



TAMIL NADU PUBLIC SERVICE COMMISSION

NOTIFICATION NO:10/ 2014
ADVERTISEMENT NO.:389

DATED: 23.06.2014.

Applications are invited only through online mode upto 16.07.2014 for Direct Recruitment to the vacancies in the following post:-

Name of the Post and Post Code	Name of the Service and Code No.	Number of vacancies	Scale of pay
STATISTICAL INSPECTOR (2013 - 2015) (Post Code. 1697)	Tamil Nadu Animal Husbandry Subordinate Service (Code No. 020)	6 GT (PSTM)- 1 BC (PSTM)- 1 BC-1 BC(M)-1 MBC/DC-1 SC(W)-1	Rs.9,300-34,800/- (PB2) + 4,800/- Grade Pay

Abbreviation:- GT -General Turn, BC-Backward Class, BC(M) - Backward Class (Muslim), MBC/DC- Most Backward Class/Denotified Community, SC- Scheduled Caste, PSTM-Persons Studied in Tamil Medium, W-Woman.

2. **IMPORTANT DATES:-**

A	Date of Notification	23.06.2014	
B	Last date for submission of applications	16.07.2014	
C	Last date for payment of Fee through Bank or Post Office	18.07.2014	
Date and Time of Main Examination (Computer Based Test)			
D	Paper - I (Optional Subject)	11.10.2014 FN	10.00 A.M. to 01.00 P.M.
	Paper - II (General Studies)	11.10.2014 AN	02.30 P.M. to 04.30 P.M.

3. **QUALIFICATIONS:-**

(A) **AGE** (as on 01.07.2014)

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 and more 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 23.06.2014) :-

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 grant:

**“A Degree in Statistics or Mathematics
as the main subject”**

Note:-

- a) The Qualification mentioned above should have been obtained in the order of studies viz. SSLC, HSC (or its equivalent) and U.G.Degree.
- b) Persons claiming equivalence of qualification should upload evidence for such claim when called for, failing which their application will be summarily rejected.
(For further details refer para 9 of the ‘Instructions to the Candidates’).

4. GENERAL INFORMATION:-

- A. The rule of reservation of appointments applies to this post.
- B. In G.O.Ms.No.145, Personnel and Administrative Reforms (S) Department, dated 30.09.2010, the Government have issued orders to fill up 20% of all vacancies in Direct Recruitment on preferential basis to persons studied the **prescribed qualification** in Tamil Medium. The turns for PSTM reservation will be as ordered in G.O.(Ms).No.40 Personnel and Administrative Reforms (S) Department, dated 30.04.2014. The 20% reservation of vacancies on preferential allotment to **Persons Studied in Tamil Medium (PSTM)** will apply for this recruitment. (Candidates claiming this reservation should have studied the prescribed qualification for the post in Tamil Medium and should have the certificate for the same. Having written the examinations in Tamil language alone will not qualify for claiming this reservation). If the candidates with PSTM are not available for selection for appointment against reserved turn such turn shall be filled up by Non-PSTM candidates but belonging to the particular communal category. Regarding the PSTM reservation certificate shall be produced / uploaded by the candidate as it has been in prescribed format available in the Commission’s website at www.tnpsc.gov.in which may be obtained from the Head of the institution.

(For further details please refer para 27 (19) of the ‘Instructions to the Candidates’)

- C. The number of vacancies advertised is only approximate and is liable for modification including reduction with reference to the vacancy position at any time before finalisation of selection.
- D. If no qualified and suitable women candidates are available for selection against the vacancies reserved for them, those vacancies will be filled by male candidates belonging to the respective communal categories.

E. 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.

- F. In G.O.(Ms).No.53, Social Welfare and Nutritious Meal Programme, dated 11.04.2005 and G.O.Ms.No.25 Welfare of Differently Abled Persons (DAP2.1) Department dated 14.03.2013, the post of Statistical Inspector in Tamil Nadu Animal Husbandry Subordinate Service has not been identified as suitable for Differently Abled person. Hence reservation to differently abled person will not apply for this recruitment. However, they can apply and should upload the documents referred to in **para 14 (f)** of the Commission's 'Instructions to the candidates' when called for.
- G. Reservation to "Destitute Widows" and "Ex-Service Men" will not apply to this recruitment.
- H. Even after filling up of the posts reserved for SC Arunthathiyars on preferential basis, if more number of qualified Arunthathiyars are available, they shall be entitled to compete with the Scheduled Castes other than Arunthathiyars in the inter-se merit among them and if any posts reserved for Arunthathiyars remain unfilled for want of adequate number of qualified candidates, it shall be filled up by Scheduled Castes other than Arunthathiyars.
- I. 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.
- J. Information regarding arrest, convictions/debarment/disqualification by any recruiting agency, criminal or any disciplinary proceedings initiated or 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.

K. 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.

L. **Applications containing wrong claims relating to category of reservation/ age / educational qualification will be liable for rejection.**

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

Subject	Duration	Maximum Marks	Minimum Qualifying Marks for selection	
			SCs, SC(A)s, STs, MBCs / DCs, BCs and BCMs	Others
<u>Computer Based Test</u>				
1. Paper-I (200 questions) <u>Single paper in any one of the following subjects in Degree Standard</u>	3 hours	300	171	228
Mathematics (Code No.073) Statistics (Code No. 111)				
2. Paper-II (100 questions) General Studies (Degree Standard)	2 hours	200		
Interview and Records		70		
Total		570		

Note:-

- Candidates should specify the subject in which they wish to be examined. They should choose only the subject in which they have obtained the prescribed qualification.
- The question paper in all the subjects will be set both in Tamil and English.
- The syllabus for the subject Mathematics (code No. 073) at page number 882-884 and Statistics (code No. 111) at page number 981 have been published in the Tamil Nadu Public Service Commission Bulletin No.11, dated 16.05.2001.
- The syllabi for the subjects mentioned in paper I & II are also available in the Commission's Website 'www.tnpsc.gov.in' and also furnished at Annexure-I to this Notification.

Computer Based Test (CBT):

The candidate has to appear for the examination where he 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 Commissions 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 the following Centres.

Sl. No.	Name of the Centre	Centre Code
1.	Chennai	0100
2.	Coimbatore	0200
3.	Madurai	1000

Note:-

1. Candidates should choose the any one of the above centres and appear for the examination at their own expense.
2. Request for change of centre will not be complied with.
3. The Commission reserves the right to increase or decrease the number of examination centres 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. (For further details refer paragraph 21(b) of the 'Instructions to the candidates').

8. EXAMINATION FEE:-

- Examination fee Rs.150/- (Examination Fee Rs.100/- + Cost of Application Rs.50/-) (Rupees One Hundred and Fifty only)
- Candidates claiming exemption from examination fee should pay Rs.50/- towards Application Cost. (No exemption for cost of application)
- Candidates have also to pay the service charges applicable to the Bank or Post Office or Fee Processing Agency.
- Candidates can avail of the facility of one time Registration 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.
- **Payment of fee other than online payment / offline payment viz., in the form of DD / Postal Order etc., will not be accepted and the fee will not ordinarily be refunded.**
- Those who have registered in the **one time** registration system and paid the registration fee of Rs.50/- and received the registration ID **need not pay** the application fee i.e. Rs.50/- and it is enough to pay the examination fee alone.

- Candidates who have made **One - Time Registration must apply for the notified posts. One - Time Registration** is only to avail exemption for application fee for a period of 5 years from the date of Registration.

(For further details regarding the Examination fee concessions refer para 12 of the 'Instructions to the candidates').

9. **NO OBJECTION CERTIFICATE:-**

For details refer para 15 (g) of the Commission's 'Instructions to the candidates'.

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:-**

- Candidates should apply only through online in the Commission's Website www.tnpsc.gov.in or in www.tnpscexams.net
- Before applying, the candidates should have scanned image of their photograph and signature in CD/DVD/Pen drive as per their convenience.
- A valid e-mail ID or Mobile Number is mandatory for registration and e-mail ID should be kept active till the declaration of results. Candidates are cautioned to keep your e-mail ID and password confidentially. TNPSC will send Hall Tickets (Memorandum of Admission) for Main Examination in Computer Based Test Format, Interview Call Letters, Other Memos etc. to the registered/given e-mail ID only.
- All the particulars mentioned in the online application including Name of the Candidate, Post Applied, Communal Category, Date of birth, Address, e-mail ID, Centre of Examination etc. will be considered as final and **no modifications will be allowed after the last date specified for applying online**. Since certain fields are firm and fixed and cannot be edited, candidates are requested to fill in the online application form with the utmost care and caution as no correspondence regarding change of details will be entertained.
- The candidates who wish to receive SMS should register their mobile number in the application.

11(A) **Applying Online:-**

- 1) Candidates are first required to log on to the TNPSC's website www.tnpsc.gov.in or www.tnpscexams.net.

- 2) Click "Apply Online" to open up the On-Line Application Form.
- 3) Select the name of the post or service for which you wish to apply.
- 4) If you already have Unique ID, enter the Unique ID and password to view the already available information and update them, if necessary.
- 5) If you do not have valid ID, enter all the required particulars without skipping any field.
- 6) Candidates are required to upload their latest photograph and signature as per the specifications given in the Guidelines for Scanning and Upload of Photograph and Signature. **An online application uploaded without the photograph and signature will be rejected.**

Note : Candidate who have One Time Registration ID (Unique ID) and password, have to apply separately for all notifications. **One Time Registration will not be considered as an application for any post.**

11(B) Mode of Fee Payment:-

Select the mode of payment (Online Payment/Offline Payment).

11(C) Online Payment (Net Banking, Credit card/Debit card) :-

- 1) In case candidates who wish to pay fees through the online payment gateway, i.e. Net Banking, Credit Card and Debit card Payment, **an additional page of the application form will be displayed** wherein candidates may follow the instructions and fill in the requisite details to make payment.
- 2) After submitting your payment information in the online application form, wait for the intimation from the server, **DO NOT press Back or Refresh button in order to avoid double charge.**
- 3) If the online transaction has been successfully completed a Registration Number and Password will be generated. Candidates should note their Application Number and Password for future reference in respect of the post applied for.

11(D) Offline Payment (Post Office or Indian Bank) :-

- 1) For offline mode of payment candidates have to select either Post Office or Indian Bank Branch.
- 2) Click "SUBMIT" to submit the Application form.
- 3) Candidates will be provided with Application Number and password. Please note down the Application Number and password.
- 4) On Submission, system will generate the payment challan which the candidate need to

take print out and go to the nearest branch of Indian bank or the Designated Post Offices as the case may be, to make the payment.

- 5) Collect the candidate's copy of the fee payment Challan from the Branch. Check that the Challan is properly signed and the details of Transaction Number, Branch Name and DP Code Number, Deposit Date have been noted in the Challan by the Branch authorities.
- 6) Online Application Registration will be taken as successful one, only if the payment is made either in the post office or in the Indian Bank **within two working days from the date of registration/submission of application.**

11(E) Print Option:-

- 1) After submitting the application, candidates can print /save their application in PDF format.
- 2) On entering Application Number and password, Candidates can download their application and print, if required.
- 3) Candidates need not send the printout of the online application or any other supporting documents to the Commission. The certificates will be verified only when the candidates come up for next stage of selection.

Note:-

- I. Candidates are advised in their own interest to apply on-line much before the closing date and not to wait till the last date for depositing the fee/ intimation charges to avoid the possibility of disconnection/inability/failure to log on the TNPSC's website on account of heavy load on internet/website jam.
- II. TNPSC does not assume any responsibility for the candidates not being able to submit their applications within the last date on account of the aforesaid reasons or for any other reason beyond the control of the TNPSC.
- III. Under no circumstances, a candidate should share/mention e-mail ID or Mobile Number to any other person. In case a candidate does not have a valid personal e-mail ID, they should create a new e-mail ID before applying on-line and must maintain that email account.
- IV. There is a provision to modify the submitted Online Application. Candidates are requested to make use of this facility to correct their details in the Online Application if any. This modification facility will be available up to the last date for applying online for the particular post. After this date, no modification will be permitted. Candidates should take utmost care and caution while filling in the Online Application. Please note that no modification in fee payment details will be permitted for candidates who pay fees/ intimation charges through the online mode. Since certain fields are firm, fixed and cannot be edited,

candidates are requested to fill in the online application form with the utmost care and caution as no correspondence regarding change of details will be entertained.

- v. Candidates should carefully fill in the details in the On-Line Application at the appropriate places and click on the "SUBMIT" button at the end of the On-Line Application format. Before pressing the "SUBMIT" button, candidates are advised to verify each and every particular column filled in the application. The name of the candidate or his /her father/spouse etc. should be spelt correctly in the application as it appears in the certificates/mark sheets. Any change/alteration found may disqualify the candidature.
- vi. Request for change/correction in any particulars in the Application Form shall not be entertained under any circumstances AFTER THE LAST DATE FOR Editing/ Updating application details specified. TNPSC will not be responsible for any consequences arising out of furnishing of incorrect and incomplete details in the application or omission to provide the required details in the application form.
- vii. Commission is not responsible for the online payment failure.
- viii. Any clarification may be obtained from the Help Desk (No. 1800 425 1002)

12. OTHER IMPORTANT INSTRUCTIONS:-

- a. **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.
- b. **How to apply:** Candidates are required to apply Online by using the website www.tnpsc.gov.in or www.tnpscexams.net Detailed instructions for filling up online application are given in Para 11 of this Notification.
- c. The Hall Tickets for eligible candidates will be made available in the Commission's Website www.tnpsc.gov.in or www.tnpscexams.net for downloading by candidates. No Hall Tickets will be sent by post.
- d. **Grievance Redressal Cell 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 - 25300300 or Toll-Free No. 1800 425 1002 on all working days between 10.00 a.m. and 05.45 p.m.
- e. **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.
- f. Candidates are not required to submit along with their application any certificates in support of their claims regarding Age, Educational Qualifications, 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. Main Examination in Computer Based Test Format 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 Main Examination in Computer Based Test Format 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.
- g. If any of their claims is found to be incorrect, they may render themselves liable to disciplinary action by the Commission.
- h. **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.
- i. **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 filled upto 16.07.2014 till 11.59 p.m.. after which the link will be disabled

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

Secretary

ANNEXURE - I

STATISTICS

DEGREE STANDARD

UNIT I

Uses, Scope and limitation of Statistics, Collection Classification and tabulation of data, Diagrammatic and Graphical representation, Measures of location, dispersion, Skewness and Kurtosis.

UNIT II

Probability - Addition, multiplication and Bay's Theorems and their application. Tchebychev's inequality. Random variables - Univariate and Bivariate - probability distributions - Marginal and conditional distributions - Expectations - Moments and cumulants generating functions Discrete distributions - Binomial, poisson, Geometric and Hypergeometric. Continuous distributions - Uniform, exponential and normal.

UNIT III

Curve Fitting - Linear and Quadratic equation by the method of least squares. Correlation and regression.

UNIT IV

Population and sample - Parameter and statistic, sampling distributions and standard error, student's 't' Chi-square and F statistic - distributions and their applications.

UNIT V

Estimation - Point estimation - properties of estimates Neyman - Fisher Factorization theorem (without proof) Cramer - Rao inequality, Rao - Blackwell theorem - MLE and method of Moments estimation - Interval estimation - for population mean and variance based on small and large samples.

UNIT VI

Tests of Hypothesis - Null and Alternative - Types of errors - Power of test, Neyman - Pearson lemma, UMP and Likelihood ratio tests, Test procedures for large and small samples - Independence of attributes, Chi-square test - Goodness of fit.

UNIT VII

Simple random sample - stratified, systematic, Cluster (Single stage) Estimation of mean and variance in SKS - Sample Survey - Organisation - CSO and NSSO - Sampling and Non-Sampling errors.

UNIT VIII

Analysis of Variance - Principles of design CRD, Rbd and LSD - Factorial experiments 2², 2³ and 3² (Without confounding) Missing plot techniques.

UNIT IX

Concept of SQC - Control Charts - X, R, p and C-Charts Acceptance sampling plan - single and double - oc curves Attributes and Variables plan, Reliability.

UNIT X

Time series - Different Components - Trend and Seasonal Variations - Determination and elimination.

UNIT - XI

Index Numbers - Construction and uses - Different kinds of simple and weighted index numbers - Reversal tests - construction and use of cost of living index numbers.

UNIT-XII

OR Models - Linear Programming problems - Simplex method Dual - Primal, Assignment problems, Net work - CPM and PERT.

UNIT XIII

Basic programming - variables, constants and strings, flow charts - Basic expression and control statements, standard Library functions, subscripted variables DIM and DATA statements simple programming problems. Birth and death rates - Crude and standard death rates, Fertility rates - Life table construction and uses.

MATHEMATICS

DEGREE STANDARD

UNIT I

Basic Mathematics:

Binomial, Exponential, Logarithmic series, summation of infinite series and approximation problems. L'Hospital's rule, point wise convergence of sequence of functions, uniform convergence of sequences of functions, Consequences of Uniform convergence, Taylor's series.

Theory of numbers :

Prime and Composite numbers - Decomposition of composite number, Divisor of N , Euler function ($\phi(N)$), Highest power of prime p contained in N . Divisibility of the product of r consecutive integers by $r!$ Fermat's & Wilson's Theorems.

Vector Spaces & Inner product spaces :

Definitions and equation of Vector space, subspace, linear Independence - bases - Dimension, Dual spaces, Inner products Spaces Orthogonality - Orthogonal complement.

UNIT II

ANALYTICAL GEOMETRY:

Pairs of Straight lines - Angle between them - related problems - conditions for second degree equation to represent pair of straight line or Circle - System of Circles - Orthogonal and Coaxial system - Radical axis and radical centre - Limiting point - conics - parabola, ellipse and hyperbola - polar equations to straight line, circle and conic.

Dimensions :

Equation of a sphere with given centre and radius - General form of the equation of a sphere - Diameter from - Circular section, tangent plane to a sphere - Radical plane - Coaxial system of spheres - Orthogonality - Equation of a Cone with its Vertex at the origin - Equation of a quadratic cone with given vertex and given guiding curve - necessary and sufficient condition for a general second degree equation to represent a cone, right circular cone - equation of enveloping cone - general equation of a cylinder - right circular cylinder.

UNIT III

CALCULUS:

Differential: -

Higher order derivatives Leibnitz's theorem - simple problems using the above theorem. Maxima and Minima - conditions for external value - Standard function only - curvature - radius of curvature (Cartesian Co-ordinates only)

Partial Differentiation:

Total differentiation Coefficient, Value of dy/dx and d^2y/dx^2 in case of implicit functions in x and y in terms of partial derivatives, Total differential, Jacobians.

Integral:

Methods of integration, Integration of rational and irrational algebraic functions, Bernoulli's formula for Integration by parts, reduction formulae - properties of definite Integrals.

Evaluation of double and triple integrals, change of order of integration, Double Integrals in polar Co-ordinates, application of double & triple Integrals to area, volume. Evaluation of Definite integrals using Beta and gamma functions.

UNIT IV

STATICS:

Gradient, Divergence, Curl, solenoidal & irrotational vectors, Directional derivative, Unit vector normal to a surface, tangent and normal planes to a surface, expansion formulae, Ordinary integrals of Vectors, line integrals, surface integrals and volume Integrals. Gauss's theorem, Green's theorems.

Parallelogram and Triangle laws of force, Lamis theorem, parallel forces, moments, couples, three forces acting on a rigid body, conditions for equilibrium of Co-planar forces.

Forces in 3 dimensions, Invariance of F_2 , Friction, Centre of Gravity, method of symmetry for uniform bodies like thin rod, thin parallelogram, Circular ring & lamina triangular lamina, trapezium lamina.

UNIT V

REAL ANALYSIS:

Set and functions, sequences of real numbers - Definition, Limit, Convergent and divergent sequences, bounded sequences, monotonic sequence, series of real numbers, limit superior, Limit inferior, Cauchy, Sequence, convergent & divergent sequence, series with non-negative terms, alternating series.

Series of real numbers:

rearrangement of series, Tests of absolute Convergence.

Limits & metric spaces:

Limit of a function on the real line, metric spaces, limits in metric spaces. Continuous functions on metric spaces, functions continuous at a point on the real line, reformulation, function continuous on a metric space, open sets, closed sets, Discontinuous functions on 'R' Connectedness, Complexness and Compactness.

UNIT VI

OPERATIONS RESEARCH AND LINER PROGRAMMING:

Origin and development of O.R. - Nature and characteristics of O.R. Models in O.R. General solutions, methods for O.R. models - uses and limitations of O.R.

Linear Programming:

Formulation of problems, Graphical solution - standard form. Definition of basic solution. degenerate Simplex method, Definition of artificial variable.

Transportation problem:

Definition solutions to transport problem - initial feasible solution - optimality test - Degeneracy -

Travelling sales man problem

Sequencing:

Processing n jobs through m machines.

UNIT VII

ALGEBRA:

Set theory - Relations - types of relations - Venn diagram - Groups - Sub group - order of an element - cyclic groups - normal groups-quotient groups - order of a Group Lagrange's theorem - homomorphism, automorphisms, Cayley's theorem of permutation groups.

Rings:

Definition, examples - special classes of rings - Homomorphism, ideals and quotient rings - field of quotients of an integral domain - Euclidean rings.

Matrices:

Types of matrices - operation on matrices, singular and non singular matrices - Rank of a matrix and consistency of equation, eigen values & eigen vectors. Cayley - Hamilton theorem. Similar matrices, Diagonalisation of a matrix.

UNIT VIII

DIFFERENTIAL GEOMETRY:

Curvature, Radius and centre of curvature in Cartesian Co-ordinates, Evaluate - curvature in Polar Co-ordinates, p-r equations, Angle between radius vector and tangent, Angle of intersection of two curves. Pedal equation of a curve, Envelopes, Asymptotes.

Polar Co-ordinates :

Equations of straight line, Circle in polars - equations of tangent, normal & polar Equations of Conics in polars - equations of tangent, normal, polar & asymptotes.

UNIT IX

DIFFERENTIAL EQUATIONS:

Ordinary differential equations - first order but not of first degree. Total differential equation $Pdx + Qdy + Rdz = 0$, second order differential equations with constant Co-efficients. P.I. for the polynomials and e^{ax} , where V is X^n , $\cos mx$, $\sin mx$, n and m are constants. Differential equations of second order with variable Co-efficients. Partial differential equations - formation of partial differential equations by elimination - Laplace transforms - Inverse laplace transform.

UNIT X

Dynamics:

Virtual displacement, Principle of Virtual work.

Kinematic:

Velocity, Acceleration, components of velocity and acceleration work power, energy, Rectilinear motion - motion with constant acceleration - motion under gravity - motion along an inclined plane, motion under gravity in a resisting medium.

Impulsive forces and Impact:

Impulsive forces and Impact, Principles of Conservation of linear momentum, Collision of two smooth spheres - Direct impact of sphere on a fixed plane.

Projectiles: Two dimensions motion of a particle - projectile, range on a horizontal plane - range on an inclined plane.

Circular motion of a particle:

Motion of a particle constrained to move along a smooth verticle circle under gravity - circular pendulum - simpel pendulum.

Moments of Inertia:

Momentsof Inertia of simple bodies of paralle and perpendicular axed theorem. Motion of a rigid body about a fixed axis.

UNIT XI

STATISTICS:

Frequency distributions - Graphs of frequency distribution, measures of central tendency, measures of dispresion, normal probability curve, skewness, kur tosis, Probability - Addition and multiplicaiton theorem. Baye's theorem.

Probability Distributions :

Binomial, Poisson, Normal Bivariate data, Curve fitting - Method of least squares. Correlation and regression Coefficient - Regression lines - rank Correlation. Test of hypothesis - uses of X² - F tests - Tests involving means - Variances and proportions test of fit, test of independence in contingency table.

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-N atural 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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