TELANGANA RESIDENTIAL EDUCATIONAL INSTITUTIONS RECRUITMENT BOARD (TREI-RB), HYDERABAD.

NOTIFICATION NO. 04/2018

DEGREE COLLEGE LECTURERS IN RESIDENTIAL EDUCATIONAL INSTITUTIONS SOCIETIES (GENERAL RECRUITMENT)

PARA – I:

1) Applications are invited Online from qualified candidates through the proforma Application to be made available on Board's WEBSITE (www.treirb.telangana.gov.in) to the **post of Degree College Lecturers in Residential Educational Institutions Societies.**

i. **Submission of ONLINE applications starts from Dt:14.08.2018.**
ii. **Last date for submission of ONLINE applications Dt: 13.09.2018.**
iii. **Examination schedule would be displayed in the Board Website.**
iv. **Hall Tickets can be downloaded 07 days before commencement of Examination.**
v. **All the question papers (Paper-I & II) except Languages will be supplied in English version only (Paper-I is common for all subjects).**

2) Paper-I and II are **Objective type. The Board reserves the right to conduct the Examinations in OFFLINE OMR mode.**

IMPORTANT NOTE: Candidates are requested to keep the following documents ready while applying online.

i) Aadhar number
ii) Educational Qualifications details i.e., SSC, INTERMEDIATE, DEGREE, POST GRADUATION, etc. and their Roll numbers, Year of passing etc.
iii) Community/ Caste Certificate obtained from Mee Seva/ E Seva i.e., Certificates number and date of issue etc.
iv) Other relevant certificates.

3) The candidates who possess requisite qualifications may apply online by satisfying themselves about the terms and conditions of this recruitment. The details of vacancies are given below:-

Sl. No.	Name of the Post	Name of the Society	No. of Vacancies	Age as on 01/07/2018 Min. Max.	Scale of Pay Rs.
1	Degree College Lecturer	Telangana Tribal Welfare Residential Educational Institutions Society.	227	18-44*	40,270-93,780
2	Degree College Lecturer	Telangana Social Welfare Residential Educational Institutions Society (Women).	238		40,270-93,780
TOTAL			**465**		

(The *Details of Vacancies* department wise i.e., Community and Gender wise (General / Women) may be seen at *Annexure-I*.)

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

4) 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	Degree College Lecturer in Telangana Tribal Welfare Residential Educational Institutions Society.	**Academic Qualifications** 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) for lecturers conducted by UGC/CSIR or similar Test accredited by the UGC or SLET conducted by PSC/ Universities of the State. iii) If a candidate possesses Ph.D., or equivalent is exempted from passing National Eligibility Test (NET) for lecturers conducted by UGC/CSIR or similar Test accredited by the UGC or SLET conducted by the PSC/ Universities of the State. **Note:** 1. In case of candidates belonging to SC/ST/Differently abled category, the Minimum % of marks shall be 50% (instead of 55%) 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.
2	Degree College Lecturer in Telangana Social Welfare Residential Educational Institutions Society.	

Table-I

SUBJECTS FOR THE POST OF DEGREE COLLEGE LECRURERS

Subjects in PG / Graduation

1. **English:** M.A. English or its equivalent Degree
2. **Telugu:** M.A. Telugu or its equivalent Degree
3. **Maths:** M.Sc., Mathematics or its equivalent Degree
4. **Physics:** M.Sc Physics or its equivalent Degree
5. **Chemistry:** M.Sc Chemistry or its equivalent Degree
6. **Statistics:** M.Sc Statistics or its equivalent Degree
7. **Computer Science:** Msc.Computer Science/ MCA or its equivalent Degree
8. **Botany:** M.Sc., Botany or its equivalent Degree
9. **Zoology:** M.Sc. Zoology or its equivalent Degree
10. **Micro-Biology:** M.Sc. Micro-Biology or its equivalent Degree
11. **Electronics:** M.Sc. Physics(with Electronics specialization) or its equivalent Degree
12. **History:** M.A. History or its equivalent Degree
13. **Economics:** M.A. Economics or its equivalent Degree
14. **Political Science:** M.A. Political Science or its equivalent Degree
15. **Commerce:** M.Com or its equivalent Degree
16. **Business Administration:** MBA or its equivalent Degree

5) **AGE:** Minimum 18 years & Maximum 44* years. The age is reckoned as on 01/07/2018(Rule- 12(1) (a) (v) of State and Subordinate Service Rules).

***As per G.O. Ms. No. 329, GA(Ser.A) Dept., Dt. 27/07/2015 read with G.O. Ms. No. 264, GA(Ser.A) Dept.,Dated: 26-07-2016, and G.O.Ms.No.190, GA (Ser.A) Dept:, dt;08.08.2017 the upper age limit is raised up to 10 years.**

Note: 1) No person shall be eligible if he/she is less than 18 years of age.
2) No person shall be eligible if he/she crossed 58 years of age (Superannuation age).

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.	Retrenched temporary employees in the State Census Department with a minimum service of 6 months.	3 Years
2.	Telangana State Government Employees (Employees of TSRTC, Corporations, Municipalities etc. are not eligible).	5 Years based on the length of regular service.
3.	Ex-Service men	3 years & length of service rendered in the armed forces.
4.	N.C.C. (who have worked as Instructor in N.C.C.)	3 Years & length of service rendered in the N.C.C.
5.	SC/ST and BCs	5 Years
6.	Physically Handicapped persons	10 Years

6) **(a) FEE:** (Remittance of Fee) Each applicant must 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 and PH have to pay **Rs.600/- (Rupees Six Hundred Only)** each towards application processing fee and examination fee.

Note: 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 **HYDERABAD (including HMDA Jurisdiction) only or all erstwhile District head quarters.** However, the Board reserves the right to either 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 UPLOAD THE APPLICATION FORM:

(i) The Applicants have to read the ***User Guide*** for Online Submission of Applications and then proceed further.

I STEP: The Candidate has to visit the WEBSITE **www.treirb.telangana.gov.in** and apply online, candidates have to ensure that there are no mistakes in it. The Board bears no responsibility for the mistakes, if any, made by the candidates.

II STEP:- After entering the details in the Portal, the applicant will proceed to payment gateway.

III STEP:-The applicant should 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.

IV STEP:-After payment of fee and after 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) Hand written/ Typed/ Photostat copies/ outside printed Application Form will not be accepted and liable for rejection.

ii) For any Technical problems related to Online submission and downloading of Hall-Tickets please contact 7032619292 (Call Time: 10.30 A.M to 1.00 P.M & 1.30 P.M to 5.30 P.M) or mail to helpline.treirb@gmail.com.

iii) 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 5.30 P.M) or mail to helpdesk-treirb@telangana.gov.in.

NOTE:

1. The Board is not responsible, for any discrepancy in Bio-data particulars while submitting the application form through Online. The applicants are, therefore, advised to strictly follow the instructions and User guide in their own interest before submitting the application.
2. The particulars furnished by the applicant in the Application Form will be taken as final, and data is processed, based on these particulars only by Computer. Candidates should, therefore, be very careful in Uploading / Submitting the Application Form Online.
3. Incomplete/incorrect application form will be summarily rejected. The information if any furnished by the candidate subsequently in any form will not be entertained by the Board under any circumstances. Applicants should be careful in filling-up the application form and submission. If any lapse is detected during the scrutiny, the candidature will be rejected even though he/she comes through the final stage of recruitment process or even at a later stage.
4. Before Uploading/Submission of Application Form, the Candidates should 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.

PARA- IV GENERAL PROVISIONS

1. Applicant must 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 J.P.G format.
4. The applicants should not furnish any particulars that are false, tampered, fabricated or suppress any material / information while submitting an application through 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 applicants should be willing to serve anywhere in Telangana State.
8. This Recruitment is entrusted to TREI-RB by the Government of Telangana along with Finance clearance vide G.O.Ms. No. 49, Finance (HRM.II) Department, Dt:01.05.2018 and G.O.Ms.No.83, Finance (HRM.II) Depatment, Dt:20.06.2018.

The following certificates must be kept ready by the candidates for the purpose of verification and also at the time of making online application.

i). Aadhar card.
ii). Proof of all Educational Qualifications.
iii). Date of Birth Certificate / S.S.C.
iv). School Study Certificate.
v). No Objection Certificate from Employer (if anywhere employed)
vi). Other certificates if any.

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

i). Community Certificate.
ii). Non-Creamy Layer Certificate as per Form- VIIB / Creamy Layer Certificate as per Form- VIIC.
iii). Certificate of Residence / Nativity (where the Candidates not studied in School / Private Study).

The following Certificates (whichever is applicable) should be obtained from Competent Medical authority for the purpose of verification.

i). a) Medical Certificate for the Blind.
b) Certificate of Hearing Disability and Hearing Assessment.
c) Medical Certificate in respect of Orthopaedically Handicapped Candidates.

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. **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.

3. **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.

4. **Zonal/Local: -** The Zonal and Local Reservations shall be followed as per the Para -8 of A.P. Public Employment (Organization of Local Cadres and Regulation of Direct Recruitment) Order, 1975 (G.O.P. No. 674, G.A. (SPF-A) Dept., Dated: 20/10/1975) read with G.O. Ms. No. 124, General Administration (SPF-A) Department, dated: 07/03/2002 and other orders issued by the Government and within the meaning of Sections 3 and 97 of A.P. State Reorganization Act 06/2014.

5. **Employed: -** 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 the 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.

6. **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.

7. **Caste & Community:** 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 should be submitted at appropriate time in respect of SC & ST Candidates. In respect of candidates belonging to Backward Classes are required to produce Community Certificate (BC-A, BC-B, BC-C, BC-D & BC-E) from Competent Authority i.e., from Tahsildars in the State of Telangana not below the rank of Deputy Tahsildar through E-seva/ Mee-seva (G.O.Ms.No.16, BCW(OP) Dept., Dt:11/03/2015) and orders and instructions issued by the Government from time to time. As per General Rules for State and Subordinate Service Rules, **Rule-2(29)** Explanation: No person who professes a religion different from Hinduism, Sikhism or Buddhism shall be deemed a member of Schedule Caste.

8. **Reservation**: - (i) The Reservation and eligibility in terms of General Rule 22 & 22 (A) of State and Subordinate Service Rules are applicable.

(ii) Reservation to Disabled persons is subject to their eligibility to any of the above category of posts and shall be subject to Telangana State and Subordinate Service Rules governing the posts. The required extent of deformity and the genuineness of the Medical Certificate and in the case of ambiguity or doubt, the same shall be referred to the Appellate Medical Boards as per the instructions of the Government.

(iii) 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:

(iv) 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 Schools/ Institutions meant for Girls, in terms of Sub-Rule (3) of Rule 22-A of Telangana State and Subordinate Service Rules.

b) The Schools / Institutions meant for Boys shall be treated as General Schools / Institutions and the posts in such Schools / 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 (Boys) Schools / Institutions and for Girls Schools / Institutions, in accordance with sub-rules (2) and (3) of Rule 22-A of Telangana State and Subordinate Service Rules.

(v) 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.

(vi) **Sports Quota: -** Sports reservations of (2%) to meritorious Sports persons in Direct Recruitment will be followed as per G.O.Ms.No.5, dated:14.05.2018 of the Youth Advancement, Tourism and Culture (Sports) Department, Government of Telangana and subsequent amendments to the Telangana State and Subordinate Service Rules, 1996 vide G.O.Ms.No.107, dated: 27.07.2018 of the General Administration (SER.D) Department, Govt. of Telangana.

9. Distance Education: - The Candidates who have obtained Degrees through Open Universities / Distance Education mode are required to have recognition by the University Grants Commission / AICTE / Distance Education Council as the case may be. Unless such Degrees had been recognised by the relevant Statutory Authority, they will not be accepted for purpose of Educational Qualification. The onus of Proof of recognition by the relevant Statutory Authority that their Degrees / Universities have been recognised rests with the Candidate.

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 on the date of notification. The candidates claiming reservation as Local candidates should obtain the required Study certificates (from IV Class to X Class or SSC) (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: -

In terms of Para-(7) of A.P. Public Employment (Organization of Local Cadres and Regulation of Direct Recruitment) Order, 1975 (G.O.P. No. 674, G.A. (SPF-A) Dept., Dated: 20/10/1975). "LOCAL CANDIDATE" means a candidate for direct recruitment to any post in relation to those Local area where he/she has studied in Educational Institution(s) for not less than four

consecutive academic years prior to and including the year in which he/she appeared for S.S.C or its equivalent examination. If however, he/she has not studied in any educational institution and obtained SSC or its equivalent qualification from Open School or Private Study basis, he/she has to produce residential certificate issued by the Tahsildar.

i) In case any Candidate who does not fall within the scope of above then, if he/she has studied for a period of not less than seven years prior to and inclusive of the year in which he/she has studied SSC or its equivalent qualification, he/she will be regarded as local candidate on the basis of the maximum period out of the said period of seven years and where the period of his/her study in two or more local areas or equal such local area where he/she has studied last in such equal periods will be taken for determining the local candidature. Similarly, if he/she has not studied during the above said period in any Educational Institution(s) and obtained private study the place of residence during the above period will be taken into consideration and local candidature will be determined with reference to the maximum period of residence or in the case of equal period where he/she has resided last in such equal periods.

ii) If the claim for local candidature is based on study, the candidate is required to produce a certificate from the Educational Institution(s) where he/she has studied during the said 4/7-year period. If, however, it is based on residence, a certificate should be obtained from an officer of the Revenue Department not below the rank of Tahsildar or Deputy Tahsildar in independent charge of Mandal.

iii) If, however, a candidate has resided in more than one Mandal during the relevant four/seven years period but within the same District or Zone as the case may be separate certificates from the Tahsildar exercising jurisdiction have to be obtained in respect of different areas.

NOTE:

(A) Residence Certificate will not be accepted, if a candidate has studied in any educational institution upto S.S.C. or equivalent examination, such candidates have to produce study certificates invariably. The candidates, who acquired Degree from Open Universities without studying SSC / Matriculation or equivalent in Educational Institutions, have to submit Residence Certificate only. An educational institution means a recognized institution by the Government / University / Competent Authority.

(B) Each of the following Zones comprises the Districts mentioned against each Zone.

The following are the Present Zones in the Telangana State:

V. Erstwhile districts of Adilabad, Karimnagar, Warangal and Khammam. (ADB, KRMN, WGL, KMM).

VI. Erstwhile districts of Hyderabad, Ranga Reddy, Nizamabad, Mahaboobnagar, Medak and Nalgonda. (HYD, RRD, NZB, MBNR, MDK, NLG).

PARA-VII: SCHEME OF EXAMINATION: - The Scheme and Syllabus for the examination has been shown in ***ANNEXURE*-II,** and the same examination would be displayed in the Board Portal.

PARA-VIII: 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 would 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. Attending both Paper-I & Paer – II and demonistration are compulsory.

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 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 appointment of selected 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-IX: 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 would 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) **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.

PARA-X:- Please read the following Annexures appended to the Notification before filling the application form.

i)	***Breakup of Vacancies***	***(Annexure – I)***
ii)	***Scheme and Syllabus***	***(Annexure – II)***
iii)	***Instructions to the Candidates***	***(Annexure – III)***
iv)	***List of Communities***	***(Annexure – IV)***

PARA XI: SPECIAL INSTRUCTIONS TO CANDIDATES:

Candidates are directed to follow the TREI-RB's Website (www.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-XII: 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 arising during the course of this process, or as deemed necessary by the Board at any stage.

Hyderabad
Date: 02.08.2018.

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

Society	Subject	Zone	OC		SC		ST		BC-A		BC-B		BC-C		BC-D		BC-E		PH-VH		HH		OH		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	(G+W)
TTWREIS (Degree College Lecturers - General)	Telugu	Zone (V)	1	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	4
		Zone (VI)	1	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	4
	English	Zone (V)	2	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	4	6
		Zone (VI)	2	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	5
	Mathematics	Zone (V)	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3
		Zone (VI)	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3
	Zoology	Zone (V)	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3
		Zone (VI)	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
	Botany	Zone (V)	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3
		Zone (VI)	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
	Physics	Zone (V)	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3
		Zone (VI)	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3

Society	Subject	Zone	OC		SC		ST		BC-A		BC-B		BC-C		BC-D		BC-E		PH-VH		HH		OH		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	(G+W)
	Micro Biology	Zone (V)	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**
		Zone (VI)	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**
	Chemistry	Zone (V)	1	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	**3**	**4**
		Zone (VI)	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	**2**	**3**
	Computer Science	Zone (V)	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**2**	**2**
		Zone (VI)	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**2**	**2**
	History	Zone (V)	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**
		Zone (VI)	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**
	Economics	Zone (V)	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**
		Zone (VI)	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**
	Political Science	Zone (V)	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**
		Zone (VI)	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**
	Commerce	Zone (V)	2	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**	**3**	**5**
		Zone (VI)	2	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	**2**	**4**	**6**
Total			**18**	**26**	**0**	**17**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**18**	**52**	**70**

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

Society	Subject	Zone	OC(W)	SC(W)	ST(W)	BC-A(W)	BC-B(W)	BC-C(W)	BC-D(W)	BC-E(W)	PH-VH(W)	HH(W)	OH(W)	Sports (W)	Total
TTWREIS (Degree College Lecturers - Women)	Telugu	Zone (V)	4	2	1	1	1	0	0	0	1	0	0	0	**10**
		Zone (VI)	3	2	0	1	0	0	0	0	1	0	0	0	**7**
	English	Zone (V)	7	2	1	1	1	0	0	0	1	0	0	0	**13**
		Zone (VI)	4	2	1	1	1	0	0	0	1	0	0	0	**10**
	Mathematics	Zone (V)	3	1	0	1	0	0	0	0	1	0	0	0	**6**
		Zone (VI)	3	1	0	1	0	0	0	0	1	0	0	0	**6**
	Zoology	Zone (V)	3	1	0	1	0	0	0	0	1	0	0	0	**6**
		Zone (VI)	3	1	0	1	0	0	0	0	1	0	0	0	**6**
	Botany	Zone (V)	3	1	0	1	0	0	0	0	1	0	0	0	**6**
		Zone (VI)	2	1	0	1	0	0	0	0	0	0	0	0	**4**
	Physics	Zone (V)	3	1	0	1	0	0	0	0	1	0	0	0	**6**
		Zone (VI)	3	1	0	1	0	0	0	0	1	0	0	0	**6**
	Micro Biology	Zone (V)	1	0	0	0	0	0	0	0	0	0	0	0	**1**
		Zone (VI)	2	1	0	1	0	0	0	0	1	0	0	0	**4**

Society	Subject	Zone	OC(W)	SC(W)	ST(W)	BC-A(W)	BC-B(W)	BC-C(W)	BC-D(W)	BC-E(W)	PH-VH(W)	HH(W)	OH(W)	Sports (W)	Total
	Chemistry	Zone (V)	3	2	1	1	0	0	0	0	1	0	0	0	**8**
		Zone (VI)	3	2	0	1	0	0	0	0	1	0	0	0	**7**
	Computer Science	Zone (V)	3	1	0	1	0	0	0	0	1	0	0	0	**6**
		Zone (VI)	2	1	0	1	0	0	0	0	0	0	0	0	**4**
	History	Zone (V)	3	1	0	1	0	0	0	0	0	0	0	0	**5**
		Zone (VI)	1	1	0	0	0	0	0	0	0	0	0	0	**2**
	Economics	Zone (V)	3	1	0	1	0	0	0	0	0	0	0	0	**5**
		Zone (VI)	1	1	0	0	0	0	0	0	0	0	0	0	**2**
	Political Science	Zone (V)	3	1	0	1	0	0	0	0	0	0	0	0	**5**
		Zone (VI)	1	1	0	0	0	0	0	0	0	0	0	0	**2**
	Commerce	Zone (V)	7	2	1	1	1	0	0	0	1	0	0	0	**13**
		Zone (VI)	3	2	0	1	0	0	0	0	1	0	0	0	**7**
Total			**77**	**33**	**5**	**22**	**4**	**0**	**0**	**0**	**17**	**0**	**0**	**0**	**157**

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

Society	Subject	Zone	OC(W)	SC(W)	ST(W)	BC-A(W)	BC-B(W)	BC-C(W)	BC-D(W)	BC-E(W)	PH-VH(W)	HH(W)	OH(W)	Sports (W)	Total
TSWREIS (Degree Lecturers - Women)	English	Zone (V)	5	1	2	1	0	0	0	0	0	1	0	0	**10**
		Zone (VI)	6	2	0	1	1	0	2	1	0	0	0	1	**14**
	Mathematics	Zone (V)	4	2	0	1	0	1	1	1	0	0	0	0	**10**
		Zone (VI)	6	2	2	2	1	0	0	1	0	1	0	0	**15**
	Statistics	Zone (V)	5	2	0	1	1	1	1	1	0	0	0	0	**12**
		Zone (VI)	5	2	1	2	1	0	0	1	0	0	0	0	**12**
	Zoology	Zone (V)	3	1	0	1	0	1	1	1	0	0	0	0	**8**
		Zone (VI)	5	2	1	2	1	0	0	1	0	0	0	0	**12**
	Botany	Zone (V)	3	1	0	0	0	1	0	0	0	0	0	0	**5**
		Zone (VI)	1	0	0	1	0	0	0	1	0	0	0	0	**3**
	Physics	Zone (V)	3	1	0	0	0	1	0	0	0	0	0	0	**5**
		Zone (VI)	2	1	0	1	0	0	1	1	0	0	0	0	**6**
	Micro Biology	Zone (V)	3	1	0	1	0	1	1	1	0	0	0	0	**8**
		Zone (VI)	5	2	1	2	1	0	0	1	0	0	0	0	**12**
	Chemistry	Zone (V)	7	2	2	2	1	0	0	1	0	1	0	0	**16**
		Zone (VI)	11	3	2	2	2	0	2	1	0	1	0	0	**24**
	Computer Science	Zone (V)	5	2	0	1	1	1	1	1	0	0	0	0	**12**
		Zone (VI)	7	2	2	2	1	0	0	0	0	1	0	0	**15**

Society	Subject	Zone	OC(W)	SC(W)	ST(W)	BC-A(W)	BC-B(W)	BC-C(W)	BC-D(W)	BC-E(W)	PH-VH(W)	HH(W)	OH(W)	Sports (W)	Total
TSWREIS (Degree Lecturers - Women)	History	Zone (V)	1	0	0	0	0	0	0	0	0	0	0	0	**1**
		Zone (VI)	2	1	0	0	0	0	0	0	0	0	0	0	**3**
	Economics	Zone (V)	0	1	0	0	0	0	0	0	0	0	0	0	**1**
		Zone (VI)	2	0	0	0	1	0	0	0	0	0	0	0	**3**
	Political Science	Zone (V)	0	1	0	0	0	0	0	0	0	0	0	0	**1**
		Zone (VI)	2	0	0	0	1	0	0	0	0	0	0	0	**3**
	Commerce	Zone (V)	5	1	0	1	0	0	2	1	0	0	0	0	**10**
		Zone (VI)	6	2	1	1	1	0	1	0	0	0	1	0	**13**
	Business Administration	Zone (V)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
		Zone (VI)	1	1	0	0	0	0	0	0	0	0	0	0	**2**
	Electronics	Zone (V)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
		Zone (VI)	1	1	0	0	0	0	0	0	0	0	0	0	**2**
Total			**106**	**37**	**14**	**25**	**14**	**7**	**13**	**15**	**0**	**5**	**1**	**1**	**239**

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**
Paper-I	General Studies, General Abilities and Basic Proficiency in English	100	120	100
Paper-II	Subject Discipline Knowledge / Concerned Subject (P.G.Level)	100	120	100
Demonstration				25
			Total	**225**

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

Syllabus

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

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 asForeign 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; Useof 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

Paper – II: Telugu

(ఎ) సంప్రదాయ సాహిత్యకవుల అధ్యయనం – కాలం – రచనలు

నన్నయ, తిక్కన, ఎర్రన, శివకవులు (నన్నెచోడుడు, మల్లికార్జున పండితారాధ్యుడు, పాల్కురికి సోమనాథుడు), నాచనసోమన – భాస్కర రామాయణ కావులు, 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, మైనారిటి , బి.సి. ప్రాంతీయ)

జానపద విజ్ఞానం – గేయాలు – కతాగేయాలు – గద్యాఖ్యానాలు – (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 – విరెశలింగం – విశ్వనాథ – దేవులపల్లి – బసవరాజు – పింగళి – కాటూరి – దువ్వూరి – 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, తత్సమ, ఆచ్ఛిక ప్రకరణాలు ఛందస్సు – వృత్తాలు, జాతులు, ఉపజాతులు (ఉత్పలమాల, చంపకమాల, శార్దూలం, మత్తేభం, ద్విపద, తరువోజ , సీసం, కందం, స్రగ్ధర , పంచచామరం) అలంకారాలు – అర్థాలంకారాలు, శబ్దాలంకారాలు తెలుగు భాషా చరిత్ర పరిణామం – (ప్రాజ్ఞన్నయ 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 (ప్రాజ్ఞన్నయ యుగం నుండి నేటి వరకు) సౌందర్య, 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.

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

Paper – II: Mathematics

I. Real Analysis

Finite, Countable and Uncountable sets – Real Number system R – Infimum and Supremum of asubset of R – Bolzano- Weierstrass Theorem- Sequences- Convergence- Limit Superior and LimitInferior 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 ofa function from one metric space into another-Topological Spaces – Bases and Subbases – Continuousfunctions

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-IsomorphismTheorems-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-Principalideal 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-LinearFunctionals- 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 matrixand 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'sTheorem – Morera's Theorem – Cauchy's Integral Formula – Liouville's Theorem – Maximum ModulesPrinciple – Schwarz's Lemma – Taylor's Series – Laurent's Series-Calculus of Residues – Evaluationof Integrals

X. Ordinary Differential Equations

Ordinary Differential Equations (ODE) of First order and First degree – Different methods of solvingthem – Exact Differential equations and Integrating factorsODE 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 firstorder PDEs – Cauchy problem for first order PDEs- Classification of Second Order PDE's – GeneralSolution of Higher Order PDEs with Constant Coefficients

XII. Solid Geometry

The Plane- Right line- Sphere- Cones and Cylinders

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

Paper – II: Physics

I. Mathematical Methods of Physics

Dimensional analysis, vector algebra and vector calculus. Linear algebra, matrices, cayley- HamiltonTheorem. Eigenvalues and eigenvectors. Linear ordinary differential equations of first & second order,special functions (Hermite, Bessel, Laguerre and Legendre functions). Fourier series, Fourier andLaplace transforms. Elements of complex analysis, analytic functions; Taylor & Laurent series: poles,residues and evaluation of integrals. Elementary probability theory, random variables, binomial, Poissonand 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-momentof inertia tensor. Non-inertial frames and pseudo forces. Variational principle. Generalizedcoordinates.Lagrangian and Hamiltonian formalisms and equations of motion. Conservation laws andcyclic 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 valueproblems. Magneto statics: Biot-savart law, Ampere's theorem. Electromagnetic induction. Maxwell'sequations 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 andconductors. Reflection and refraction, polarization, Fresnel's law, interference, coherence anddiffraction. Dynamics of charged particles in static and uniform electromagnetic fields. Charges particlesin inhomogeneous fields.

IV. Quantum mechanics

Wave-particle duality. Schrodinger equation (time-dependent and time-independent). Eigenvalueproblems (particle in a box, harmonic oscillator,etc..).Tunnelling through a barrier. Wave function incoordinate and momentum representations. Commutators and Heisenberg uncertainty principle. Diracnotation for state vectors. Motion in a central potential: Orbital angular momentum, angular momentumalgebra, spin, addition of angular momenta; Hydrogen atom. Stem-Gerlach experiment. Timeindependent perturbation theory and applications. Variational method. Time dependent perturbationtheory and Fermi's golden rule.Selactin rules. Identical practices. Pauli exclusion principle.spin-statisticsconnection.

V. Themrdynamics 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, canonicaland grand-canonical ensembles and partition functions. Free energy and it's connection withthermodynamic quantities. Classical and quantum statistics. Bose and Fermi gases. Principle of detailedbalance. Black body radiation and Planck's distribution law

VI. Electronics

Semiconductor devices (diods, junctions, transistors, field effect devices, homo- and hetero junctiondevices), device structure, device characteristics, frequency dependence and applications. Optoelectronicdevices (solar cells, photo detectors, LEDs). Rectifiers and power supplies. Feedbackamplifiers and their frequency response. Oscillators, Multivibrators. Operational amplifiers and theirapplications, Digital techniques and applications (Logic circuits, registers, counters and Comparators).A/D and D/A converters. Microprocessors, micro controller basics. Fundamentals of AMcommunication, 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-Condonprinciple. Electronic rotational, vibrational and Raman spectra of diatomic molecules. Selection rules.Lasers: spontaneous and stimulated emission, Einstein A & B coefficients. Optical pumping, Populationinversion, rate equation. Modes of resonators and coherence length.

VIII. Condensed Matter Physics

Bravais lattice. Reciprocal lattice. Diffraction and the structure factor. Bonding of solids. Elasticproperties, Phonons, lattice specific heat. Free electron theory and electronic specific heat. Responseand Relaxation phenomena. Drude model of electrical and thermal conductivity. Hall Effect andthermoelectric power. Electron motion in a periodic potential, band theory of solids; metals, insulatorsand semiconductors. Super conductivity: Type-I and type-II super conductors. 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 ofnucleon-nucleon potential, charge –independence and charge symmetry of nuclear forces. Deuteronproblem. Evidence of shell structure, single-particle shell model, its validity and limitations. Elementaryideas 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 threedimensions). Elements of computational techniques: root of functions, interpolation, and extrapolation,integration by trapezoid and Simpson's rule, solution of first order differential equation using Rungekuttamethod. 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 andwave 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. Isingmodel. 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. Theoryand applications of Massbauer effect. Electron Spin Resonance (ESR), Nuclear Magnetic Resonance(NMR), Chemical shift and applications. X-ray diffraction technique, scanning electron microscopyand 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. Applicationsof symmetry arguments to particle reactions. Parity non-conservation in week interaction. Relativistickinematics.

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

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 ofsimple 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, magneticseparation, froth floatation, leaching , Extraction of crude metal from concentrated ore-conversion tooxide, reduction of oxide to the metal , Thermodynamic principles of metallurgy-Ellingham diagramlimitations,applications. Extraction of iron, copper and zinc from their oxides, Electrochemicalprinciples 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 Axisof Symmetry and Types of Rotational Axes, Plane of Symmetry and types of Planes, Improper RotationalAxis of Symmetry , Inversion Center and Identity Element. Molecular Point Groups: Definition andNotation of Point Groups, Classification Molecules in to C1, Cs, Ci, Cn, Cnv, Cnh , Dn , Dnh , Dnd,Sn. Td, Oh & Ih.

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 onCFT. Calculation of CFSE – John Teller effect – Isomerism in complexes. Spectral and magneticproperties of Coordination complexes – Russell Sanders coupling – term symbols - charge transferspectra of complexes.

VII. Stability of metal complexes – Stepwise and overall stability constants – Factors affecting the stabilityof 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 ofoctahedral complexes – Acid hydrolysis, Base hydrolysis – Conjugate base mechanism – Anationreactions – 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-Oxygentransport – Non heme proteins – Hemerythrin and hemocyanin.

XI. Analytical chemistry- Chromatography – General principles involved in separations by Paper, Thinlayer, Column Chromatography, GC and HPLC.

Physical Chemistry:

I. Solutions and colligative properties: Types of solutions, Expressing concentration of solutions masspercentage, volume percentage, mass by volume percentage, parts per million, mole fraction, molarityand 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 aspecial case of Henry's law -vapour pressure of solutions of solids in liquids, Ideal and non-idealsolutions, 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 osmosisand water purification. Abnormal molar masses - van't Hoff factor. Phase equilibria– Phase rule andits application to one component and two component systems

II. Acids and bases: Acids, bases and salts- Arrhenius, Bronsted-Lowry and Lewis concepts of acids andbases. Ionisation of Acids and Bases –Ionisation constant of water and it's ionic product- pH scaleionisationconstant of weak acids and weak bases-relation between Ka and Kb. Di and poly basicacids and di and poly acidic Bases-Factors affecting acid strength-Common ion effect in the ionizationof 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 inan ideal gas. Entropy changes on mixing of ideal gases. Entropy as a function of V and T. Entropy asa function of P and T. Entropy change in isolated systems- Clausius inequality. Entropy change ascriterion for spontaneity and equilibrium.Third law of thermodynamics.Evaluation of absolute entropiesfrom heat capacity data for solids, liquids and gases.Standard entropies and entropy changes of chemicalreactions.Helmholtz and Gibbs free energies (A and G). A and G as criteria for equilibrium andspontaneity. Physical significance of A and G. Driving force for chemical reactions- relative signs of?H and ?S. Thermodynamic relations. Gibbs equations. Maxwell relations. Temperature dependenceof G. Gibbs- Helmholtz equation. Pressure dependence of G. Chemical potential: Gibbs equations fornon-equilibrium systems. Material equilibrium. Phase equilibrium. Clapeyron equation and ClausiusClapeyron equation.Conditions for equilibrium in a closed system.Chemical potential of ideal gases.Ideal-gas reaction equlibrium-derivation of equilibrium constant. Temperature dependence ofequilibrium constant - The Van't hoff equation.

IV. Electrochemistry: Conductance and its applications, Derivation of Nernst equation. Chemical andconcentration cells (with and without transference).Liquid junction potential – derivation of theexpression for L J P – its determination and elimination. Applications of EMF measurements: Solubilityproduct, potentiometric titrations, determination of transport numbers, equilibrium constantmeasurements. Decomposition potential and its significance.Electrode polarization – its causes andelimination.Concentration over potential.Concept of activity and activity coefficients in electrolyticsolutions.The mean ionic activity coefficient.Debye-Huckel theory of electrolytic solutions.Debye-Huckel limiting law.Calculation of mean ionic activity coefficient.Limitations of Debye-Huckeltheory. 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 ionassociation (elementary treatment) - ion association constant – Debye-Huckel-Bjerrum equation.

V. Quantum chemistry: Black body radiation-Planck's concept of quantization-Planck's equation, averageenergy of an oscillator. Wave particle duality and uncertainty principle - significance for microscopicentities.Emergence of quantum mechanics. Wave mechanics and Schrödinger wave equation.Operators - operator algebra: Commutation of operators, linear operators, Complex functions, Hermitianoperators. Operators and. Eigen functions and Eigen values. Degeneracy. Linear combination ofEigen 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.Expansionof 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 ?and ?2 discussion, Degeneracyof 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, Reactioncoordinate, activated complex and the transition state. Thermodynamic formulation of transition statetheory. Unimolecular reactions and Lindeman's theory.

VII. Complex reactions - Opposing reactions, parallel reactions and consecutive reactions. Chain reactions- general characteristics, steady state treatment - H2 - Br2 reaction. Derivation of rate law. Effect ofstructure on reactivity- Linear free energy relationships. Hammett and Taft equations – substituent (sand s*) and reaction constant (? and ?*) with examples.Michealis-Menten mechanism of enzyme catalyzed reactions - derivation of kinetic equation and itsapplications.

VIII. Photochemistry: Electronic transitions in molecules - The Franck Condon principle. Electronicallyexcited molecules- singlet and triplet states. Radiative life times of excited states-theoretical treatment.Measured lifetimes. Quantum yield and its determination. Actinometry - ferrioxalate and uranyl oxalateactinometers. Derivation of fluorescence and phosphorescence quantum yields. E-type delayedfluorescence-evaluation of triplet energy splitting (?EST). Laws of photo chemistry, Photo physicalprocesses, photo physical kinetics of unimolecular reactions. Calculation of rate constants of variousphoto physical processes, State diagrams, photochemical primary processes. Types of photochemicalreactions- electron transfer, photo dissociation, addition, abstraction, oxidation and isomerisationreactions 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 basedon different binding forces, probing the structure of solids: X-ray crystallography, Crystal lattices andunit 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 compoundand number of voids filled- locating tetrahedral and octahedral voids, Packing efficiency in simplecubic, 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.Magneticproperties of solids-classification of magnetic materials, Magnetic susceptibility, Langevindiamagnetism, Weiss theory of para magnetism. Magnetic properties of solids - classification ofmagnetic materials, Magnetic susceptibility, Langevin diamagnetism, Weiss theory of para magnetism

X. Electronic properties of metals, insulators and semi conductors: Electronic structure of solids, Bandtheory, band structure of metals, insulators and semiconductors. Electrons holes and excitons. Thetemperature dependence of conductivity of extrinsic semi conductors. Photoconductivity andphotovoltaic effect.

XI. Superconductivity. Occurrence of superconductivity. Destruction of superconductivity by magneticfields-Meisner 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, aromatichydrocarbons, halogen compounds, hydroxy compounds, carbonyl compounds, carboxylic acids andits derivatives.

III. Stereo chemistry: Molecular representations (Wedge, Fisher, Newman and Saw-horse projectionformula) their description and interconversions. Stereoisomers – classification- configuration- R,SNomenclature,criteria for chirality, Axial chirality of allenes, spiranes, alkylidenes, Cycloalkanes,chiral biaryls - Atropisomerism. Planar chirality of ansa compounds and trans- cyclooctene.Helicalchiral compounds.Determination of absolute configuration by chemical correlation methods.Determination of configuration in E,Z- nomenclature. Spectral and chemical methods for determinationof E, Z- configuration, including aldoxime and ketoximes. Asymmetric synthesis: Topicity, pro-chirality,stereoslectivity, enatioselectivity and diastereoselectivity. Asymmetric aldol reaction and Diel's alderreaction.

IV. Introduction to conformational isomerism, Klyne - Prelog terminology for conformers and torsionangles, dihedral angle, Steric strain and the concept of dynamic

stereoisomerism. Study of conformationsof 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, cylohexane, 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 ofaromaticity- Aromaticity, non-aromaticity and anti aromaticity. Aromaticity of benzenoid and nonbenzenoidcompounds, 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, molecularrearrangements involving 1). Electron deficient carbon: Wagner - Meerwein, Pinacol-Pinacolone, allylicand Wolf rearrangement. 2). Electron deficient Nitrogen: Hofmann, Lossen, Curtius, Schmidt andBeckmann rearrangements. 3) Electron deficient Oxygen: Baeyer-Villiger oxidation. 4). Base catalysedrearrangements: Benzylic acid, Favourski, Tran annular, Sommlett-Hauser and Smile rearrangement.

VII. Organic reaction mechanism: Mechanism, stereochemistry and energy profile diagram of Additionreactions 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, pyrolyticsyn elimination and a-elimination, elimination vs substitution. Detection of reaction mechanism byproduct 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 - Wilkinsons's catalytic hydrogenation, LiAlH4, NaBH4, BH3, AlH3 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, Isoqunolines.

XII. Alkaloids and Terpenoids- importance as drugs, isolation of natural products by steam distillation,solvent extraction and chemical methods. Structure determination and synthesis of papverine, nicotineand quinine. General methods in the structure determination of Terpenes, isoprene rule, special isoprenerule, structure determination of a-Terpeniol and camphor.

XIII. Organic photochemistry: photochemical energy, Frank-Condon principle, Jablonski diagram, Electronictransitions, photosensitization, quenching, quantum efficiency, quantum yield, photochemistry ofcarbonyl compounds n?p* and p?p* transitions. Norrish type-I and Norrish type-II cleavages. Paterno-Buchi reactions, Photoreduction, photochemistry of enones- hydrogen abstraction, rearrangements ofa,ß-unsaturated ketones and cyclohexadienones, photochemistry of p-benzoquinones, Dienes - photochemistry of 1,3- butadiene, (2+2) additions, Di-p-methane rearrangement, photochemistry ofaromatic compounds, excited states of benzene and its 1,2-, 1,4-additions.

XIV. Pericyclic reactions: Classification, Stereochemistry of pericyclic reactions, Molecular Orbitals andSymmetry of ethelene, 1,3-butadiene, 1,3,5-hexatriene, allylic, 1,3-pentadienyl and 1,3,5- heptatrienylp- systems. Analysis of pericyclic reactions by PMO, FMO and orbital correlation methods.

XV. Basic principles, concepts of UV, IR, H1NMR, C13NMR and Mass spectroscopic methods – structuredetermination of organic compounds by UV, IR, H1NMR, C13NMR 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

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_nY_n and X_n/Y_n. Definition and examples of weak law of large numbers. Khintchene'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, multinominal, 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 $\overline{X}$ 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. <u>Multivariate Tests:</u> 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. <u>Sampling Techniques:</u> 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. <u>Linear Models and Analysis of Experimental Designs:</u> 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. <u>Optimization Techniques - I :</u> Meaning and scope of Operations research, formulation of Linear programming problem (LPP), rule of steepest ascent, and θ-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. <u>Optimization Techniques - II :</u>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: ∞/FIFO and M/M/1: N/FIFO.

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

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.

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Paper – II: Botany

I. Phycology, Mycology, Bacteria and Viruses

Phycology : Thallus organization ; cell ultra structure ; reproduction (vegetative, sexual, asexual) ; criteriafor 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 andmulticellular organization ; cell wall composition ; nutrition (saprobic, biotropic, symbiotic) ; reproduction(vegetative, asexual, sexual) ; heterothallism ; heterokaryosis parasexuality ; Molecular aspects inclassification.

General account of Mastigomycotina, Zygomycotina, Ascomycotina, Basidiomycotina, Deuteromycotina ;fungi in industry, medicine and as food ; fungal diseases in plants and humans ; Mycorrhizae ; fungi asbiocontrol 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.Mollicuties general characters of spiroplasmas and phytoplasmas Importance of microorganisms : Microbesin medicine, agriculture and environment.

II. Bryophyta, Pteridophyta and Gymnosperms

Bryophyta : Morphology, structure, reproduction and life history ; distribution ; classification., ofMarchantiales, Junger maniales, Anthoceratales, Sphagnales, Funariales and Polytrcales ; economic andecological importance.

Pteridophyta : Morphology, anatomy and reproduction ; classification of Psilo psida, Lycopsida, Sphenopsidaand Pteropsida; evolution of stele ; heterospory and origin of seed habit; general account of fossil pteriodophyts.

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 inassessing 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, biochemicaland 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 tocell communication; control of tissue differentiation especially xylem and phloem ; secretory ducts andlaticifers.

Phyllotaxy and leaf differentiation

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

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

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

Pollination, pollen – pistil interaction and fertilization : Floral characteristics, pollination mechanisms andvectors; 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; apomixes; 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, metabolicchanges associated with senescence and its regulation; influence of hormones and environmental factors onsenescence.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 ofethnobotany.

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 forConservation of Nature.

Strategies for conservation – in situ conservation : International efforts and Indian initiatives ; protectedareas in India – sanctuaries, national parks, biosphere reserves, wetlands, mangroves and coral reefs forconservation 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 ofIndia (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 soltypes 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 spaciation.

Ecosystem organization: Structure and functions; primary production methods of measurement of primaryproduction, ; energy dynamics (trophic organization, energy flow Pathways, ecological efficiencies); foodchains, wood web and ecological pyramids, global biogeochemical cycles of C,N, in terrestrial and aquaticecosystems.

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

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

Climate change: Green house gases (CO_2, CH_4, N_2O, CFCs: sources, trends and role); ozone layer andozone depletion ; consequences of climate change (CO_2 fertilization, global warming, sea level rise, UVradiation).

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; retinoblastomaand E2F proteins; cytokinesis and cell plate formation; mechanisms of programmed cell death. Mitosis andmeiosis its significance

Other cellular organelles: Structure and functions of microbodies, Golgi apparatus, lysosomes, endo plasmicreticulum.

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 ofcentromere and telomere; nucleolus and ribosomal RNA genes ; euchromatin and heterochromatin ; karyotypeanalysis ; banding patterns ; specialized types of chromosomes ; polytene, lampbrush, B-chromosomes andsex 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 andtheir significance ; RNA splicing ; regulation of gene expression in prokaryotes and eukaryotes.

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

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

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

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

IX. Plant Physiology

Energy flow : Principles of thermodynamics, free energy and chemical potential, redox reactions, structureand 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 watertransport through xylem, passive and active solute transport, membrane transport proteins.

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

Photochemistry and photosynthesis: Photosynthetic pigments and light harvesting complexes, photo oxidationof water, mechanisms of electron and proton transport, carbon assimilation – the Calvin cycle, photorespirationand 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, pentosephosphate pathway, glyoxylate cycle, alternative oxidase system, structure and function of lipids, fatty acidbiosynthesis, synthesis of membrane lipids, structural lipids and storage lipids and their catabolism.

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

Photobiology : Photochromes and cryptochromes, photophysiology of light –induce responses, cellularlocalization.

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

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

Stress physiology : Plant responses to biotic and abiotic stress; mechanisms of biotic and abiotic stresstolerance, HR and SAR, water deficit and drought resistance, salinity stress, metal toxicity, freezing andheat 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 adventives 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 – medicatedand microprojectile, chloroplast transformation, intellectual property rights, ecological risks and ethicalconcerns.

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

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

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Paper – II: Zoology

I. General Concepts:

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

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,Echinococus granulosus, Ascaris, Ancylostoma, Trichinella – their life cycles, Pathogenescity andclinical 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 ininsects, Apicultur 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, Phylogenyand 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 it's role in motility.
3. Organization of genes and chromosomes – Operon concept, unique and repetitive DNA, structure ofchromatin 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 Replicationfork, 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 crossingover.
4. Mutations - Types (Spontaneous and Induced), Causes and detection, Mutant types (Lethal, Conditionalbiochemical, Loss of function, Gain of function, Germinal versus somatic mutants), Molecular basisof mutations.
5. Chromosomal aberrations (Deletion, Duplication, Inversion and Translocation, Ploidy and their geneticimplications), Autosomal abnormalities (Down's syndrome, Trisomy-13, -18), Sex anamolies (Turner'ssyndrome, 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-Pheynylketonuria, 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 & Terrestial animals, Hormonal control ofOsmoregulation.
9. Digestive system - Digestion, Absorption, Assimilation and Egestion.
10. Endocrinology and Reproduction - Endocrine glands, Types of hormones & Mechanism of hormonalaction, 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), Kreb'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), Herdy 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 andtropic levels.
4. Animal Associations (Neutralism, Mutualism, Symbiosis, Commensalism, Parasitism, Predation andCompetition).
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 -Iimmunoglobulin (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, Agglutinationreactions 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)

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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 theirapplication. Pure culture techniques. Preservation methods and Maintenance of Microbial cultures.Microbiological media and cultivation of microorganisms. Microbial identification methods. Principles ofbacterial taxonomy and classification. Microbial growth curve. Measurement of Growth. Synchronous cultures– methods of synchronous culturing. Continuous culturing methods, factors effecting growth. Phenomenonof 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 Wobblehypothesis, Gene regulation. Cloning and expression vectors. Construction and screening of genomic andcDNA libraries. PCR, Genechips and Microarray. DNA markers, fingerprinting and gene therapy. DNAsequencing. Expression of recombinant proteins Protein-protein and protein-DNA interaction. Applicationsof recombinant DNA technology. Types of mutagens, molecular basis and analysis of mutations, site directedmutagenesis. DNA damage and repair mechanisms. Recombination in bacteria by Transformation,Conjugation, Transduction. Transposable elements. Cell cycle and programmed cell death. Signaltransduction, Protein folding & roles of Molecular chaperones. Databases, Sequence and structure analysisof 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 - Michelis-Menton kinetics. Optical methods - colourimetry and spectrophotometry,fluorimetry, optical rotation, Circular dichroism, NMR, ESR spectroscopy, X-ray diffraction, types of massspectrometry. Chromatographic techniques , diffusion, dialysis, cell disruption methods, centrifugationtechniques, 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. MajorHistocompatibility 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 antimicrobialagents 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, scaleupof fermentations. Up and Down stream process. Fermentation productions- Ethanol, Beer, Wine and otheralcoholic drinks, aminoacids, 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 implicationsconcerning food safety, hazards and risks. Probiotics, Prebiotics and their significance in human beings andanimals.

VIII. Environmental and Agriculture Microbiology

Ecological significance. Microbiology of water and sewage treatment. Role of microorganisms in nutrientcycling, Mineralization, Soil humus formation, Nitrogen metabolism, Phosphate solublization. Biofertilizers,Biopesicides, Biodegradation of pollutants. Plant microbe interactions, Animal-microbe interactions: Rumenmicrobiology, termite microbial communities, Microbes in the production of energy from agricultural anddomestic 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 viralinfections (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

Paper – II: Electronics

I- Mathematical Physics and Classical Mechanics

Vector algebra and vector calculus- Linear algebra, matrices, Linear ordinary differential equations of first & second order,

Special Functions: Legendre's polynomials, Bessel functions,Hermite polynomials.. Laplace equation and wave equation

Integral Transforms: Fourier Transforms and applications, Laplace transforms and applications.

Tensor Analysis: Tensor Algebra, Metric Tensor & Christoffel Symbols

Mechanics of a system of particles: Lagrangian Mechanics, Lagrange's equations, Hamilton's principle, Hamiltonian Mechanics, canonical Transformations and Hamilton-Jacobi Theory, and Poisson's Brackets.

Numerical Methods: Numerical Interpolation, Numerical Differentiation, Numerical Integration, Solutions of Equations and Numerical solutions of Ordinary Differential Equations.

II- Statistical Mechanics and Quantum Mechanics

Introduction to Statistical Mechanics: Statistical Mechanics- Thermodynamics, Ensembles, Density distribution- Liouvilles theorem, Postulates of classical statistical Mechanics, Micro canonical Ensemble, MaxWell-Boltzman Statistics, Canonical and grand canonical ensembles.

Quantum Statistics: Postulates of Quantum Statistical Mechanics, Quantum Statistics-Be and F-D Statistics

Principles Of Quantum Mechanics: Birth of Quantum Mechanics, Eigen values and Eigen functions Dirac's Bra and ket vectors Eigen functions and uncertainty principle.

Schrodinger Equations and Angular Momentum Theory: Schrodinger wave equation, Applications of Schrodinger's equation to one dimensional problems, Angular momentum, Application of Schrodinger's equation to three dimensional problems, Hydrogen atom, spin and angular momentum, Addition of angular momenta, Clebsch-Gordan coefficients

Approximation Methods: Time independent perturbation theory, variation method, Time dependent perturbation theory

Relativistic Quantum Mechanics: Klein Gordon relativistic equation and applications, Dirac's relativistic equation and applications

III-Solid State Physics

Crystalline State and Crystal Structure: Crystalline State and Crystal Structure, non crystalline state, elements of X-ray diffraction, experimental techniques for structure determination.

Imperfection in Crystals: Imperfection in Crystals, diffusion,dislocations.

Free electron theory and band theory of solids: Free electron theory, band theory of solids, semiconductors, solid state lasers.

Lattice vibrations and thermal properties: Elastic waves in solids, Infra red absorption ionic crystals, and lattice heat capacity.

Dielectrics and ferroelectrics: Macroscopic descriptions of dielectrics, measurement of dielectric constant, ferroelectrics.

Magnetism and Super conductivity: Magnetism, spontaneous magnetization, occurance of superconductivity, super conductivity-theoretical explanations.

IV - Semiconductor Devices- Analog and Digital Electronics

Semiconductor Diodes, Transistors and Amplifiers: Semiconductor diods, Transistors, Power supplies, Feed beck amplifiers, RC coupled amplifiers and it's frequency response, Oscillators and Multivibrators

Operational Amplifiers: Operational Amplifier, its characteristics, and its parameters, Operational Amplifier-configurations, Operational Amplifier-Frequency response, Operational Amplifier-Linear applications, Operational Amplifier- non linear applications, Operational Amplifier- Wave form generators.

Digital Electronics: Introduction to Digital electronics and logic gates, Applications of EX-OR gate,De-Morgan's Theorems and Fundamental products,Karnaugh map,Flip-flops,Shift Registers,Counters,Multiplexer and De-multiplexer.

Converters: Digital to Analog Converters, Analog to Digital Converters

V- Nuclear Physics and Analytical Techniques

Nuclear decay process: Alpha Spectrum, Gamow's theory of α-decay. β- Spectrum, Neutrino hypothesis, Fermi theory of Alpha-decay, Fermi-Kurie Plots, selection rules for β-decay. Γ-emission – Multiple radiation – selection rules for γ-decay. Classification of elementary particles – Fundamental interactions – Conservation laws. Interaction of charged particles and Gamma radiation with matter, Radiation detectors.

Nuclear forces and Nuclear Models: Properties of Nucleus-nuclear radius, nuclear mass and binding energy, Angular momentum ,nuclear statistics, parity and Symmetry, Magnetic dipole moment, electric quadruple moment, Nature of nuclear forces, two body problem, bound and spin states of two nucleons, Theory of deuteron, Tensor forces, exchange forces, meson theory of nuclear forces, Nuclear models, liquid drop model, formula for total binding energy of the nucleus, Weizsacher's semi empirical mass formula, values of the empirical coefficients, Shell model-Experimental Evidence, predictions, spin orbit coupling and achievements of the shell-model.

Nuclear Reactions

Types of nuclear reactions, conservation laws, Kinematics of nuclear reactions, Q-value, Nuclear cross section, compound nuleaus,Descrete energy levels of nucleus, Breit-Winger formula, Basic properties of neutrons, classification of neutrons, slowing down of neutrons,logarithamic decrement in energy, moderating ratio, neutron diffusion-neutron current density, neutron leakage current, Fermi age equation,Bohr and wheeler theory of fission, four-factor formula

Materials Characterization Techniques: Phase contrast microscopy ,Principle, theory, instrumentation Applications, Electron microscopy ,principle, scanning electron microscope ,instrumentation, Transmission electron microscope,instrumentation,applications of electron microscopes, advantages of SEM over TEM.Thermo gravimetric aalyser,principle,instrument control,Applications,Differential scanning calorimetry,principle,instrumentation,Power compensated DSC,Heat flux DSC,Temperature control methods, the average temperature control, Differential temperature control. Theory of Mossbauer effect, Recoil-less emission and absorption of gamma rays-nuclear, resonance experimental technique to observe Mossbauer effect, Mossbauer nuclides, Mossbauer parameters-Isomer shift,Quadrupole splitting, magnetic hyperfine splitting, simple applications

Resonance Spectroscopy: NMR theory-simple and classical, Relaxation mechanisms-spin-spin and spin-lattice. Bloch equations, complex susceptibility,NMR instrumentation related to absorption and induction techniques, chemical shift,spin-spn coupiling,ethyl and methyl alcoholNMR spectra, Major areas of NMR.Principles of ESR,conditions for resonance,ESR spectrometer, interpretation of spectra, Hyperfine interactions, applications of ESR.Nuclear quadruple Moment, electric field gradients, Nuclear quadruple resonance,energylevelsindifferentFGsymmetries,NQRspectrometer,Applications,review on NMR,ESR and NQR.

VI- Electromagnetic Theory and Spectroscopy

Electromagnetic Theory: Electrostatic field, Magneto statics, Electro dynamics,EM waves in matter, Electromagnetic radiation,Lienard-Wiechert Potentials, Radiated power

Atomic Spectra: Fine structure,Zeeman,Paschem-back and Stark Effects, vector atom model L-s and jj coupling of two electron states, two electron system,lande'G' factor

Molecular spectra: Rotational Spectra of Diatomic molecules, vibrational spectra, Electron spectra, Frank-Condon principle, Dissociation enalgies, Frank Condon Principle

VII- Memory Devices and Microprocessors

Logic Families: Logic families and their performance characteristics, Emitter Coupled Logic (ECL, PMOs, CMOs Logic and Tri state Logic), Comparisons of Logic families
Semiconductor memories: Classification and Characteristics of Memories, Memory organization and expression.
INTEL 8085 Microprocessor Organization and Architecture: Microprocessor Organization and Architecture, Pin Configuration of Intel 8085 Micro Processor, Timing diagrams.
Addressing Modes and Programming of 8085 Microprocessors: Addressing modes and instruction set of Intel 8085, Programming of Micro Processor Intel 8085, Assembly Language Programming using Loops.
Peripheral Devices and Interfacing :I/O Interfacing& Data Transfer Schemes,Intel 8053 Programmable interval Timer, Programmable Peripheral Interface (8255), Priority Interrupt Controller (8259).
INTEL 8086 Microprocessor: Intel 8086 Micro Processor, Addressing Modes and Instruction set of Intel 8086 Micro Processor, Pin Configuration of Intel 8086 Micro Processor.
Advanced Microprocessors: Architecture of Micro Processors 80286, 80386, 80486, the Pentium Microprocessor
VIII- Communication Systems
Analog Communication: Need for modulation, Amplitude modulation, Frequency spectrum for sinusoidal A.M, Average power for sinusoidal and non-sinusoidal A.M, Generation of A.M. waves- Collector modulator, Balanced modulator, A.M transmitter

(Block diagram approach), Detection of A.M waves – Square law detector, Frequency and Phase modulation, Frequency spectrum for sinusoidal F.M, Average power for sinusoidal F.M, Varactor diode F.M modulator, Balanced slope F.M detector, Ratio F.M detectors.

Digital Communication: Sampling theorem, Pulse amplitude modulation (PAM), Natural sampling, Flat-top sampling, Signal recovery through holding, Quantization of signals, Quantization error, Pulse Code Modulation (PCM), Companding, Multiplexing PCM signals, Differential PCM.Digital modulation techniques: Amplitude Shift Keying (ASK), Phase Shift Keying (PSK), Frequency Shift Keying (FSK) and Differential Phase Shift Keying (DPSK) and their generation and detection (qualitative).

Transmission lines: Introduction, Primary line constants, Phase velocity and line

wavelength, Characteristic impedance, Propagation coefficient, Phase and group velocities, Standing waves, Lossless line at radio frequencies, VSWR, Slotted-line measurements at radio frequencies, Transmission lines as circuit elements, Smith chart.

Microwave devices: Introduction to rectangular and circular wave guides, Solution of wave equations in cylindrical coordinates, TE and TM modes, Power transmission and loss in circular wave guides, Excitation of modes in circular wave guide, Microwave tunnel diode, Gun effect diode (GaAs), Microwave generation and amplification.

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

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, HarappanScript, 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, Economyand Culture- Post Satavahana period – Chedi (Kharavela) Ikshvakus, Vakatakas, Abiras, Kshatrapasand Vishnukundis, Kushans (Kanishka).
8. Gupta Age: Political History, Administration, Socio-Economic conditions, Growth of Culture, Art andArchitecture, 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 Sultanate1206 A.D. -1526 A.D. – Political History, Administrative System, Changes inSociety 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 IndianAgriculture and Economy.
16. Socio – Religious Reforms Movements –Brahmo Samaj –Arya Samaj, Satyashodhak Samaj and others– Educational policies of the British and their Impact.
17. 1857 Revolt; Causes Results and Significance.
18. 18. Rise and Growth of Indian National Movement –Nationalist Movement I Phase from 1885 A.D. -1905A.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 ofRevolutionary Movement. III Phase 1920-1947 - Non Co-operation Movement, Emergence of Gandhi,Civil Disobedience, Salt Satyagraha, Quit India Movement- Subhash Chandra Bose – ConstitutionalReforms- Dr.B.R.Ambedkar - Declaration of Independence – Role of Women in Indian NationalMovement.

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 of1948 – 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

Paper – II: Economics

I . Micro Economics

1. Demand Analysis

Definitions, Nature and Scope of Economics – Micro and Macro Economic Analyses – Concepts of Demandand 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-MarginalUtility – Consumer Surplus – Indifference Curve Analysis: Assumptions, Properties, Budget Line andConsumer'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, IsocostCurves 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 AverageRevenue, Marginal Revenue and Elasticity of Demand

4. Market Structure Analysis

Concepts of Firm, Industry and Market – Classification of Markets – Objectives of the Firm – Equilibriumof a Firm – Shut-Down Point – Perfect Competition: Concept, Characteristics, Equilibrium of Firm andIndustry – Optimum Firm – Monopoly: Concept, Types, Characteristics and Equilibrium of the Firm – PriceDiscrimination – 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 andCharacteristics – Duopoly Models – Marginal Productivity Theory of Distribution – Distribution Theoriesof 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 Incomeas 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 – KeynesianTheory of Income and Employment: Effective Demand, Aggregate Demand Function and AggregateSupply Function – Consumption Function: Average Propensity to Consume and Marginal Propensityof Consume – Factors Determining Consumption Function – Savings Function: Average Propensity toSave 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 ofInterest – 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) ofInflation – Measures to Control Inflation – Phillips Curve, Deflation and Stagflation – Trade Cycles:Concept, Nature and Causes – Phases and Remedial Measures of Trade Cycles – Models of BusinessCycles : 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 ofPublic Finance – Public, Private and Merit Goods – Multiple Theory of Public Household – Principleof Maximum Social Advantage

2. Public Revenue and Taxation

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

3. Public Expenditure and Public Debt

Public Expenditure: Classification and Principles – Determinants of Public Expenditure – Theories ofPublic 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 toState and Local Bodies – Functions of Finance Commission – Current Finance Commission'sRecommendations

5. Budget

Budget: Concepts, Classification and Types – Revenue Account and Capital Account –Budget Deficits:Concepts, Types and Implications – Fiscal Responsibility and Budget Management (FRBM) – Budgetingin India

IV. International Economics

1. Theories of International Trade

International Trade and Inter-Regional Trade – Inter-Industry Trade – Gains from Trade – Trade as anEngine of Economic Growth – Role of International Trade in Economic Development – Classical andNeo-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 ofTrade – Secular Deterioration Hypothesis of Terms of Trade: Singer and Prebish – Gunnar MyrdalViews on Terms of Trade – Tariffs, Quotas and Subsidies: Their Effects – Impact of Tariffs on Partialand 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 andConsequences of Disequilibrium in Balance of Payments – Remedial Measures for CorrectingDisequilibrium 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 ofFixed and Flexible Exchange Rates – Theories of Exchange Rates Determination: Mint Parity andPurchasing Power Parity (PPP) – An Overview of Different Methods of Exchange Rate Determinationin 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 TradeInstitutions: 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 – DistinctionBetween Growth and Development – Objectives of Economic Development – Sustainable Developmentand Inclusive Growth – Indicators (Measures) of Economic Development

2. Factors of Economic Development

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

3. Theories of Growth and Development

Classical Theories of Economic Growth: Adam Smith, Ricardo and J. S. Mill – Karl Marx Theory ofEconomic Development – Schumpeter's Theory of Economic Development – Rostow's Theory ofEconomic 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 GrowthStrategy of Hirschman – Critical Minimum Effort Thesis – Low Level Equilibrium Trap – Theories ofSocial and Technological Dualism

5. Growth Models

Harrod-Domar Growth Model – Kaldor's Growth Model – Joan Robinson's Growth Model – GunnarMyrdal'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 TheirImplications on Indian Economy – Concepts of Demographic Transition and Demographic Dividend– Secoral and Occupational Distribution of Population in India – Population Policy of India – HumanResource 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 inIndia: Concept, Types, Trends, Causes and Consequences – Unemployment in India: Concept, Types,Trends, Causes and Consequences – Poverty Alleviation and Employment Generation Programmes inIndia.

3. Planning and Public Policy

Concept, Types and Importance of Planning – Major Objectives of Five Year Plans in India – Reviewof Five Year Plans : Achievements and Failures – Current Five Year Plan – NITI Aayog – EconomicReforms: 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 AgriculturalProduction and Productivity – Agricultural System in India and Land Reforms – Green Revolution –Cropping Pattern – Agricultural Finance – Agricultural Marketing – Agricultural Pricing – Food Securityin 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 Commission 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 ofTelangana – 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: DistrictwiseAnalysis – Sectoral Contribution to Gross State Domestic Product – Inequalities in the Distributionof Income and Wealth – Poverty in Telangana: Trends, Causes and Consequences – Unemployment inTelangana: Trends, Causes and Consequences – Poverty Alleviation and Employment GenerationProgrammes 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 Industriesin 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 ServiceSector 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 andGraphs of Linear, Quadratic and Cubic Functions – Concept of Derivative -- Rules of Differentiationwith respect to Cost, Revenue, Price and Demand Functions –Application of Maxima and Minima inEconomic 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: Primaryand Secondary Data – Methods of Collecting Data: Census and Sampling Methods (Random andNon-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 – Absoluteand 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 – Spearmen's RankCorrelation – Regression: Meaning and Uses of Regression – Estimation and Interpretation ofRegression Line

5. Index Numbers and Time Series Analysis

Index Numbers: Meaning and Uses – Types of Index Numbers – Methods of Index Numbers: Laspayer,Paasche and Fisher – Analysis of Time-Series: Meaning and Uses – Components of Time SeriesAnalysis: Secular, Seasonal, Cyclical and Irregular Variations – Methods of Measurement of SecularTrends: 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 – BalanceSheet of Commercial Banks – Process of Credit Creation – Social Responsibility, Importance andGrowth 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 SectorReforms in India

2. Financial and Investment Banking

Concept, Types, Functions and Growth of Non-Banking Financial Intermediaries – Their Impact onIndian 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 – CapitalMarket: Concept, Functions and Importance – Components of Capital Market: Primary and SecondaryMarkets – 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 inIndia – 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 andCommunication 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 Environ-mental Variables – ParetoOptimality and Market Failure in the Presence of Externalities – Bio-Diversity: Meaning, Uses, Effectsand 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 Analysisof 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 SustainableDevelopment – Development vs Sustainable Development

5. Environmental Pollution and Policies

Environment and Economy Interaction – Industrial and Agricultural Technology: Its Impact onEnvironment – Different Types of Pollution: Their Causes and Effects – Environmetal Policy andConservation 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

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, LokSabha 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 IndianConstitution
- 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 Commission
- 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 andGlobalization.
- Contemporary issues in International Relations: Human Rights, Environmental Issues, climate Changeand Terrorism
- International Financial Institutional: World Bank, IMG & WTO.

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

Paper – II: Commerce

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

II. Financial and Management Accounting: Accounting Standards - Corporate Reporting – Accounting forprice level changes – Human Resource Accounting – Responsibility Accounting – Analysis of FinancialStatements – Techniques: Comparative and Common Size statements, Trend analysis, Ratio analysis, FundsFlow and Cash Flow analysis – Marginal Costing and Decision Making.

III. Cost Accounting and Control: Cost concepts and Classification – Installation of costing system – Elementsof Cost: Material, Labour and Overheads – Methods of Costing – Techniques of costing: CVP, StandardCosting 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, Productionand 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 – ConsumerBehaviour and Market Segmentation – Product, Price, Promotion and Channel management.

VII. Human Resource Management: HR Functions – HR Planning – Job analysis – Recruitment and JobEvaluation – Training and Development methods – Performance Appraisal Methods – Trade Unions andCollective Bargaining.

VIII. Business Environment: Meaning and Components of Business Environment – Industrial Policies (includingTelangana State Industrial Policy) – Liberalisation, Privatisation and Globalisation – Indian Capital andMarkets – Foreign Direct Investment - FEMA and WTO.

IX. Quantitative Techniques: Correlation and Regression – Sampling and Sampling methods – Probability andProbability Distributions – Hypothesis Testing – Parametric Tests (Z, t-test and ANOVA) and Non-parametricTests (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

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 – Styles & 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.

ANNEXURE - III

INSTRUCTIONS TO CANDIDATES:

A) GENERAL INSTRUCTIONS TO CANDIDATES

1) 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 interview/ verification, may lead to disqualification. Hence the candidates are advised not to change their appearance till the recruitment process is complete.

2) **The candidates are not allowed to bring any Electronic devices such as mobile / cellphones, 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.

3) The candidates are expected to behave in orderly and disciplined manner while writing the examination. If any candidate takes away Answer Sheet of OMR based examination, the candidature will be rejected and in case of impersonation/ disorder/ rowdy behaviour during Examination, necessary F.I.R. for this incident will be lodged with concerned Police Station, apart from disqualifying his / her candidature.

4) Candidates trying to use unfair means shall be disqualified from the selection. No correspondence whatsoever will be entertained from the candidates.

5) The Penal Provisions of Act 25/97 published in the A.P. Gazette No. 35, Part-IV.B Extraordinary dated: 21/08/1997 shall be invoked if malpractice and unfair means are noticed at any stage of the Examination.

B) INSTRUCTIONS REGARDING OFFLINE OMR BASED EXAMINATION FOR CANDIDATES

1) The candidates have to report 30 minutes before to the examination venue to record their thumb impression on Biometric system.

2) The candidates should go through the instructions given on the cover page of test booklet and carefully write his/her Register Number, Subject / Subject Code, Booklet Series, Name of the Examination Centre etc., in the Answer Sheet, which will be provided to him/her in the examination hall.

3) Since the answer sheets are to be scanned (valued) with Optical Mark Scanner system, the candidates have to USE BALL POINT PEN (BLUE/BLACK) ONLY FOR MARKING THE ANSWERS. The candidates will be supplied OMR Sheet consists of two copies i.e., the Original Copy (Top Sheet) and Duplicate Copy (Bottom Sheet). The candidate is required to use Ball Point Pen (Blue or Black) for filling the relevant blocks in the OMR Sheet including bubbling the answers. **After writing the examination the candidate has to handover the original OMR sheet (Top Sheet) to the invigilator in the examination hall, if any candidate takes away the original OMR Sheet (Top Sheet) his/her candidature will be rejected. However the candidate is permitted to take away the duplicate (Bottom Sheet) OMR Sheet for his/her record**. The candidates should bring Ball Point Pen (Blue/Black and smooth writing pad) to fill up relevant columns on the Answer Sheet. The candidate must ensure encoding the Register Number, Subject/Subject Code, Booklet Series, Name of the Examination Centre, Signature of the Candidate and Invigilator, etc., on the O.M.R. Answer sheet correctly, failing which the Answer sheet will be rejected and will not be valued. **Use of whitener on OMR Sheet will lead to disqualification.**

4) The OMR Sheet is to bubble only by Ball Point Pen (Blue/Black). Bubbling by Pencil / Ink Pen / Gel Pen is not permitted in this examination.

5) The candidates should satisfy the Invigilator of his identity with reference to the signature and photographs available on the Nominal Rolls and Hall Ticket.

6) No candidate should leave the examination hall till expiry of fulltime.

7) 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 reserves the right to cancel his/ her candidature and to invalidate the Answer Sheet.

8) (i)Wherever Written Examination is held, only those candidates who are totally blind are allowed to write the examination with the help of scribe and 10 minutes extra time is permitted to them per hour.

   (ii) 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). No scribe is allowed to such candidates.

(iii) Scribe will be provided to those candidates who do not have both the upper limbs for Orthopedically Handicapped. However, no extra time will be granted to them.

(a) The scribe should 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.

(b) The candidate as well as the scribe will have to give a suitable undertaking confirming the rules applicable

9) If the candidate noticed any discrepancy printed on Hall ticket as to community, date of birth etc., they may immediately bring to the notice of Board's officials/Chief Superintendent in the examination centre and necessary corrections be made in the Nominal Roll, in the Examination Hall against his/her Hall Ticket Number for being verified by the Board's Office.

ANNEXURE-IV
LIST OF 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. Holeya
26. Holeya 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, Bentho Oriya, 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

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, Vadabalija, 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 Peddammavandlu, 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.

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 Natakalavallu
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
(Harijan Converts)

1 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 at S.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, Arevallu 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

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

1 Achchukattalavandlu, Singali, Singamvallu, Achchupanivallu, 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, Fhakir Budbudki, Ghanti Fhakir, Ghanta Fhakirlu, Turaka Budbudki, Darvesh, Fakeer
5 Garadi Muslim, Garadi Saibulu, Pamulavallu, Kani-Kattuvallu, Garadollu, Garadiga
6 Gosangi Muslim, Phakeer Sayebulu
7 Guddi Eluguvallu, Elugu Bantuvallu, Musalman Keelu Gurralavallu
8 Hajam, Nai, Nai Muslim, Navid
9 Labbi, Labbai, Labbon, Labba
10 Pakeerla, Borewale, Deera Phakirlu, 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, Chakkitakanevale, 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.