disciplined manner while writing the examination. If any candidate takes away Answer Sheet of OMR based examination, the candidature will be rejected. In case of impersonation/disorder/rowdy behaviour during Examination, cases shall be booked in the Police Station concerned, apart from disqualifying his/her candidature.
- 9) Candidates trying to use unfair means shall be disqualified from the selection. No correspondence whatsoever will be entertained from the candidates.
- 10) The Board is also empowered to invoke the penal provisions of the T.S. Public Examinations (Prevention of Malpractices and Unfair means) Act, 1997 (Act No.25/1997) for matters connected therewith.
- 11) (i) The candidates who are totally blind are allowed to write the examination with the help of scribe provided by TREI-RB and 20 minutes extra time is permitted to them per hour.  
(ii) Scribe will be provided by TREI-RB to those candidates who do not have both the upper limbs for Orthopedically Handicapped. However, no extra time will be granted to them.  
(iii) Scribe will be provided to the above category of candidates who applied for scribe facility in the online application only.

- (iv) An extra time of 20 minutes per hour is also permitted for the candidates with locomotor disability and CEREBRAL PALSY where dominant (writing) extremity is affected for the extent slowing the performance of function (Minimum of 40% impairment). Scribe is allowed to such candidates also.
- (v) The scribe provided by the Board, shall be from an academic discipline other than that of the candidate and the academic qualification of the scribe should be one grade lower than the stipulated eligibility criteria
- (vi) The candidate as well as the scribe will have to give a suitable undertaking confirming the rules applicable.

**B) INSTRUCTIONS TO CANDIDATES REGARDING OMR BASED EXAMINATION**

- 1) The candidates have to report to the examination venue at least 30 minutes before the commencement of examination, to record their Photo Image/thumb impression on Biometric system.
- 2) The candidate should satisfy the Invigilator of his identity with reference to the Signature and Photograph available on the Nominal Roll and Hall Ticket.
- 3) The candidates should go through the instructions given on the cover page of test booklet and OMR Answer Sheet which will be provided to him/her in the examination hall and carefully write his/her Hall Ticket Number, Subject/Paper Code, Question Booklet Number, Name of the Examination Centre etc., on the OMR Answer Sheet. The candidates have to USE BALL POINT PEN (BLUE/BLACK) ONLY to fill up relevant columns on the Answer Sheet including MARKING OF THE ANSWERS. Bubbling by Pencil/Ink Pen /Gel Pen is not permitted in the examination.
- 4) The candidate must write all the relevant columns in the Answer sheet and also encode (bubble) correctly such as Hall Ticket Number, Question Booklet Series and Paper Code on the OMR Answer Sheet carefully and to Sign in the space provided for on Side-1 of the Answer Sheet and ensure the Signature of the Invigilator, etc., on it, failing which the Answer sheet will be rejected. Use of whitener/eraser/chalk-powder etc. is strictly prohibited on the OMR Answer sheet/ Question Paper.
- 5) Candidate should encode the Hall-Ticket Number and Paper Code first carefully on OMR Answer Sheet. After receiving the Question Paper only, candidate should verify and encode Question Booklet Number on the OMR Answer Sheet.
- 6) If there is any defect in the Test Booklet or OMR Answer Sheet, please ask the invigilator for replacement immediately.
- 7) OMR Answer sheets cannot be replaced under any circumstances in case of wrong bubbling.
- 8) The OMR Answer sheets are to be scanned (valued) with Optical Mark Reader. The Digital copy of OMR Answer Sheets will be made available on the Board's website immediately after completion of the image scanning.
- 9) No candidate should leave the examination hall till expiry of fulltime. After writing the examination the candidate has to handover the OMR Answer sheet to the invigilator in the examination hall. If any candidate takes away the OMR Answer sheet, his/her candidature will be rejected.
- 10) The Board would be analyzing the responses of a candidate with other appeared candidates to detect patterns of similarity. If it is suspected that the responses have been shared and the scores obtained are not genuine/valid, the Board will invalidate the OMR Answer Sheet and cancel his/her candidature.



**ANNEXURE-IV**  
**LIST OF COMMUNITIES**  
**SCHEDULED CASTES AND SCHEDULED TRIBES**

(G.O. MS. NO. 5 Scheduled Castes Development (POA.A2) Dept., Dt. 08/08/2015 read with  
G.O.Ms. No.11, Scheduled Castes Development (POA.A2) Dept., Dt. 17/09/2014 and G.O. Ms. No.  
2 Scheduled Castes Development (POA.A2) Dept., Dt. 22.01.2015)

**LIST OF SCHEDULED CASTES**

1. Adi Andhra
2. Adi Dravida
3. Anamuk
4. Aray Mala
5. Arundhatiya
6. Arwa Mala
7. Bariki
8. Bavuri
9. Beda (Budga) Jangam
10. Bindla
11. Byagara, Byagari
12. Chachati
13. Chalavadi
14. Chamar, Mochi, Muchi, Chamar-Ravidas, Chamar- Rohidas
15. Chambhar
16. Chandala
17. Dakkal, Dokkalwar
18. Dandasi
19. Dhor
20. Dom, Dombara, Paidi, Pano
21. Ellamalawar, Yellammalawandlu
22. Ghasi, Haddi, Relli, Chanchandi
23. Godari
24. Gosangi
25. Holey a
26. Holey a Dasari
27. Jaggali
28. Jambuvulu
29. Kolupulvandlu, Pambada, Pambanda, Pambala
30. Madasi Kuruva, Madari Kuruva
31. Madiga
32. Madiga Dasu, Mashteen
33. Mahar
34. Mala, Mala Ayawaru
35. Mala Dasari
36. Mala Dasu
37. Mala Hannai
38. Malajangam
39. Mala Masti
40. Mala Sale, Nethani
41. Mala Sanyasi
42. Mang
43. Mang Garodi
44. Manne
45. Mashti
46. Matangi
47. Mehtar
48. Mitha Ayyalvar
49. Mundala
50. Paky, Moti, Thoti
51. Pamidi
52. Panchama, Pariah
53. Relli
54. Samagara
55. Samban
56. Sapru
57. Sindhollu, Chindollu
58. Yatala
59. Valluvan

**LIST OF SCHEDULED TRIBES**

1. Andh, Sadhu Andh
2. Bagata
3. Bhil
4. Chenchu
5. Gadabas, Bodo Gadaba, Gutob Gadaba, Kallayi Gadaba, Parangi Gadaba, Kathera Gadaba, Kapu Gadaba
6. Gond, Naikpod, Rajgond, Koitur
7. Goudu (in the Agency tracts)
8. Hill Reddis
9. Jatapus
10. Kammara
11. Kattunayakan
12. Kolam, Kolawar
13. Konda Dhoras, Kubi
14. Konda Kapus
15. Kondareddis
16. Kondhs, Kodi, Kodhu, Desaya Kondhs, Dongria Kondhs, Kuttiya Kondhs, Tikiria Kondhs, Yenity Kondhs, Kuvinga
17. Kotia, Benthoriya, Bartika, Dulia, Holya, Sanrona, Sidhopaiko
18. Koya, Doli Koya, Gutta Koya, Kammara Koya, Musara Koya, Oddi Koya, Pattidi Koya, Rajah, Rasha Koya, Lingadhari Koya (ordinary), Kottu Koya, Bhine Koya, Rajkoya
19. Kulia
20. Manna Dhora
21. Mukha Dhora, Nooka Dhora
22. Nayaks (in the Agency tracts)
23. Pardhan
24. Porja, Parangiperja
25. Reddi Dhoras
26. Rona, Rena
27. Savaras, Kapu Savaras, Maliya Savaras, Khutto Savaras
28. Sugalis, Lambadis, Banjara
29. Thoti (in Adilabad, Hyderabad, Karimnagar, Khammam, Mahbubnagar, Medak, Nalgonda, Nizamabad and Warangal districts)
30. Yenadis, Chella Yenadi, Kappala Yenadi, Manchi Yenadi, Reddi Yenadi
31. Yerukulas, Koracha, Dabba Yerukula, Kunchapuri Yerukula, Uppu Yerukula
32. Nakkala, Kurvikaran.

**LIST OF SOCIALLY AND EDUCATIONALLY BACKWARD CLASSES**

As per G.O. Ms. No. 16 Backward Classes Welfare (OP) Department, Dated:11.03.2015 and read with G.O.MS.No. 34, Backward Classes Welfare (OP) Department, Dated: 08/10/2015, G.O. Ms. No. 4 Backward Classes Welfare (OP) Department, Dated: 30/01/2016, G.O.Ms.No. 3Backward Classes Welfare (B) Department, Dated: 09-09-2020

**STATE LIST OF BCs (List of Backward Classes of Telangana State)****GROUP-A****(Aboriginal Tribes, Vimuktha Jathis, Nomadic and Semi-Nomadic Tribes etc.)**

1. Agnikulakshatriya, Palli, Vadabaliya, Bestha, Jalari, Gangavar, Gangaputra, Goondla, Vanyakulakshatriya (Vannekapu, Vannereddi, Pallikapu, Pallireddi) Neyyala, Pattapu.
2. Balasanthu, Bahurupi
3. \*[Bandara]
4. Budabukkala
5. Rajaka (Chakali, Vannar)
6. Dasari (formerly engaged in Bikshatana i.e., Beggary)
7. Dommara
8. Gangiredlavaru
9. Jangam (whose traditional occupation is begging)
10. Jogi
11. Katipapala
12. \*[Korcha]
13. Lambada or Banjara in Telangana area (deleted and included in ST list vide. G.O.Ms.No.149, SW, Dt.03.05.1978)
14. Medari or Mahendra
15. Mondivaru, Mondibanda, Banda.
16. Nayi-Brahmin/Nayee-Brahmin (Mangali), Mangala and Bhajantri

17. Nakkala (deleted vide. G.O.Ms.No.21, BCW (C2) Dept., Dt.20.06.2011, since it is included in the list of Scheduled Tribes at Sl.No.34 vide. Scheduled Castes and Scheduled Tribes Order (Amendment) Act, 2002 (Central Act No.10 of 2003)
18. Vamsha Raj / Pitchiguntla
19. Pamula
20. Pardhi (Nirshikari)
21. Pambala
22. Peddammandlu, Devaravandlu, Yellammavandlu, Mutyalammavandlu, Dammali / Dammala / Dammula / Damala
23. Veeramushti (Nettikotala), Veerabhadreeya
24. Valmiki Boya (Boya, Bedar, Kirataka, Nishadi, Yellapi, Pedda Boya), Talayari, Chunduvallu (Yellapi and Yellapu are one and the same as clarified vide. G.O.Ms.No.61, BCW (M1) Dept., Dt.05.12.1996)
25. Yerukalas in Telangana area (deleted and included at Sl.No.31 in the list of STs)
26. Gudala
27. Kanjara - Bhatta
28. \*[Kalinga]
29. Kepmare or Reddika
30. Mondepatta
31. Nokkar
32. Pariki Muggula
33. Yata
34. Chopemari
35. Kaikadi
36. Joshinandiwalas
37. Odde (Oddilu, Vaddi, Vaddelu), Vaddera, Vaddabhovi, Vadiyaraj, Waddera
38. Mandula
39. Mehtar (Muslim)
40. Kunapuli
41. Patra
42. \*[Kurakula]
43. \*[Pondara]
44. \*[Samanthula / Samantha/ Sountia / Sauntia]
45. Pala-Ekari, Ekila, Vyakula, Ekiri, Nayanivaru, Palegaru, Tolagari, Kavali (area confined to Hyderabad and Rangareddy Districts only)
46. Rajannala, Rajannalu (area confined to Karimnagar, Warangal, Nizamabad and Adilabad Districts only)
47. Bukka Ayyavars
48. Gotrala
49. Kasikapadi / Kasikapudi (area confined to Hyderabad, Rangareddy, Nizamabad, Mahaboobnagar and Adilabad Districts only)
50. Siddula
51. Sikligar/ Saikalgar
52. Poosala (included vide. G.O.Ms.No.16, BCW(C2) Dept., Dt.19.02.2009 by deleting from Sl.No.24 under Group-D)
53. \*[Aasadula / Asadula]
54. \*[Keuta / Kevuto / Keviti]
55. Orphan and Destitute Children who have lost their parents before reaching the age of ten and are destitute; and who have nobody else to take care of them either by law or custom; and also who are admitted into any of the schools or orphanages run by the Government or recognised by the Government.
56. Addapuvuru
57. Bagothula/ Bhagavathula
58. Bail Kammara/ Ghisadi/ Gadiya Lohar
59. Enooti/ Yenativallu
60. Ganjikuti/ Ganjikutivaru
61. Gouda Jetti
62. Kakipadagala
63. Patamvaru/ Masaiahlu
64. Odd/ Od/ Oad
65. Sonnayila/ Sannayila/ Sannayollu
66. Sri Kshatriya Ramajogi/ Ramajogi/ Ramajogula
67. Theracheerala/ Telsoori/ Baikani
68. Tholubommalatavaru/ Boppala

**GROUP-B**  
**(Vocational Groups)**

1. \*[Achukatlavandlu]
2. Aryakshatriya, Chittari, Giniyar, Chitrakara, Nakhas
3. Devanga
4. Goud [Ediga, Gouda (Gamalla), Kalalee, Gounda, **[\*Settibalija of Visakhapatnam, East Godavari, West Godavari and Krishna districts]** and Srisayana (Segidi)
5. Dudekula, Laddaf, Pinjari or Noorbash
6. Gandla, Telikula, Devathilakula
7. Jandra
8. Kummara or Kulala, Salivahana
9. Karikalabhakthulu, Kaikolan or Kaikala (Sengundam or Sengunther)
10. Karnabhakthulu
11. Kuruba or Kuruma
12. \*[Nagavaddilu]
13. Neelakanthi
14. Patkar (Khatri)
15. Perika (Perika Balija, Puragiri kshatriya)
16. Nessi or Kurni
17. Padmasali (Sali, Salivan, Pattusali, Senapathulu, Thogata Sali)
18. Srisayana (Segidi) (deleted vide. G.O.Ms.No.63, BCW (M1) Dept., Dt.11.12.1996 and added to Sl.No.4 of Group-B)
19. Swakulasali
20. Thogata, Thogati or Thogataveerakshatriya
21. Viswabrahmin (Ausula, Kamsali, Kammari, Kanchari, Vadla or Vadra or Vadrangi and Silpis), Viswakarma
22. \*[Kunchiti / Vakkaliga / Vakkaligara / Kunchitiga]
23. Lodh/ Lodhi/ Lodha (area confined to Hyderabad, Rangareddy, Khammam and Adilabad Districts only)
24. Bondili
25. Are Marathi, Maratha (Non-Brahmins), Arakalies and Surabhi Natakavallu
26. Neeli (included vide. G.O.Ms.No. 43, BCW (C2) Dept., Dt.07.08.2008 by deleting from Group D at Sl.No.22)
27. Budubunjala / Bhunjwa / Bhadbhunja (area confined to Hyderabad and Rangareddy Districts only)
28. \*[Gudia / Gudiya]

**GROUP-C**

Scheduled Castes converts to Christianity and their progeny

**GROUP-D**  
**(Other Classes)**

1. \*[Agaru]
2. Arekatika, Katika, Are-Suryavamshi
3. \*[Atagara]
4. Bhatraju
5. Chippolu (Mera)
6. \*[Gavara]
7. \*[Godaba]
8. Hatkar
9. \*[Jakkala]
10. Jingar
11. \*[Kandra]
12. Koshti
13. Kachi
14. Surya Balija (Kalavanthula), Ganika
15. Krishnabalija (Dasari, Bukka)
16. \*[Koppulavelamas]
17. Mathura
18. Mali (Bare, Barai, Marar and Tamboli)
19. Mudiraj, Mutrasi, Tenugollu
20. Munnurukapu
21. \*[Nagavasam (Nagavamsa)]
22. Nelli (deleted vide. G.O.Ms.No.43, BCW(C2) Dept., Dt.07.08.2008 and added at Sl.No.26 in Group 'B')

23. \*[Polinati Velamas of Srikakulam and Visakhapatnam districts]
24. Poosala caste (deleted vide. G.O.Ms.No.16, BCW(C2) Dept., Dt.19.02.2009 and included atS.No.52 under Group-A)
25. Passi
26. Rangarez or Bhavasara Kshatriya
27. Sadhuchetty
28. Satani (Chattadasrivaishnava)
29. Tammali (Non-Brahmins) (Shudra caste) whose traditional occupation is playing musical instruments, vending of flowers and giving assistance in temple service but not Shivarchakars
30. \*[Turupukapus or Gajulakapus]
31. Uppara or Sagara
32. Vanjara (Vanjari)
33. Yadava (Golla)
34. Are, Arevally and Arollu
35. \*[Sadara / Sadaru]
36. \*[Arava]
37. Ayyaraka (area confined to Khammam and Warangal Districts only)
38. Nagaralu (area confined to Hyderabad and Rangareddy Districts only)
39. Aghamudian, Aghamudiar, Agamudivellalar and Agamudimudaliar (including Thuluva Vellalas) (area confined to Hyderabad and Rangareddy Districts only)
40. \*[Beri Vysya / Beri Chetty]
41. \*[Atirasa]
42. Sondi / Sundi
43. Varala
44. Sistakaranam
45. Lakkamarikapu
46. Veerashaiva Lingayat / Lingabalija
47. Kurmi
48. Aheer/ Aheer Yadav
49. Govili/Govlii/ Gouli/Gavli
50. Kulla Kadagi/ Kulle Kadigi/ Chittepu
51. Sarollu/Soma Vamsha Kshatriya

#### GROUP-E

**(Socially and Educationally Backward Classes of Muslims)  
(Subject to outcome of Civil Appeal No(s).2628-2637/2010 etc., pending  
before theHon'ble Supreme Court of India)**

- 1 Achchukattalavandlu, Singali, Singamvally, Achchupanivally, Achchukattuvaru, Achukatlavandlu
- 2 Attar Saibulu, Attarollu
- 3 Dhobi Muslim/ Muslim Dhobi/ Dhobi Musalman, Turka Chakla or Turka Sakala, Turaka Chakali, Tulukka Vannan, Tsakalas, Sakalas or Chakalas, Muslim Rajakas
- 4 Faqir, Fhakhir Budbudki, Ghanti Fhakhir, Ghanta Fhakhir, Turaka Budbudki, Darvesh, Fakeer
- 5 Garadi Muslim, Garadi Saibulu, Pamulavally, Kani-Kattuvally, Garadollu, Garadig
- 6 Gosangi Muslim, Phakeer Sayebulu
- 7 Guddi Eluguvally, Elugu Bantuvally, Musalman Keelu Gurravally
- 8 Hajam, Nai, Nai Muslim, Navid
- 9 Labbi, Labbai, Labbon, Labba
- 10 Pakeerla, Borewale, Deera Phakhir, Bonthala
- 11 Qureshi, Kureshi/ Khureshi, Khasab, Marati Khasab, Muslim Katika, Khatik Muslim
- 12 Shaik/ Sheikh
- 13 Siddi, Yaba, Habshi, Jasi
- 14 Turaka Kasha, Kakkukotte Zinka Saibulu, Chakkitanekavale, Terugadu Gontalavaru, Thirugatigantla, Rollaku Kakku Kottevaru, Pattar Phodulu, Chakketakare, Thuraka Kasha

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*\* omitted vide G.O Ms.No.3, BCW(OP) Dept., Dated:14.08.2014*

N.B.:1)The above list is for information and subject to confirmation with reference to G.O.Ms.No.58, SW(J) Department, dated 12.05.1997 and time to time orders.

2) On account of any reason whatsoever in case of any doubt/ dispute arising in the matter of community status (SC/ST/BC/OC) of any candidate, subject to satisfaction with regard to relevant Rules and Regulations in force the decision of the Board shall be final in all such cases.

**ANNEXURE - V**

**List of recognized sports disciplines for Two Percent (2%) reservation in Direct Recruitment in Government Departments / Govt. Institutions as per G.O. Ms. No. 74, Youth Advancement, Tourism & Culture (Sports) Department Dated:09-08-2012**

- (1) FOOTBALL
- (2) HOCKEY
- (3) VOLLEYBALL
- (4) HANDBALL
- (5) BASKET BALL
- (6) TENNIS
- (7) TABLE TENNIS
- (8) SHUTTLE BADMINTON
- (9) KABBADI
- (10) ATHLETICS
- (11) SWIMMING
- (12) GYMNASTICS
- (13) WEIGHTLIFTING
- (14) WRESTLING
- (15) BOXING
- (16) CYCLING
- (17) ROWING
- (18) SHOOTING
- (19) FENCING
- (20) ROLLER SKATING
- (21) SAILING / YATCHING
- (22) ARCHERY
- (23) CRICKET
- (24) CHESS
- (25) KHO-KHO
- (26) JUDO
- (27) TEAKWANDO
- (28) SOFTBALL
- (29) BODY BUILDING (Uniform Services like Police, Excise etc).

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