



TAMIL NADU PUBLIC SERVICE COMMISSION

NOTIFICATION NO: 16/2015
Advertisement No.422

DATED: 05.10.2015

Applications are invited only through online mode upto 04.11.2015 for Direct Recruitment to the vacancies in the following post:-

Sl. No	Name of the Post and Post Code	Name of the Service and Code No.	Number of vacancies	Scale of pay
1.	Research Assistant in Statistics (2011 - 2012) Post Code 2107	Tamil Nadu Town and Country Planning Subordinate Service (Code No.066)	1 G.T (G)	Rs.9,300- 34,800/- (PB2) + 4,700/- Grade Pay
2.	Research Assistant in Economics(2011 - 2012) Post Code 2110		1 G.T (G)	
3.	Research Assistant in Geography(2011-2012) Post Code 2111		1 G.T (G)	
4.	Research Assistant in Sociology(2011-2012) Post Code 2112		1 G.T (G)	

Abbreviation: GT (G)- General Turn (General)

2. **IMPORTANT DATES:-**

A	Date of Notification	05.10.2015
B	Last date for submission of applications and for uploading of the prescribed qualification Certificate (P.G. Degree Certificate)	04.11.2015
C	Last date for payment of Fee	06.11.2015

Date and Time of Written Examination

D	Paper - I (Subject of Examination) (P.G. Degree Standard)	13.12.2015 FN	10.00 A.M. to 01.00 P.M.
	Paper - II (General Studies) (Degree Standard)	13.12.2015 AN	02.30 P.M. to 04.30 P.M.

3. **QUALIFICATIONS:-**

(A) **AGE** (as on 01.07.2015)

Sl. No.	Category of Candidates	Minimum Age (Should have completed)	Maximum Age
1.	SCs, SC(A)s, STs, MBCs/DCs, BCs, BCMs and DWs of all Castes	18 Years	No Maximum Age Limit
2.	Others [i.e candidates not belonging to SCs, SC(A)s, STs, MBCs/DCs, BCs and BCMs]	18 Years	Below 30 Years

Note:-

- (i) "Others" [i.e. Candidates not belonging to SCs, SC (A) s, STs, MBCs/DCs, BCs and BCMs] who have put in 5 years of service in the State / Central Government are not eligible even if they are within the age limit.
- (ii) The Technical and Non-Technical Staff of TANSI who have faced retrenchment and have not been absorbed in the Government Corporations/ Undertakings may also apply, if they are otherwise qualified except age and the relevant age rule will be relaxed by the Government in their favour if they come up for selection.

(B) EDUCATIONAL QUALIFICATION: (as on 05.10. 2015) :-

Candidates should possess the following or its equivalent qualification awarded by any University or Institution recognized by the University Grants Commission for the purpose of its grants.

S. No.	Name of the post	Qualification
1.	Research Assistant in Statistics	A Master's Degree of any recognized University or Institution with Statistics or Mathematics as the Main subject Provided that other things being equal, preference shall be given to candidates who possess experience in Statistical Investigation or in analysis of Statistical work for a period of one year.
2.	Research Assistant in Economics	Must hold a Master's Degree in First or Second class with Economics as Main Subject.
3.	Research Assistant in Geography	Must hold a Master's Degree in First or Second class with Geography as Main Subject.
4.	Research Assistant in Sociology	Must hold a Master's Degree in First or Second class with Sociology as Main Subject. Or Social Work as Main Subject.

Note:-

- a. The qualification mentioned above should have been obtained in the order of studies viz SSLC, HSC (or its equivalent), U.G. Degree and P.G. Degree.
- b. The equivalence G.Os are indicated in Annexure - I to this Notification (Refer also to the Disclaimer annexed to the Notification)
- (For further details refer paragraph 10 of the 'Instructions to the Candidates')

4. GENERAL INFORMATION:-

- A. The rule of reservation of appointment does not apply to this recruitment as the cadre strength is 'One' in each post.
- B. **Knowledge of Tamil:** Candidates should possess adequate knowledge of Tamil on the date of this Notification (for details refer para 11 of the Instructions to Candidates)

C. CERTIFICATE OF PHYSICAL FITNESS:-

Candidates selected for appointment to the post will be required to produce a certificate of physical fitness in the form prescribed below:

Form of Certificate of Physical Fitness	Standard of Vision Prescribed
Form prescribed for Other than Executive and Ministerial	Standard-III

Candidates with defective vision should produce eye fitness certificate from a qualified eye specialist.

- D. Any claim relating to the selection (not related to candidature or / and claims made in the application) should be received on the date when called for original certificate verification prior to selection. Any claim received thereafter will receive no attention.
- E. Correct and true information regarding arrest, convictions/debarment/disqualification by any recruiting agency, criminal or any disciplinary proceedings initiated or pending / finalized, participation in agitation or any Political Organization, candidature in election for Parliament/State Legislature/Local Bodies etc., if any, should also be furnished to the Commission at the time of application i.e. the details thereof, originals of the Judgement of Acquittals, order/or G.O. dropping further action in Departmental proceedings or any document that may prove the suitability of such candidates for a Government appointment must be produced at the stage/time of Certificate Verification.
- F. The selection for appointment to the above said post is purely provisional subject to final Orders on pending Writ Petitions, if any, filed in Madras High Court and Madurai Bench of Madras High Court.
- G. **Applications containing wrong claims relating to other basic qualifications / category of reservation / eligibility criteria / age / educational qualification will be liable for rejection.**

5. SCHEME OF WRITTEN EXAMINATION (OBJECTIVE TYPE) AND ORAL TEST:-

Subject	Duration of Examination	Maximum Marks	Minimum Qualifying Marks for Selection	
			SCs, SC(A)s, STs, MBCs/DCs, and BCMs.	Others
<p>1. Paper-I (Subject of Examination) (P.G. Degree Standard) (200 Questions)</p> <p>(i)For the post of Research Assistant in Statistics Statistics (Code No.111) (OR) Mathematics (Code No.073)</p> <p>(ii)For the post of Research Assistant in Economics Economics (Code No.040)</p> <p>(iii)For the post of Research Assistant in Geography Geography (Code No.057)</p> <p>(iv)For the post of Research Assistant in Sociology Sociology (Code No.108) (OR) Social Work (Code No.107)</p>	3 Hours	300	171	228
<p>2. Paper-II General Studies (Degree Standard) (100 Questions) Interview and Record</p>	2 Hours	200		
Total		570		

Note: -

- (i) Candidates should choose only the subject in which they have obtained the prescribed qualification for examination.
- (ii) The existing syllabi for the subjects mentioned in Paper - I (i.e.) subject of Examination are given in the separate paper as Paper I and Paper II in the Annexure IIA of this Notification shall be clubbed together and constitute a single syllabus for each subject. Candidates should specify the subject in which they wish to be examined in their application. They should choose only the subject in which they have obtained the prescribed qualification.
- (iii) The question paper in all the subjects in Paper - I will be set in English only.
- (iv) The syllabi for the subjects mentioned in Paper - I & II are available in Annexure - II A and Annexure - II B respectively of this Notification and also available in the Commission's Website 'www.tnpsc.gov.in'

Computer Based Test (CBT):

The candidate has to appear for the examination where he/she has been allotted to the examination. Change of centre or venue is not permitted. He has to carry the Hall Ticket (Admission Card) and same has to be produced at the examination venue. Each Candidate will be assigned a Computer to take up the examination. Candidates will be provided with a user name and password to login the system. Necessary instructions will be displayed on screen. Kindly read all the instructions carefully.

- Candidates are not permitted to carry any electronic and/or communication device into the examination hall. They are advised not to bring the electronic gadgets with them.
- Computer Based Test (CBT) is similar to paper pen shading test.
- In CBT, questions with four options each will be displayed in the computer screen.
- Candidate has to click the best answer to the question.
- Candidates can proceed to the next question by clicking next button. Or previous question by clicking previous button.
- Candidates can review any question and the answers, and the answers can be changed at any time before the closure of examination. They can skip the questions also, if they desire so.
- Candidate can use only the mouse to select the correct answers and proceed with answering the questions.
- The Question and optional answers will be shuffled randomly and displayed to the candidate.

- Candidate can submit their answers at any time during the examination.
- Once the answers are submitted, the candidates have no option to proceed further.
- If the candidate fails to submit their answers, the system will automatically submit the answers to the server, at the closure of the examination.
- No computer knowledge is required to take up the CBT. Knowledge in Mouse operation is sufficed to take up the CBT.
- The question and answers can be zoomed to the required level for the candidates with visual impairment.

Candidates will be admitted to the examination till 30 minutes from the commencement of the examination. Candidates have to sign the attendance sheet and affix thumb impression for verification of his identity. All the activities of the candidates with the mouse will be recorded in the server and a log file will be created for future reference. The Examination Hall will be under camera surveillance.

To acquaint with the operation of Mouse and the CBT, the candidates can take up the mock test available in the Commission's website (www.tnpsc.gov.in) and they can practise the usage of mouse in the mock test. Mock test is similar to the CBT to be held on the day of examination. In the Mock test, all the steps are given similar to the CBT. Candidate can practise the mock test as many times as he/she likes.

6. CENTRE FOR EXAMINATION:-

Examination will be held at **CHENNAI** Centre (Code No. 001) only.

Note:- 1) Candidates should appear for the written examination/Oral Test / Certificate Verification at their own expense.

2) The Commission reserves the right to increase the number of Examination Venue and to re-allot the candidates.

7. PROCEDURE OF SELECTION:-

Selection will be made in two successive stages i.e., (i) Written Examination and (ii) Oral Test in the form of an interview. Final selection will be made on the basis of total marks obtained by the candidates at the Written Examination and Oral Test taken together subject to the rule of reservation of appointments. Appearance in both the papers of the Written Examination and Oral Test is compulsory. A candidate who has not appeared in any one of the papers in Written Examination or Oral Test will not be considered for selection, even if he/she secures qualifying marks in the Written Examination or Oral Test. (Refer para 23 (b) of instruction to candidates).

8. EXAMINATION FEE:-

- Examination fee Rs.100/- (Rupees One Hundred only)

Candidates have to Register their basic particulars through One -Time Registration which is mandatory on payment of Rs.50/- towards registration fee. The registration shall be valid for a period of five years from the date of one-time registration.

- Candidates should also to pay the service charges applicable to the Bank.
- Candidates can avail exemption from paying examination fees as per eligibility criteria.
- **Offline mode of payment in the form of Demand Draft / Postal Order etc., will not be accepted and the applications forwarded with such modes of payment will be summarily rejected.**

9. NO OBJECTION CERTIFICATE AND INFORMATION TO THE EMPLOYER:-

For details refer para 15 (g) of the Commission's 'Instructions to the candidates'. Any violation of the instructions will be liable for or end in rejection of his/her candidature.

10. CONCESSIONS:-

Concessions in the matter of age and/or qualification and/or fees allowed to SCs, SC(A)s, STs, MBCs/DCs, BCs, BCMs, Destitute Widows, Ex-Servicemen, Differently Abled persons, other categories of persons etc., are given in para 12 to 14 of the Commission's 'Instructions to the candidates'.

11. HOW TO APPLY:-

Click here www.tnpscexams.net / www.tnpscexams.in

12. OTHER IMPORTANT INSTRUCTIONS:-

- Candidates should upload the prescribed qualification certificates (Post Graduate) along with the online application.**
- Candidates should ensure their eligibility for examination:** The candidates applying for the examination should ensure that they fulfil all eligibility conditions for admission to examination. **Their admission to all stages of the examination will be purely provisional subject to satisfying of the eligibility conditions.** Mere issue of memo of admission to the candidate will not imply that his/her candidature has been fully cleared by the Commission.
- How to apply:** Candidates are required to apply Online by using the website www.tnpsc.gov.in , www.tnpscexams.net and www.tnpscexams.in
- The Hall Tickets for eligible candidates will be made available in the Commission's Website www.tnpsc.gov.in or www.tnpscexams.net and www.tnpscexams.in for downloading by candidates. No Hall Tickets will be sent by post. So, the candidates / applicants should watch TNPSC website since ahead / before the scheduled date of Examinations.

- e. **Facilitation counter for guidance of candidates:** In case of any guidance / information /clarification of their applications, candidature, etc. candidates can contact Tamil Nadu Public Service Commission's Office in person or over Telephone No.044-25332833/25332855 or the Commission's Office Toll-Free No. 1800 425 1002 on all working days between 10.00 a.m. and 05.45 p.m.
- f. **Mobile Phones and other Articles Banned:-**
- (i) Candidates are not allowed to bring Pager, Cellular Phone, Calculator, Memory Notes and books etc. or any other Electronic device or Recording Device either as separate piece or part of something used by the candidate such as Watch or Ring.
 - (ii) If they are found to be in possession of any such thing or instrument they will not be allowed to write the examination further, besides invalidation of answer paper and / or debarment. If it is considered necessary they will be subjected for a physical search including frisking on the spot.
 - (iii) Do not bring into the Examination Hall any article such as books, notes, loose sheets mathematical and drawing instruments, Log Tables, stencils of maps, slide rules, Text Books, rough sheets etc. except the permitted writing material i.e. pen. No colour pen or pencil must be used.
 - (iv) Candidates are advised in their own interest not to bring any of the banned items including Mobile Phones / Pagers to the venue of the examination, as arrangements for safekeeping cannot be assured.
- g. Candidates are not required to submit along with their application any certificates in support of their claims regarding Age, Educational Qualifications, Experience, Community Certificates and certificates regarding their Physical Disability, etc., They should be submitted when called for by the Tamil Nadu Public Service Commission. The candidates applying for the examination should ensure that they fulfil all the eligibility conditions for admission to the Examination. Their admission at all the stages of examination for which they are admitted by the Commission viz. (Written) Examination and Oral Test will be purely provisional, subject to their satisfying the prescribed eligibility conditions. If on verification at any time before or after the (written) Examination and Oral Test, it is found that they do not fulfil any of the eligibility conditions; their candidature for the examination will be cancelled by the Commission.
- h. If any of their claims is found to be incorrect, or false it will lead to rejection / debarment.
- i. **Unfair means strictly prohibited:** No candidate shall copy from the papers of any other candidate nor permit his papers to be copied nor give nor attempt to give nor obtain nor attempt to obtain irregular assistance of any description.
- j. **Conduct in Examination Hall:** No candidate should misbehave in any manner or create a disorderly scene in the Examination Hall or harass the staff employed by the Commission for the conduct of the examination. Any such misconduct will be severely viewed & penalised.

**The Online Application can be submitted upto 04.11.2015 till 11.59 p.m.,
after which the link will be disabled**

(For detailed information the candidates may refer Commission's 'Instructions to the candidates' at the Commission's website www.tnpsc.gov.in)

Secretary

ANNEXURE-I**G.Os relating to equivalence for the Subjects
Statistics, Economics, Geography and Social Work**

Sl. No.	Name of the Post	Qualification Prescribed	Equivalence Degree	G.O.
1.	Research Assistant (Statistics)	Master's Degree of any recognized University or Institution with Statistics or Mathematics as the Main subject	M.Sc., Mathematics with Computer Application and M.Sc., Mathematics with Computer Application (5 year Integrated) awarded by Annamalai University is Equivalent to M.Sc., Mathematics	G.O. (1D) No.260, Higher Education (H1) Department, dated 15.09.2012
			M.Sc., Applied Mathematics awarded by Bharathidasan University and M.Sc., Applicable Mathematics and Computer Science awarded by Bharathidasan University is Equivalent to M.Sc., Mathematics	G.O. (Ms.) No.58, Higher Education (K2) Department, dated 15.04.2013
			M.Sc., Mathematics (Computer Application) is equivalent to M.Sc., Mathematics	G.O. (Ms.) No.72, Higher Education (K2) Department, dated 30.04.2013
			M.Sc., Statistics with Computer Application awarded by Manonmaniam Sundaranar / Periyar/Bharathiyar University is equivalent to M.Sc., Statistics	G.O. (Ms.) No.116, Higher Education (K2) Department, dated 22.07.2014
			M.Sc., Statistics with Computer Application (5 years Integrated Programme) awarded by Annamalai University equivalent to 3 years UG in Statistics and 2 years PG in Statistics	
2.	Research Assistant in Economics	Must hold a Master's Degree in First or Second class with Economics as Main subject	M.A., Applied Economics (5 Years Integrated Course) awarded by Annamalai University is Equivalent to M.A., Economics	G.O. (1D) No.268, Higher Education (H1) Department, dated 20.09.2012.

			M.A., Business Economics awarded by Bharathiyar, Annamalai and Gandhigram University is Equivalent to M.A., Economics	G.O. (Ms.) No.72, Higher Education (K2) Department, dated 30.04.2013
			M.A., Applied Economics awarded by Annamalai University is equivalent to M.A., Economics	
			M.Sc., Mathematical Economics is equivalent to M.A., Economics	G.O.(Ms) No.117, Higher Education (K2) Department, dated 02.07.2013
			M.A., Applied Economics awarded by Bharathidasan University is equivalent to M.A., Economics	G.O.(Ms.) No.27, Higher Education (K2) Department, dated 13.02.2014
			M.A., Business Economics offered by Ethiraj College for Women, Chennai affiliated to University of Madras is equivalent to M.A., Economics	G.O. (Ms.) No.116, Higher Education (K2) Department, dated 22.07.2014
			M.A., Indian Economics awarded by University of Madras is equivalent to M.A., Economics	
3.	Research Assistant in Geography	Must hold a Master's Degree in First or Second class with Geography as Main subject	M.Sc., Applied Geography awarded by Madras University is equivalent to M.Sc., Geography	G.O.Ms. No.228, Higher Education (K2) Department, dated 04.11.2013
			M.Sc., Applied Geography Bharathiyar University and Bharathidasan University is equivalent to M.Sc., Geography	G.O.Ms. No.270, Higher Education (K2) Department, dated 31.12.2013
4	Research Assistant in Sociology	Must hold as Master's Degree in First or Second class with Sociology or Social Work as Main subject	Master of Social Work awarded by Bishop Heber College, Trichy is equivalent to M.A., Social Work	G.O.No.2, Personnel and Administrative Reforms (R) Department, dated 03.01.2000

DISCLAIMER

“ The Government orders relating to Equivalence of qualification have been hosted in the Tamil Nadu Public Service Commission website. However, the candidates while applying for the examination should upload the equivalence of qualification in the form of Government order, if any, which are not mentioned in the Annexure-I to the Notification and produce the same when called for by Tamil Nadu Public Service Commission”.

Secretary.

ANNEXURE - II A

Statistics

POST GRADUATE DEGREE STANDARD

1. 1 PROBABILITY

Sample space and events, Probability measures and probability space-Random variables, Discrete and Continuous random Variables, probability density and distribution functions. Simple theorems on Probability. Marginal and Conditional distributions, Expectations and moments, Independence of events, Moments and Cumulants generating functions. Borel - Cantelli lemma, characteristic function.

1. 2 CONVERGENCE OF RANDOM VARIABLES

Convergence in probability, almost sure, everywhere and in distribution - Weak law and strong law of large numbers, central limit theorem -(Lindeberg - Levy, Liapounor's, Lindoberg - Feller's). Tchebycher's inequality and Clivenko - Cantelli theorem.

1. 3 DISCRETE DISTRIBUTIONS

Uniform Binomial, Poisson, Negative - Binomial, Hypergeometric Distribution.

1. 4 CONTINUOUS DISTRIBUTIONS

Uniform, Normal, Cauchy, Beta, Gamma, Log - Normal Exponential, Weibull distributions.

1. 5 ESTIMATION

Point estimation - Interval estimation - Properties of estimates - Consistency, Unbiasedness efficiency sufficiency and Completeness, Fisher - Neyman Factorisation and Rao - Blackwell Theorems, Lehman - Scheffe theorem, Cramer - Rae inequality, method of maximum likelihood estimate and its properties, method of moments Chi - square and Principles of least square.

1. 6 TESTING OF HYPOTHESIS

Simple and Composite Hypothesis, two kinds of errors, power functions, most powerful test, Neyman - Pearson Lemma UMP and unbiased test, MLR property and its use for construction of UMP tests, Likelihood ratio test, Confidence intervals for large and small samples.

1. 7 NON - PARAMETRIC TESTS

Tests for goodness of fit, Chi - Square and Kolmogorov test. Ram test for Randomness, Median test, sign test for location, Wilcoxon - Mannwhitney U - test and Kolmogorov - Smirnov test for two sample problem sequential test, Wald SPRT test.

1. 8 LINEAR MODELS

Theory of Least squares, classification of linear models, Best linear unbiased estimators (BLUE) for Gauss - Markov Conditions - Estimable functions, Test of linear hypothesis and its applications to ANOVA.

1. 9 MULTIVARIATE ANALYSIS

Multiple and partial correlations, Regression, Marginal and Conditional Distribution functions, MLE of mean vector and dispersion matrix for multivariate Normal. Mahalanobis D^2 and Hotelling T^2 statistic and their applications (Excluding derivation of distributions) Fisher's Discriminant analysis, Wishart Distribution (Excluding Derivation of distribution) and its properties. Factor analysis and Principle Component analysis.

1. 10 BASIC PROGRAMMING

Variables, Constants, Strings, flow charts, Basic expression and control statements, standard Library functions, subscripted Variables. DIM and DATA statements, Simple programming problems - FORTRAN Language - Simple illustrations, Simple WORD STAR and LOTUS Commands.

PAPER - II

2.1 DESIGN OF EXPERIMENTS:-

Principles, CRD, RBD, LSD, RBD with many observations per cell, missing plot technique, fractional experiments 2ⁿ and 3ⁿ design. General theory of partial Confounding and fractional replication, analysis of Split plot, BIBD and PBIBD, simple lattice design, linear and second order response surface design and Youden Square Design.

2.2 STATISTICAL QUALITY CONTROL:-

Concepts of quality and meaning of Control Different types of Control Charts like \bar{x} , R, p and np charts and it uses. CUSUM chart. Sampling inspection Vs 100 percent inspection, single, double, multiple and sequential plans for attributes inspection. Variable sampling plan. The OC, ASN, ATI and AOQ Curves, concept of producer's risk and Consumer's risk, AQL, LTPD, AOQL, IQL, MAPD and MAAOQ.

2.3 RELIABILITY :-

Definition of Reliability; maintainability and availability, Life distribution, failure rate and bath-tub, failure cure exponential and weibull model. Reliability of series and parallel systems and other simple Configurations. Different types of redundancy like hot and cold and use of redundancy in reliability improvement. Problems in life testing, Censored and truncated experiments for exponential models.

2.4 SAMPLING:-

Simple random sampling systematic and stratified, Ratio and Regression estimates, Double sampling, Sampling and Non-Sampling errors. Cluster sampling, Two stage and Multistage sampling Multi-phase sampling Sample survey organisation - CSO and NSSO.

2.5 OPERATIONS RESEARCH :-

Linear Programming-Simplex procedure, Transportation and Assignment problems, Duality, Dual Simplex, Game Theory, Single and Multi period inventory Control Models-ABC analysis, Queuing Models - Waiting time distributions of M/M/1, M/M/C Models with different service policy, Service time distributions.

2.6 TIME SERIES :-

Concepts of time series, additive and multiplicative models, resolutions into Components, determination of trend by free hand drawing, Moving averages, fitting of mathematical Curves, seasonal indices and the estimate of the variance for random Components, Auto-regressive, Moving averages and ARIMA models.

2.7 INDEX NUMBERS:-

Definition, Construction interpretation and limitations of index numbers, Lapeyre's Paasche's Marshall - Edgeworth, Fisher's index numbers and their Comparisons for Good index Number. Construction for cost of living index number and Wholesale price index.

2.8 ECONOMETRICS :-

Theory and analysis of Consumer demand specification and estimation of demand function, Demand elasticities. Theory of production, supply functions and elasticities, input demand functions. Estimation of parameters in Single equation model classical least squares, generalised least squares, heteroscedasticity, serial correlation, multi collinearity, errors in variables model, simultaneous equation models, Input and output models, Identification, Rank and Order Conditions, Short-term-economic forecasting.

2.9 STOCHASTIC PROCESSES :-

Concepts, homogeneous discrete time markov Chains-illustrations. TPM Classification of states and Chains, higher transition probabilities, stability of Markov Chain, limiting behaviour, one Dimensional Random Walk. Chapman-kolmogrov equation, Ergodic theorem, Poission Processes and related distributions, Birth Process, Death Processes, Brith-Death Processes.

2.10 DEMOGRAPHY:-

Vital Statistics, birth and death ratio, rates and life table, sources of demographic data, NSS and other demographic surveys, Limitations and uses of data, Logistic and other population growth curves, GROSS and NET Reproduction rates, Morbidity and Mortality rates

Mathematics
POST GRADUATE DEGREE
STANDARD

I. ALGEBRA

Group - examples - subgroup - Normal subgroups - homomorphisms - Isomorphism - Cayley's theorem - Cauchy's theorem - Sylow's theorem - Finite abelian groups
Rings: Euclidean rings - Polynomial rings - Polynomial over the rational field - Polynomial rings over Commutative rings - modules. Division rings - Frobenius theorem. Field: Finite fields - Wedderburn's theorem, Extension Fields - Roots of Polynomials. Galois theory: Elements of Galois theory, Solvability of radicals. Linear Transformations: Canonical forms, Nilpotent transformations

II REAL ANALYSIS

Limit, Continuity, types of discontinuities, infinite limits, function of bounded variation, elements of metric spaces. Riemann Integral - Fundamental theorem of calculus - mean value theorem. Riemann - Stieltjes Integral, Infinite series and infinite products, sequences of functions, Fourier series and Fourier Integrals. Outer measure, measurable sets and Lebesgue measures, measurable functions. Littlewood's three principles. Lebesgue Integral of bounded function over a set of finite measure. Integration of a non negative function. General Lebesgue Integral.

III COMPLEX ANALYSIS

Local properties of analytic functions - Removable singularities Taylor's theorem - Zeros and poles, local mapping - maximum principle - Harmonic functions - Definitions & basic properties - mean value property - Poisson's formula - Schwarz's theorem - reflection principle - power series expansions - Weierstrass's theorem - Taylor's series, Laurent's series, partial fractions and factorisation - Infinite products - Canonical products - gamma functions, Stirling's formula, Entire functions, Jensen's formula - Hadamard's theorem.

IV DIFFERENTIAL GEOMETRY

Curves, analytic representation, arc length, tangent, osculating plane, Curvature, torsion, formula of Frenet, Contact, natural equations, helices involutes & evolutes, Elementary theory of surfaces - Analytic representation first & second fundamental forms, normal - tangent form, developable surfaces, Euler's theorem, Dupin's indicatrices - Conjugate directions, Triply orthogonal system of surface, Fundamental Equations: Gauss, Gauss - Weingarten, Codazzi, Curvilinear, Co-ordinates in space. Geodesics on surface. Geodesic Curvature, Geodesics, Geodesic Coordinates, surfaces of constant curvature, rotation of surfaces of constant curve.

V OPERATIONS RESEARCH

Origin & Development of operations research, Nature & Characteristics of O.R. Models in O.R. General solution methods for O.R. models, uses and limitations of O.R.

LINEAR PROGRAMMING

Formulation of problem, graphical solutions, standard form. Definition of basic solution, degenerate solution, simplex method, Definition of artificial variable.

TRANSPORTATION PROBLEM

Definition, solutions to transportation problem - initial feasible solution - optimality test - Degeneracy - Travelling salesman problem. Sequencing : Processing n jobs through m machines, Replacement of equipment that deteriorates or falls suddenly.

VI TOPOLOGY

Topological spaces & continuous functions, metric topology, Connectedness, compactness, countability and separation axiom, Fundamental group and covering spaces.

PAPER - II

I. MECHANICS:-

STATICS:- Equilibrium of a system of particles, work and potential energy, friction, commonitenary principles of virtual work - stability of equilibrium of forces in three dimensions. DYNAMICS:- Rectilinear motion - motion with constant acceleration motion under gravity - motion along an included plane - motion under gravity in a resisting medium Impulsive forces & Impact, Principles of Conservation of Linear momentum, Collision of two smooth spheres - Direct Impact of sphere on a fixed plane - Projectiles - Circular motion of a particle, Central orbits, moments of enertia, motions of a rigid body about a fixed axis - K.E. of rotation - moment of momentum - motion of a circular disc - hoop or a sphere rolling down an inclined plane.

II. DIFFERENTIAL EQUATIONS:-

Linear differential equations of higher order - Linear dependence & wronskian basic theory - solutions in power series - Introduction to second order linear equations with ordinary points. Legendre equations and legendre polynomial, Second order equations with regular singular points, Bessel equations. Partial differential equations; first order, complete Integral, general Integral, singular Integral, Compatible systems of first order equation, charpit's method. Partial differential equations of second order - Linear and partial equations with constant Co-efficients Laplace equation - Elementary solutions of Laplace equation.

III. PROBABILITY & MATHEMATICAL STATISTICS: -

Probability of an event, Baye's theorem, Variables - random. Discrete & continuous distributions - Expected values & functions. Moment generating function and Characteristic functions - Chebychev's inequality statements of uniqueness theorem & inverse theorems on characteristics functions.

STANDARD DISTRIBUTIONS:

Binomial, poisson, normal & uniform Sampling distribution of Statistics based on normal distribution - χ^2 , F concept of bivariate distributions, Correlation and regression, Linear prediction, rank Correlation Coefficient, Partial & multiple Correlation. Sample moments & their functions. Notion of sample - statistic - χ^2 - distribution, t, Fisher's Z distribution - distribution of regression coefficients.

SIGNIFICANT TESTS:

Concepts - parametric tests for small & large samples - χ^2 test - test of Independence by contingency table - theory of hypothesis testing - Power function - Most powerful tests Uniformly most powerful test - unbiased tests.

IV. FLUID DYNAMICS:-

Compressible flow; effects of compressibility, Linearised theory, thermodynamical consideration, energy equation, plane shock waves, oblique shockwaves, prantle-mayer expansion - Navier stoke's equation - dissipation of energy - diffusion of vorticity condition of no slip - steady flow between concentric rotating cylinder - steady viscos flow in tubes of uniform cross section - uniqueness theorem, Reynolds number, Boundary Layer thoery.

V. GRAPH THEORY:-

Graphs and simple graphs, subgraphs, vertex degrees, paths and connection, cycles, trees cutedges and bends, cut vertices, Cayle Y's formula, connectivity the travelling salesman problem, Blocks, Euler Tours, Hamilton cycles, matching and coverings in Bipartite - Graphs, perfect matchings, Edge chrometic number, Vizing's theorem. Independent series - Ramsey's theorem, Turan's theorem, Chromatic number, Brooks theorem.

VI. FUNCTIONAL ANALYSIS:-

Fundamentals of normed Linear spaces, bounded Linear maps on Banach spaces, open mapping theorem, converse of Reimann Lebseque Lemma, spaces of bounded linear maps, weak and weak

convergence, compact linear maps, geometry of Hilbert space, Approximation and optimisation, Bounded operators of Hilbert spaces, spectrum of bounded operators on Hilbert spaces.

Economics

POST GRADUATE DEGREE STANDARD

UNIT I

Importance and Scope of Economic - Micro and Macro Economics - Interdependence Theory of consumer behaviour - Indifference curve analysis - Revealed Preference Theory - Elasticity of demand and its applicaiton.

UNIT II

Theory of production and cost - production function - optimum factor combination - Linear and Homogenous production function - Cobb - Douthlas - CES production Functions - Break even analysis. Value - Price determination under different market structures.

UNIT III

General Equilibrium analysis - and welfare Economics - Pareto criterion and pareto optimality - Kaldor - Hicks Welfare Criterion - Scitovsky's Paradox - Input output analysis.

UNIT IV

National income - measurement - difficulties - sectoral shares - keynesian Analysis - theory of aggregate demand and aggregate supply - IS, LM model - absoulte income hypothesis - Relative income hypothesis - Permanent income hypothesis - multiplier.

UNIT V

Economic System - market economy - command economy - mixed economy - Approaches to economic development - Adamsmith - Ricardo - Malthus - Schumpeter - Karl Marx. Gandhiji - Periyar - Ambedkar.

PAPER - II

MONEY AND BANKING AND INTERNATIONAL TRADE

UNIT I

Money - friedman's theory - Don Patikin's theory - Inflation - Deflation - Causes - effects - measure to Control. Banking - Importance - role and functions of Commercial Banks and Central Bank.

UNIT II

Composition and direction of foreign trade - Importance of of foreign trade and economic development - EXIM policy - GATT - WTO - Dunkel Draft - TRIPS - TRIMS - FERA - International Financial Institutions - IBRD and IMF - New International Economic Order.

UNIT III

Fiscal Function - Direct and Indirect taxes - Public borrowing - techniques - Debt management Fiscal Federalism - Fiscal policy - Budget formulation - Centre and State.

UNIT IV

Development Economic - leading issues in India and Tamil Nadu - Economic and non - economic factors - Agriculture - Prospects and problems - Land reform and effects - Rural Industrialiazation - Industry - role of private and public Sector - Industrial labour - Labour legislation - social security measures.

UNIT V

Planning - National and state objective and achievements - New Economic Policy - Globalisation - Privatisation - Multi - National Corporations.

Geography

POST GRADUATE DEGREE STANDARD

UNIT 1.1

Geomorphology :

Origin and evolution of the earth's crust - Earth movements - Plate Tectonics - Volcanism - rocks weathering - erosion - cycle of Erosion - cycle concepts (Davis and penk) - Rejuvenation - Glacial - marine - karst - land forms - Morphogenetic regions

UNIT 1.2

Climatology :

The atmosphere, its structure and composition - temperature (vertical and horizontal distribution) - Pressure (vertical and horizontal distribution) winds - Jet stream - Air masses and Fronts cyclones - Climatic classifications (Koeppen and Thornthwaite).

UNIT 1.3

Oceanography :

Bottom morphology of major oceans - temperature - salinity distribution - currents of the major oceans - Tides - coral reefs - Deposits of the Ocean floor.

UNIT 1.4

Geography of World Resources :

Resource - Types - Agricultural resources - Geographical Distribution of Rice - Wheat - cotton - Tea - coffee - sugarcane in the world. Animal Resources: cattle and sheep farming world fishery resources: major fishing grounds of the world. Mineral resources: Distribution and production of iron ore bauxite and copper in the world. Power resources: Coal - mineral oil - Hydel power - Atomic power. Industries: localisation factors of Iron and Steel - Textile & Cotton and Wollon - ship building - chemical - Automobile Industry. Transportation : Land - water - Air transportation major sea routes of the world Trade: Factors influencing the trade-Trade blocks of the world [EEC, COMCON and OPEC].

UNIT 1.5

Environmental Studies:

Eco system - man and his environment mode of life of people in Hot deserts - Equatorial and Polar regions - concepts of Determinism - Possibilism - Probabilism - Eco system concept - natural hazards - Pollution types - environmental planning and management - Environmental impact Assessment [EIA]

UNIT 1.6

World Population:

Growth and distribution - Density of population - Theories of Population: Malthus - optimum population - Demographic transition. Migration: types - causes and consequences.

UNIT 1.7

Geography Rural and Urban settlements:

Rural settlements: Siting factors - types. Urban settlements: Site and situations - Classification of Towns - Morphology of Urban settlements - concentric zone - Sector - Multiple Nuclei Theories - CBD delimitation of CBD - Rural and Urban Fringe - Urban Fringe - Urban Sprawl - Hierarchy of Urban settlements - Christaller's Central Place Theory - Urban Problems and planning.

UNIT 1.8

Cartography:

Historical development - Maps - Types - Map Design and Layout - Quantitative and Qualitative - representations - Point - Line - Area symbols - Map compilation and generalization - Reproduction of Maps - Computer Applications in cartography.

UNIT 1.9

Quantitative Techniques in Geography:

Sources of data - sampling Techniques - Descriptive and application aspects of correlations (Simple, Multiple, Rank) - Regression - Chi-square Test - F Test - T Test - Gravity and potential models - Centographic measures - Mean and Median centres - and standard distance.

UNIT 1.10

Modern Trends in Geography:

Concept of region - classification - Hierarchy - Regional Planning. Types of planning - Multi level, Tribal Area - Drought prone command Area river Barious of Metropolitan Area planning. Concepts in Remote sensing - Application of Remote sensing - in Environmental studies - Resources inventories - Urban land use planning, Geographical information system (GIS) - System Analysis - Use of Models in geographic reseach.

PAPER - II

GEOGRAPHY OF INDIA AND TAMIL NADU.

UNIT 2.1

Physiography:

Relief - Climate - Floods and drought prone areas Vegetation - Soil

UNIT 2.2

Resources: Fisheries - Sheep and cattle Agriculturist resources: Distribution of Food crops (Rice wheat and Millets) - Plantation (Tea, Coffee, Sugarcane and Rubber) - Fibre crops (cotton and Jute) Agricultural problems - Agriculturist practices in Dry Zone regions - Green Revolution - Globalization of Indian Agriculture.

UNIT 2.3

Mineral Resources: Distribution and production of Coal - Manganese - Mica - Iron ore - Bauxite and copper.

UNIT 2.4

Industries:

Localisation of Iron and Steel Cotton Textile - Cement chemical and Electronic Industry.

UNIT 2.5

Population:

Growth and distribution - Problems Population of policy of Indian - Urbanuzation - Pollution Problems in Indian Cities.

UNIT 2.6

Transport:

Road - Railways - Air and water ways Trade : Internal and International

UNIT 2.7

Planning:

Unevenness of Resources - Problems - Necessity for planning - Centralised and decentralised Sectoral Planning Achievements of VIIIth Plans:- Sallent features of IXth Five Year Plan.

UNIT 2.8

TAMIL NADU:Introduction - Physiography - Climate - Flood and drought prone areas - soil - Vegetation. Resources: Agriculture - Distribution of Rice - Cotton Sugarcane and Tea - Green Revolution.

UNIT 2.9

Mineral Resources: Coal - Iron ore - Manganese Mineral oil. Power Resources: Hydel power- Thermal Power Non Conventional Energy (Wind power) Industries : Cotton Textile - Silk - Cement and paper.

UNIT 2.10

Growth and Distribution - density pattern - Million Cities in Tamil Nadu. Transport: Road ways - and Railways. Planning: Planning Regions of Tamil Nadu - Role of Micro Planning in the Development of Tamil Nadu.

Sociology

**POST GRADUATE DEGREE
STANDARD**

UNIT I

Definition of sociology - Scope - relevance and relation for other social sciences. (Anthropology, Psychology, Economics, History)

UNIT II

Theoretical Perspectives Classical Perspective:- Auguste Comte:- Positivism - Law of Human Progress - Social Statics and Dynamics. Herbert Spencer:- Organic analogy and theory of Evolution. Functionalist Perspective:- Functionalism Durkheim:- Social fact - Mechanical and organic solidarity - suicide. Merton:- Social group - types - Functions and Dys - Functions. System Perspective:- Pareto:- System in equilibrium - logical and non logical action - circulation of elites. Parsons:- Human action - pattern Variables - system and subsystem. Conflict Perspective:- Karl Marx - Economic determinism class struggle - Alienation - nation. Simmel - Theory of conflict perceptions. Interactionist Perspective:- Cooley - Symbolic interaction - looking glass - self. Homans Blau - Social exchange Husserl - Phenomenology

UNIT III

SOCIETY:-

Definition - theories of origin of society - importance of society to the individual. Processes of Socialization - Association - assimilation - competition - conflict. Social groups - types (Primary & Secondary) in group - outgroups - Ethnocentrism. Culture - meaning - Characteristics - function - cultural lag.

UNIT IV

SOCIAL INSTITUTIONS:- Marriage and family as social institutions Economic Institution - economic structure - capitalistic - socialistic - social determinate and consequences of modern economic development - globalization. Religious Institution:- Theories of religion - functions and dysfunctions of religion - secularization - problems of conversion.

UNIT V

Social Stratification:- Types of Status and Role Status and Stratification. Nature of Stratification Theories of Stratification, Forms of Stratification: Caste and Class - Differences. Social Mobility, Types, Factors facilitating Social Mobility and Factors hindering Social mobility.

UNIT VI

Social control:- Meaning, Purpose, Means of Social Control Folkways - Mores - Morals - Religion - Law.

UNIT VII

Social Change:- Social Change, evolution, progress and development, Theories of Social changes: Evolutionary, conflict, Cyclical, challenge and response. Factors of Social Change.

UNIT VIII

Social Demography:- Demographic variables - Fertility - mortality - migration - Population control - incentives and disincentives - India's Population Policy.

UNIT IX

Social Problem:- Definition, Characteristics. Social Problems and Social disorganization. Crime and Juvenile delinquency. Beggary. Alcoholism and drug addiction. Gambling, Prostitution. Gender injustice child Abuse.

UNIT X

Social Movements:-Characteristics of Social movement - Types, conditions under which social movements emerge Role of Social movements in Social change.

PAPER - II

UNIT I

Sociology of Indian Society - Historical Perspective - Hindu view of life - Purusharthas (Human Ideals) Varna (Caste) - Traditional and Modern conceptions of caste system - Role of caste in social and political life - caste conflict - castilism - caste and class.

UNIT II

Institution of marriage in India - Marriage as a sacrament - forms of marriage - Philosophy of Hindu, Muslim and Christian Marriage - Changing trends - social legislation relating to marriage in India - Divorce - alimony.

UNIT III

Family in the Indian context - type of family - patriachal - matriral - joint family - characteristics - above - stages and disadvantages - nuclear family - structure and function - Dis-integration of joint family system in India - social and economic causes.

UNIT IV

Kinship - meaning - types - functions - usages of kinship - avunculate, aunitate - avoidance and jokular relationship - Gotra - tharwad - classificatory terminology of kinship.

UNIT V

a) Tribes of India - Distribution of tribal Population - problems - development - welfare - constitutional safeguards. b) Major Tribes in Tamil Nadu - social, economic and cultural aspects - education development and moderisation.

UNIT VI

a) Rural Community - Socio-cultural dimensions of Village community-rural economy problems of poverty, illiteracy, un-employment and health - Development - Programmes - New Strategies of rural development. b) Urban Community - Socio - cultural dimensions of Indian cities - Social unobility - urban social problems - poverty, slums, crime, alcoholism drug addiction, prostitution-programmes and strategies of urban development.

UNIT VII

Social change - meaning - process of social change samkritization, westernisation, modernization - social change and mass media - legislative and executive measures in social change - Role of Non-governmental organisations (NGOS).

UNIT VIII

Nationlist movement in India - Socio - political background Of national movement in India - Gandhi's contribution - concepts of non violence, satyagraha, and sarvodaya - Gandhi's views on social justice and rural development contemporary.

UNIT IX

Social Movements in India - Dravidian Movement (self Respect Movement) - Backward Class Movement - Dalit movement - Jharkhand movement - Trade Union Movement - Women's movement.

UNIT X

Social Problems in Tamil Nadu caste conflict - communal tension - political violence - corruption - unemployment and child labour.

POST GRADUATE DEGREE STANDARD

Social Work

FOUNDATION AND METHODS IN SOCIAL WORK

1. Social work Profession:

origin and Growth of social work in India. Principles, philosophy and values of social work profession. Role of Social Work in Human Rights and Social Justice.

2. Methods of Social Work :

Social Case Work - Values and principles of Case Work practice - Skills - establishing relationship, mobilizing community resources and dealing with crisis situations - Techniques - environmental modifications, psychological support, providing information, developing insights, use of values - Application of social case work in different settings and different clientele groups.

3. Method of Social Work :

Group Work - Principles and skills in social group work - group processes, group bond, group dynamics, group goals, group roles. Group work recording. Leadership and team building. Application of group work in different settings.

4. Method of social work:

Community organization and community action basic Concepts in understanding community organization. Principles of community organisation. Leadership and community power structure and community dynamics. Scope of community organisation in India. Application of community organisation to different groups. (Children, youth, women), Social action - strategies for social action in India.

5. Social Work Research:

Scope and limitations, scientific attitude and scientific method. Research design - exploratory, descriptive, experimental, evaluative. Case study, survey. Tools of data collection - questionnaire, observation, interview schedule. Participatory and action research. Sampling techniques, scaling techniques. Processing and presentation of data.

6. Application of Social Work Statistics:

Methods of testing validity. Measures of central tendency - arithmetic mean, median and mode. Measures of dispersion - range, mean deviation, standard deviation, quartile deviation. Chi-square test. Correlation. Research reporting - contents and format.

7. Individual and Society :

Elements of society - groups community, association and institution. Culture - functions of culture, cultural lag. Socialisation, process of socialisation, role and status, social stratification, caste and class and social mobility. Social inequality. Social change, westernisation, Modernisation, Easternisation. Impact of social change in Indian Society.

8. Human growth and development:

(Relevance of Psychology for social work practice, Human growth and development with special reference for physical social and emotional aspects of developmental states, concept of normality and abnormality. Role of social worker in promoting community mental health. Medical information: malnutrition, deficiency diseases. Role of social worker in promoting community - health.

9. Social Policy and Social Legislation :

Constitution of India as major source of social policy. Social policy regarding women, children, weaker sections handicapped, health, housing, population and education. Reports of commission for backward classes, scheduled castes. Social legislations as an instrument of social change. Personal laws

applicable to Hindus, Muslims and Christian. The Child Labour (Prevention and Regulation act) The Protection of Civil Rights Act, 1995, Consumer Protection Act, Legal Aid Movement - their role in social justice, Public Interest Litigations.

10. Management of Welfare Organisations :

Role of voluntary and governmental organisations in social welfare. Scope for scientific management in welfare organisation. Application of social work principles in management of welfare organisations. Functions of management (Goal setting, policy making, planning, directing, staffing, communicating, budgeting, public relations, reporting, evaluation). Management of human resources. Project proposal, fund raising techniques. Administration of government departments, Department of social welfare, State Social Welfare Board and Central Social Welfare Board.

PAPER - II

PERSPECTIVES AND PRACTICES OF SOCIAL WORK PROFESSION SOCIAL WORK

1. Concepts:

Health, community health, primary health care, public health, community psychiatry, rehabilitation, mental health, psychosis, neurosis, mental retardation, mental illness. Balanced diet, malnutrition. Rural community development, urban community development, poverty, poverty line, community development, development planning. Youth, family, family welfare, child welfare, street children, adoption, feminism. Labour welfare, industrial relations, human resource development and human resource management

2. Issues and Problems :

Major communicable diseases (Leprosy, TB, STD, poliomyelitis, hepatitis, AIDS, diarrhoeal diseases, malaria, cholera, typhoid) Major non-communicable diseases (Cancer, asthma, diabetes, hypertension, cardiovascular diseases). Physical disabilities (hard of hearing, speech impairment, visual impairment, locomotor handicap). Environmental factors affecting health. Occupational health. Personality and psychiatric disorders (schizoid, hysterical, psychopathic, anxiety state, obsessive - compulsive, phobia). Status of women in family, education, health, employment, - violence against women - dowry, divorce, maintenance, commercial sex workers inheritance and human rights of women. Children - child labour, child's rights, children in special circumstances and special care, juvenile delinquency, street children, female children, education of children, child abuse. Youth - career, identity crisis, drug addiction, alcoholism, suicidal tendencies. Aged- problems of aged. Labour issues - disablement, alcoholism, drug addiction, workers participation in management, unemployment. rural - poverty, unemployment, landless agricultural labourers, bonded labour, land reforms. Urban - slums, lack of amenities, housing, deviant behaviour, employment, environmental degradation.

3. International and National Organisations:

WHO, UNICEF, ILO, UNO, International Federation of Trade Unions, MISEREOR an International funding agency, OXFAM, DANIDA, CSWB, SSWB, Department of Social Welfare in Tamil Nadu, Indian Red Cross, NIMHANS, National Institutes for the handicapped. CARE, ICMR, MMDA, Tamil Nadu Slum Clearance Board, HUDCO, Corporation of Chennai, INTUC, AITUC, Youth Hostel Association of India, Hindustan Mazdoor Sabha, United Trade Union Congress, Centre of Indian Trade Unions, Employers Federation of India. Nehru Yuvak Kendra, YMCA, National Institute of Personnel management, HRD Network, Indian Society of Training and development, SOS Children's village, National commission on women.

4. Programmes:

IRDP, NREP, RLEGP, TRYSEM, Panchayati Raj, Community development programme, minimum needs programme, iodine deficiency disease programme, national programme for control of blindness, 20 point programme, ICDS, MCH, Universal immunisation programme, National Malaria Eradication Programme, National Mental health Programme, National Leprosy Eradication Programme, STD control programme, AIDS control programme, school health programme, noon day meals scheme, non-governmental

programmes for the elderly, NSS, ESI, Provident fund, crche, Foster care, sponsorship and adoption, social advocacy, social campaigning.

5. Social Work Intervention in Different Settings:

Medical and psychiatric special settings - De addiction centres, child guidance clinic, special schools for mentally retarded, day care centre, social support system, self help groups, physical and mental rehabilitation centres, community based rehabilitation, shelter homes, recreational therapy, occupational therapy, individual and group therapy, client centred, crisis intervention. Family and child welfare - Institutional care, day care, geriatric care, family therapy, group therapy, family case work and counseling. Community development - Awareness building, identifying leaders, organising, activating, enlisting people's participation, negotiating, and lobbying and resource mobilising. Resolving group conflicts, programme planning and service delivery, developing human resources, monitoring and evaluation. Labour welfare - conflict reduction, strategies, industrial counselling, group dynamics, casework intervention - crisis intervention.

6. Approaches:

Classical approach, neo classical, mechanistic, decision making, systems approach, client centered, Gandhian, Nehruvian, participatory, evaluative, behavioural, task centered, crisis intervention, cognitive behavioural, eclectic, resource based, institutional, community based, person centred, and integrated approach.

7. Social Movements:

Social reform movements, Arya Samaj, Brahma Samaj, Ramakrishna Mission, Dravidian Movement, Sati abolition, child marriage abolition, women's movements in the 19th century, feminist movement, abolition of child labour, Telenga Movement, Naxal Bari movement, Trade union movements.

8. Social Legislation:

Health legislations. Urban Slum Areas Clearance Act. Juvenile Justice Act. Child Labour Abolition Act. Factories Act. Industrial Disputes Act. Maternity Benefit Act. Medical Termination of Pregnancy Act 1971.

9. Modern management techniques and practices:

Scientific recruitment. Transaction analysis. Management by objectives. Reward and punishment. Human resource development. training and development. Organisational methods and services. Business process reengineering. Participation in management. Quality of work life. Quality of life. Performance appraisal and merit rating. performance budgeting. Incentives. Motivation. Morale building. Group dynamics. New styles and approaches in management of organisation. Office automation.

10. Communication, Counselling and Practical Work:

Counselling defined, types of counselling. Expectation of counselling. Goals of counselling. Counselling process. Counselling techniques. Counselling in special situation (family counselling, Alcoholic, Drug, Crisis, premarital and career counselling). Skills of communication (verbal, non verbal, written, visual) - questioning, reinforcement, listening, reflecting, exploring. Barriers in communication. use of media in communication. Mass Media Research (media - exhibition, film, press, radio, TV local of traditional media). Field work - relevance of field work in social work. Concurrent field work - types of agencies several orientation to field work agencies. Study tour, Rural camp. Block placements. Group and Individual conference, weekly reports case histories.

ANNEXURE - II B

ALL TECHNICAL POST MAIN EXAMINATION

General Studies

Degree / P.G Degree Standard

Topics for Objective Type

Unit-I General science :

Physics Universe-General Scientific laws-Scientific instruments-Inventions and discoveries-National scientific laboratories-Science glossary-Mechanics and properties of matter-Physical quantities, standards and units-Force, motion and energy-Electricity and Magnetism, Electronics and Communication -Heat, light and sound-Atomic and nuclear physics-Solid State Physics – Spectroscopy- Geophysics - Astronomy and space science

Chemistry Elements and Compounds-Acids, bases and salts-Oxidation and reduction-Chemistry of ores and metals-Carbon, nitrogen and their compounds-Fertilizers, pesticides, insecticides-Biochemistry and biotechnology-Electrochemistry-Polymers and plastics

Botany-Main Concepts of life science-The cell-basic unit of life-Classification of living organism-Nutrition and dietetics-Respiration-Excretion of metabolic waste-Bio-communication

Zoology-Blood and blood circulation-Endocrine system-Reproductive system-Genetics the science of heredity-Environment, ecology, health and hygiene, Bio- diversity and its conservation-Human diseases-Communicable diseases and non- communicable diseases- prevention and remedies- Alcoholism and drug abuse-Animals, plants and human life

Unit- II. Current Events

History--Latest diary of events – National--National symbols-Profile of States-Defence, national security and terrorism-World organizations-pacts and summits-Eminent persons & places in news-Sports & games-Books & authors -Awards & honours-Cultural panorama-Latest historical events-- India and its neighbours-- Latest terminology-Appointments-who is who?

Political Science-1. India's foreign policy-2. Latest court verdicts – public opinion-3. Problems in conduct of public elections-4. Political parties and political system in India-5. Public awareness & General administration-6. Role of Voluntary organizations & Govt.,-7. Welfare oriented govt. schemes, their utility

Geography Geographical landmarks-Policy on environment and ecology—

Economics--Current socio-economic problems-New economic policy & govt. sector

Science-Latest inventions on science & technology-Latest discoveries in Health Science-Mass media & communication

Unit-III. Geography

Earth and Universe-Solar system-Atmosphere hydrosphere, lithosphere-Monsoon, rainfall, weather and climate-Water resources --- rivers in India-Soil, minerals & natural resources-Natural vegetation-Forest & wildlife-Agricultural pattern, livestock & fisheries-Transport including Surface transport & communication-Social geography –

population-density and distribution-Natural calamities – disaster management-Climate change - impact and consequences - mitigation measures-Pollution Control

Unit-IV. History and culture of India

Pre-historic events--Indus valley civilization-Vedic, Aryan and Sangam age-Maurya dynasty-Buddhism and Jainism-Guptas, Delhi Sultans, Mughals and Marathas-Age of Vijayanagaram and the bahmanis-South Indian history-Culture and Heritage of Tamil people-Advent of European invasion-Expansion and consolidation of British rule-Effect of British rule on socio-economic factors-Social reforms and religious movements-India since independence-Characteristics of Indian culture-Unity in diversity –race, colour, language, custom-India-as secular state-Organizations for fine arts, dance, drama, music-Growth of rationalist, Dravidian movement in TN-Political parties and populist schemes-Prominent personalities in the various spheres – Arts, Science, literature and Philosophy – Mother Teresa, Swami Vivekananda, Pandit Ravishankar , M.S.Subbulakshmi, Rukmani Arundel and J.Krishnamoorthy etc.

Unit-V INDIAN POLITY

Constitution of India-. Preamble to the constitution- Salient features of constitution- Union, State and territory- Citizenship-rights amend duties- Fundamental rights-Fundamental duties- Human rights charter- Union legislature – Parliament- State executive- State Legislature – assembly- Status of Jammu & Kashmir- Local government – panchayat raj – Tamil Nadu- Judiciary in India – Rule of law/Due process of law-Indian federalism – center – state relations-. Emergency provisions- Civil services in India- Administrative challenges in a welfare state- Complexities of district administration- Elections - Election Commission Union and State. Official language and Schedule-VIII- Amendments to constitution- Schedules to constitution-. Administrative reforms & tribunals- Corruption in public life- Anti-corruption measures – Central Vigilance Commission, lok-adalats, Ombudsman, – Comptroller and Auditor General of India- Right to information - Central and State Commission- Empowerment of women- Voluntary organizations and public grievances Redressal- Consumer protection forms

Unit- VI. Indian economy

Nature of Indian economy-Need for economic planning-Five-year plan models-an assessment-Land reforms & agriculture-Application of science in agriculture-Industrial growth-Capital formation and investment-Role of public sector & disinvestment-Development of infrastructure- National income- Public finance & fiscal policy- Price policy & public distribution- Banking, money & monetary policy- Role of Foreign Direct Investment (FDI)- WTO-globalization & privatization- Rural welfare oriented programmes- Social sector problems – population, education, health, employment, poverty-HRD – sustainable economic growth- Economic trends in Tamil Nadu -Energy Different sources and development- Finance Commission -Planning Commission- National Development Council

Unit-VI. Indian national movement

National renaissance-Early uprising against British rule-1857 Revolt- Indian National Congress-Emergence of national leaders-Gandhi, Nehru, Tagore, Nethaji -Growth of militant movements -Different modes of agitations-Era of different Acts & Pacts-World war & final phase struggle-Communalism led to partition-Role of Tamil Nadu in freedom struggle - Rajaji, VOC, Periyar, Bharathiar & Others-Birth of political parties /political system in India since independence-

Unit-VII. APTITUDE & MENTAL ABILITY TESTS

Conversion of information to data-Collection, compilation and presentation of data - Tables, graphs, diagrams-Parametric representation of data-Analytical interpretation of data -Simplification-Percentage-Highest Common Factor (HCF)-Lowest Common Multiple (LCM)-Ratio and Proportion-Simple interest-Compound interest-Area-Volume-Time and Work-Behavioral ability -Basic terms, Communications in information technology-Application of Information and Communication Technology (ICT)- Decision making and problem solving-Logical Reasoning-Puzzles-Dice-Visual Reasoning-Alpha numeric Reasoning-Number Series-Logical Number/Alphabetical/Diagrammatic Sequences-

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