

DRAFT ADVERTISEMENT
GOVERNMENT OF INDIA, MINISTRY OF DEFENCE
CORDITE FACTORY, ARUVANKADU, THE NILGIRIS - 643 202
A UNIT OF ORDNANCE FACTORY BOARD

Applications are invited for the following Group C & B posts from the citizens of India who are fulfilling the requisite qualification/specification as mentioned against each posts.

The Ex-Trade apprentices of Ordnance Factories can also apply against this advertisement.

Sl. No	Name of the post	Pay Scale	Total No. of vacancies	UR	OBC	SC	ST	PHP*	ExSM
1.	Chemical Process Worker 'SS'	₹ 5200 - 20200/- + 1800/- Grade pay	140	58	51	30	01	-	04
2.	Multi-Tasking Staff	₹ 5200 - 20200/- + 1800/- Grade pay	23	13	06	04	-	4 (OA, OL, OAL, BL, B, LV, H, C)	04
3.	Durwan	₹ 5200 - 20200/- + 1800/- Grade pay	12	06	03	02	01	(OA)	06
4.	Storekeeper	₹ 5200 - 20200/- + 1900/- Grade pay	05	02	02	01	-	(OA, OL, HH)	01
5.	Lower Division Clerk	₹ 5200 - 20200/- + 1900/- Grade pay	06	03	02	01	-	(OA, OL, BL, OAL, B, LV, HH)	02
6.	Supervisor (NT)	₹ 5200 - 20200/- + 2400/- Grade pay	02	02	-	-	-	(OA, OL, OAL, B, LV, HH)	-
7.	Stenographer	₹ 5200 - 20200/- + 2400/- Grade pay	01	01	-	-	-	OA, OL, BL, OAL, B, LV	-
8.	Trained Graduate Teacher - Mathematics	₹ 9300 - 34800/- + 4600/- Grade pay (Group 'B')	02	01	-	01	-	(OA, OL, OAL, BL, B, LV)	-
9.	Trained Graduate Teacher - English	₹ 9300 - 34800/- + 4600/- Grade pay (Group 'B')	01	01	-	-	-	(OA, OL, OAL, BL, B, LV)	-
10.	Trained Graduate Teacher - Social Science	₹ 9300 - 34800/- + 4600/- Grade pay (Group 'B')	01	01	-	-	-	(OA, OL, OAL, BL, B, LV)	-
11.	Trained Graduate Teacher - Science	₹ 9300 - 34800/- + 4600/- Grade pay (Group 'B')	01	-	01	-	-	(OA, OL, OAL, BL, B, LV)	-

Note - The posts reserved for PH and Ex serviceman shall be adjusted by Horizontal Reservation i.e., the selected candidates shall be adjusted against the categories of UR/SC/ST/OBC to which they belong.

***For Persons with Disabilities/Physically challenged candidates only. The identified categories are given below.**

Categories of disabled suitable for the job (Functional Classification) -

OA - One Arm, OL - One Leg, BL - Both Leg, OAL - One Arm and One Leg, B - Blind, LV - Low Vision, H - Hearing and C - Communication.

Physical Requirement:

Multi-Tasking Staff - S, ST, BN, W, SE, H, RW, C
Storekeeper - S, ST, SE, RW, H, C
Lower Division Clerk - S, ST, W, MF, SE, RW, C
Supervisor (NT) - S, ST, W, SE, RW, H, C
Stenographer - S, ST, W, L, MF, SE, RW, H, C
Trained Graduate Teacher - S, ST, W, L, SE, RW, H, C

20

-2-

- 2 -

CODE	PHYSICAL REQUIREMENTS
S	Sitting
ST	Standing
BN	Bending
W	Walking
SE	Seeing
H	Hearing
RW	Reading & Writing
C	Communication
MF	Manipulation by Fingers
L	Lifting

THE GENERAL MANAGER, CORDITE FACTORY, ARUVANKADU RESERVES THE RIGHT TO CHANGE THE NUMBER OF VACANCIES (INCREASE/DECREASE), IF NECESSARY AT ANY STAGE.

1. CHEMICAL PROCESS WORKER SEMI-SKILLED (CPW 'SS')

AGE LIMIT:

Between 18 and 32 years.

EDUCATIONAL QUALIFICATION:

Matriculation + NAC /NTC issued by NCVT in the relevant trade.

Relevant trades for Chemical Process Worker Semi-Skilled viz., Attendant Operator Chemical Plant, Instrument Mechanic Chemical Plant, Mechanical Maintenance Chemical Plant, Laboratory Assistance Chemical Plant, Fitter General, Machinist, Turner, Sheet Metal Worker, Electrician, Electronic Mechanic, Boiler Attendant, Mechanic Industrial Electronics & Refrigeration and Air Conditioning Mechanic.

Note:- Candidates possessing National Apprenticeship Certificate or National Trade Certificate issued by National Council of Vocational Training (NCVT) in the relevant trade will only be accepted as the qualification.

MODE OF SELECTION, SCHEME & SYLLABUS FOR SEMI-SKILLED POSTS

Mode of selection will be through Written examination (100 marks) and a Trade test (Practical). There shall be **no interview** and no marks for Trade test for filling up of these vacancies.

THE SCHEME/PATTERN & SYLLABUS FOR THE WRITTEN EXAMINATION

Subject	No. of Questions	Maximum Marks	Time allowed
Part A (Objective Type)	1. General Science (10 Questions)	10 Marks	2 hrs.
	2. Quantitative Aptitude (10 Questions)	10 Marks	
Part B (Objective Type) Questions from the NCVT, Syllabus of relevant trade	80 Questions	80 Marks	
Total	100 Questions	100 Marks	

All the questions will be compulsory. There will be no negative marking.

(A) General Science (10 Questions)

Question will be aimed at testing, the candidate's General Awareness of the environment around him. Question will also be designed to test knowledge of basic science studied upto 10th standard and would include such matters of every day observations and experience as may be expected of any educated person.

- 3 -

(B) Quantitative Aptitude (10 Questions)

The candidate will be tested for general mathematics of upto 10th Standard involving number systems, equations in two variables, simple & compound interest, perimeter, area & volume of geometrical figures, Direct and inverse proportion, Pythagoras theorem and trigonometry.

(C) NCVT Trade (80 Questions)

Questions based on NCVT Syllabus in relevant trade.

Trade Test (Practical): The Trade Test shall be qualifying in nature, without any marks. The syllabus for Trade Test (Practical) will be as per Trade Test specification of the Semi-Skilled grade of the relevant Trade.

On the basis of Merit List based on marks obtained in written test, candidates 1.25 times the number of vacancies shall be called for Trade test (practical).

The Final Select List shall be based on the marks in the written test only since the Trade test (practical) being qualifying in nature. The Final Select List shall be prepared and displayed in the order of Merit. In Selection process, other things being equal i.e. marks being equal, trained ex-trade apprentices of the recruiting Ordnance Factory and sister ordnance Factories shall be given preference in the order in which they are stated.

2. MULTI-TASKING STAFF (MTS)

AGE LIMIT: Between 18 and 25 years of age.

EDUCATIONAL QUALIFICATION

Matriculation pass from a recognized Board or university or equivalent.

SCHEME/PATTERN & SYLLABUS FOR WRITTEN EXAMINATION

The Written Test consists of **one objective type multiple choice question** paper as shown below:

Part	Subject	Maximum Marks & Number of Questions	Duration
A	General intelligence & Reasoning	25 (25 questions)	2 Hours
B	Numerical Aptitude (10 th Standard)	25 (25 questions)	
C	General English (10 th Standard)	50 (50 questions)	
D	General Awareness (10 th Standard)	50 (50 questions)	

NOTE 1: Question paper will be set in English/Hindi/Major Regional language of the State where the Factory is located except part C which will be set in English.

NOTE 2: **There will be negative marking of 0.25 marks for each wrong answer.**

NOTE 3: **Merit of Candidates will be decided on the basis of the total marks scored in the Written Examination.**

NOTE 4: Resolution of Tie Cases - Tie cases will be resolved by applying one after another, as applicable till the Tie is resolved :

- (i) By referring to the marks in Part-C of the written objective type paper.
- (ii) By referring to the marks in Part-B of the written objective type paper.
- (iii) Date of birth i.e. the candidate older in age gets preference.
- (iv) By referring to the alphabetical order of the names taking first name in the consideration.

NOTE-5: Visually handicapped (VH) candidates with visual disabilities of forty percent or above can avail the assistance of a scribe in the Written examination, subject to such requests being made at the time of applying for the examination. Question Papers and Answer Sheets will not be provided in Braille.

4

NOTE-6: Persons with visual disability of less than 40% will not be considered as visually handicapped persons. One eyed candidates and partially blind candidates who are above to read with or without magnifying glass will be allowed to use the Magnifying glass in the examination hall and will not be entitled to a Scribe. Such candidates will have to bring their own Magnifying glass to the Examination Hall.

SYLLABUS:-

Questions on 'General intelligence and Reasoning' will be non-verbal. Questions on Numerical Aptitude and General English will be simple, of a level that an average matriculate will be in a position to answer comfortably. Questions on General Awareness will be also of similar standard.

A. General Intelligence:- It would include questions of non-verbal type. The test will include questions on similarities and differences, space visualization, problem solving, analysis, judgement, decision making, visual memory, discriminating observation, relationship concepts, figure classification, arithmetical number series, non-verbal series etc. The test will also include questions designed to test the candidate's abilities to deal with abstract ideas and symbols and their relationship, arithmetical computation and other analytical functions.

B. English Language :- Candidate's understanding of the Basics of English language, its vocabulary, grammar, sentence structure, synonyms, antonyms and its correct usage, etc. His/her writing ability would be tested.

C. Numerical Aptitude:- This paper will include questions on problems relating to Number Systems, Computation of Whole Numbers, Decimals and Fractions and relationship between numbers, Fundamental arithmetical operations, Percentages, Ratio and proportion, Averages, interest, Profit and Loss, Discount, use of Tables and Graphs, mensuration, Time and Distance, Ratio and Time, Time and Work, etc.

D. General Awareness:- Questions will be designed to test the ability of the candidate's general awareness of the environment around him/her and its application to society. Questions will also be designed to test knowledge of current events and of such matters of everyday observation and experience in their scientific aspects as may be expected of an educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining to Sports, History, Culture, Geography, Economic scene, General Polity including Indian Constitution and Scientific Research etc. These questions will be such that they do not require a special study of any discipline.

3. DURWAN

AGE LIMIT: Not More than 27 years and not less than 20 years.

EDUCATIONAL QUALIFICATIONS:

Essential

a. Matriculation or equivalent

b. Must be physically fit for the duties of Durwan as per specified standard indicated below:

Height (without Shoes)	-	165 cms.
Chest (unexpanded)	-	77 cms
(expanded)	-	82 cms.
Weight	-	45 Kgs

Desirable:

1. Ex-Servicemen

2. Three years service as Home Guard/Civil Defence volunteer and training in at least basic and refresher courses in Home Guard and Civil Defence.

MODE OF SELECTION:

(i) Written test (150 marks).

(ii) Measurement of physical standards.

(iii) Screening test of 100 m running in 15 seconds.

-5 -

The number of candidates to be called for measurement of physical standards & screening test on the basis of merit in the written test shall be in the ratio of 1:10 to the number of vacancies. The physical test & screening test are only of qualifying nature.

Measurement of physical standards (as specified in the SRO)
Screening Test : Running of 100 metres in 15 seconds.

Final Grading will be decided based on marks obtained in Written Test subject to qualifying in the measurement of Physical standards & Screening test.

Physical Test

- (i) Measurement of Physical Standards (as stated in specifications).
- (ii) **Screening Test:** Following Screening Test shall be done only for those candidates who will qualify in the measurement of physical standards.
100 Metres run in 15 seconds.

SCHEME/PATTERN & SYLLABUS

Subject	Maximum Marks	Number of questions	Duration
General Intelligence (10 th Standard) (Objective Type)	25	25	Two hours
General Awareness (10 th Standard) (Objective Type)	50	50	
English Language (10 th Standard) (Objective Type)	50	50	
Numerical Aptitude (10 th Standard) (Objective Type)	25	25	

GENERAL INTELLIGENCE:

The questions will be of 10th Standard and would include questions of non-verbal type. The test may include questions on analogies, similarities and differences, space visualization, problem solving, analysis, judgement, decision making, visual memory, discrimination observation, relationship concepts, figure classification, arithmetical number series, non-verbal series. The test will also include questions, designed to test the candidate's abilities to deal with abstract ideas and symbols and their relationship, arithmetical computation and other analytical functions.

GENERAL AWARENESS:

The questions will be of 10th Standard. Questions will be designed to test the ability of one candidate's general awareness of the environment around him and its application to society. Questions will also be designed to test knowledge of current events and of such matters of everyday observation and experience in their scientific aspects as may be expected of an 10th Standard educated person. The test will also include questions relating to India and its neighboring countries especially pertaining to Sports, History, Culture, Geography, Economic Scene, General Polity including Indian Constitution and Scientific Research etc. These questions will be such that, they do not require a special study of any discipline.

ENGLISH LANGUAGE:

The questions will be of 10th Standard. Candidates' understanding of the basics of English language, its vocabulary, grammar, sentence structure, synonyms, antonyms and its correct usage, etc. and writing ability would be tested.

NUMERICAL APTITUDE:

This paper will include questions on problems relating to Number Systems, Computation of Whole Numbers, Decimals and Fractions and relationship between Numbers, Fundamental Arithmetical operations, Percentages, Ratio and Proportion, Averages, Interest, Profit and Loss, Discount, use of Tables and Graphs, Mensuration, Time and Distance, Ratio and time, Time and Work etc. The questions will be of 10th Standard. Grading will be done based on marks obtained in Written Test.

EVA

4. STOREKEEPER

AGE LIMIT: Not exceeding 27 years and not less than 18 years.

EDUCATIONAL QUALIFICATIONS:

Essential : 10+2

Desirable : Basic knowledge of computer application having "O" level certificate as per Department of Electronics Accreditation Committee Certificate (DOEACC)

MODE OF SELECTION, SCHEME /PATTERN & SYLLABUS

Mode of selection:

Written test (Objective type) for 200 marks.

Scheme/Pattern of Written exam:

Sl. No	Subject	Max Marks	Total Duration/Timings
1	General Intelligence (objective type multiple choice questions)	50	2 hours
2	English Language (Basic Knowledge) (Objective Type Multiple choice questions)	50	
3	Quantitative Aptitude (basic Arithmetic skill) (Objective type multiple choice questions)	50	
4	General Awareness (Objective Type Multiple Choice Questions)	50	

Note - I - The question will be set both in English & Hindi for Part - I, III & IV.

Note - II - There will be negative marking of 0.25 marks for each wrong answer.

Syllabus

General Intelligence

1.	Semantic Analogy	16.	Space Orientation
2.	Symbolic/Number Analogy	17.	Venn Diagrams
3.	Figure Analogy	18.	Drawing inferences
4.	Semantic Classification	19.	Punched hole/pattern - folding & unfolding
5.	Symbolic/Number Classification	20.	Figural Pattern - folding and completion
6.	Figural Classification	21.	Indexing
7.	Semantic Series	22.	Address matching
8.	Number Series	23.	Data and City matching
9.	Figural Series	24.	Classification of centre codes/roll numbers
10.	Problem Solving of 12 th Standard	25.	Small & Capital Letters/Number - coding, decoding and classification
11.	Word Building	26.	Embedded figure
12.	Coding and de-coding	27.	Critical Thinking
13.	Numerical Operation	28.	Emotional Intelligence
14.	Symbolic Operation	29.	Social Intelligence
15.	Trends	30.	Other sub-topics, if any

English Language

1.	Spot the Error
2.	Fill in the Blanks
3.	Synonyms
4.	Antonyms
5.	Spellings/Detecting Mis-spelt words
6.	Idioms & Phrases
7.	One word substitution
8.	Improvement of Sentences
9.	Active/Passive Voice of Verbs
10.	Conversion into Direct/Indirect narration
11.	Shuffling of Sentence parts
12.	Shuffling of Sentences in a passage
13.	Cloze Passage
14.	Comprehension passage

Numerical Aptitude : Arithmetic :

1. Number Systems : Computation of Whole Number, Decimal and Fractions, Relationship between numbers.
2. Fundamental arithmetical operations : Percentages, Ratio and Proportion, Square roots, Averages, interest (Simple and Compound), Profit and Loss, Discount, Partnership Business, Mixture and Alligation, Time and distance, Time and work.

Algebra :

1. Basic algebraic identities of School Algebra (and their simple applications) e.g. Formulas for $(a+b)^2$, $(a-b)^2$, $(a+b)^3$, $(a-b)^3$, a^3-b^3 , a^3+b^3 , a^2-b^2 ; if $a+b+c=0$, then $a^3+b^3+c^3=3 abc$ etc. and Elementary surds (simple problems).
2. Graphs of Linear Equations.

Geometry :

Familiarity with elementary geometric figures and facts:

1. Triangle and its various kinds of centres viz., Centroid, In-centre, Orthocentre, Circumcentre.
2. Congruence and similarity of triangles.
3. Circle and its chords, tangents, angles subtended by chords of a circle, common tangents to two or more circles.

Mensuration :

Triangle, Quadrilaterals, Regular Polygons (sum of the internal angles of a polygon), Circle, Right Prism, Right Circular Cone, Right Circular Cylinder, Sphere, hemispheres, Rectangular Parallelepiped, Regular Right Pyramid with triangular or square base.

Trigonometry :

1. Trigonometry (for acute angles θ with $0 \leq \theta \leq 90$):
Trigonometric ratios, Degree and Radian Measures, Standard Identities like $\sin^2 \theta + \cos^2 \theta = 1$ etc.
2. Complementary Angles, heights and Distances (simple problems only).

Statistical Charts :

Use of Tables and Graphs

1. Histogram
2. Frequency polygon
3. Bar-diagram

General Awareness:

Questions are designed to test the ability of the candidate's general awareness of the environment around him and its application to society. Questions are also designed to test knowledge of current events and of such matters of everyday observation and experience in their scientific aspect as may be expected of an educated person. The test will also include questions relating to India and its neighboring countries especially pertaining to history, culture, geography, Economic Scene, General policy and scientific research.

Note: I - The questions will be of the level to commensurate with Educational Qualification prescribed for the post i.e. 12th standard.

Note: II - Resolution of the cases (Tie cases i.e., more than one candidate secure equal marks in the written examination, the same will be resolved by applying one after another, as applicable till the Tie is resolved).

i) Date of Birth with older candidate placed higher.

ii) Alphabetical order in which the first names of the candidates appear.

THE QUALIFYING MARKS IN THE WRITTEN EXAMINATION WILL BE AS FOLLOWS:

Paper / Part	Minimum qualifying marks in each paper / part for candidates		Minimum qualifying marks in aggregate for candidates	
	General	SC/ST/PH	GENERAL	SC/ST/PH
I	40%	35%	-	-
II	40%	35%	-	-
III	40%	35%	-	-
IV	40%	35%	-	-
Aggregate	-	-	45%	40%

Handwritten mark

-8-

5. LOWER DIVISION CLERK

AGE LIMIT: Between 18 and 27 years.

ESSENTIAL QUALIFICATIONS

- (i) 12th Class or equivalent qualification from a recognized Board or University.
- (ii) Skill Test Norms 'only on Computers'

A typing speed of thirty-five words per minute in English or thirty words per minute in Hindi on computer.

(Thirty-five words per minute and thirty words per minute correspond to ten thousand and five hundred Key Depressions Per Hour or nine thousand Key Depressions Per Hour on an average of Five Key Depressions for each word).

MODE OF SELECTION, SCHEME & SYLLABUS OF EXAMINATION

- (1) The examination will consist of a Written Examination of 200 marks and Typing Test on Computer.
- (2) After the written examination the number of candidates to be called on the basis of merit for the Typing Test shall be in the ratio of 1:5 i.e., five times the number of vacancies.
- (3) Merit of Candidates will be decided on the basis of the total marks scored in the Written Examination subject to qualifying in the typing test.
- (4) The Typing Test is of qualifying in nature. Failure in the Typing test shall be failure in the examination.
- (5) Resolution of Tie Cases - Tie cases will be resolved by applying one after another, as applicable till the Tie is resolved:
 - (i) Date of Birth, with older candidate placed higher.
 - (ii) Alphabetical order in which the first names of the candidates appear.

SCHEME/PATTERN OF WRITTEN EXAMINATION :-

The written examination consists of one objective type multiple choice question paper of 200 marks

Part	Subject	Maximum Marks & Number of Questions	Time Duration for General Candidates	Time Duration for Visually Handicapped Candidates
I	General Intelligence	50 (50 Questions)	2 Hours	2 Hours 20 Minutes
II	English Language (Basic Knowledge)	50 (50 Questions)		
III	Quantitative Aptitude (Basic Arithmetic Skill)	50 (50 Questions)		
IV	General Awareness	50 (50 Questions)		

Note 1 : Question paper will be set in English/Hindi except Part-II which will be set in English.

Note 2 : There will be negative marking of 0.25 marks for each wrong answer.

Note 3 : Standard of questions will be of the level to commensurate with educational qualification for the post i.e, 12th standard.

Note 4 : Visually handicapped (VH) candidates with visual disabilities of forty percent or above can avail the assistance of a Scribe in the Written Examination subject to such requests being made at the time of applying for the examination. Question Papers and Answer-Sheets will not be provided in Braille.

-9-

Note 5 : Persons with visual disability of less than forty percent will not be considered as visually handicapped persons. One eyed candidates and partially blind candidates who are able to read with or without magnifying glass will be allowed to use the Magnifying Glass in the Examination Hall and will not be entitled to a Scribe. Such candidates will have to bring their own Magnifying Glass to the Examination Hall.

SYLLABUS OF WRITTEN EXAMINATION :

General Intelligence :

1.	Semantic Analogy	14.	Symbolic operations
2.	Symbolic / Number Analogy	15.	Trends
3.	Figural Analogy	16.	Space Orientation
4.	Semantic Classification	17.	Venn Diagrams
5.	Symbolic / Number Classification	18.	Drawing inferences
6.	Figural Classification	19.	Punched hole / pattern-folding & unfolding
7.	Semantic Series	20.	Figural Pattern - folding and completion
8.	Number Series	21.	Embedded figures
9.	Figural Series	22.	Critical Thinking
10.	Problem Solving	23.	Emotional Intelligence
11.	Word Building	24.	Social Intelligence
12.	Coding and de-coding	25.	Other sub-topics, if any.
13.	Numerical operations		

English Language :

1.	Spot the Error
2.	Fill in the Blanks
3.	Synonyms/Homonyms
4.	Antonyms
5.	Spellings/Detecting Mis-spelt words
6.	Idioms & Phrases
7.	One word substitution
8.	Improvement of Sentences
9.	Active/Passive Voice of Verbs
10.	Conversion into Direct/Indirect narration
11.	Shuffling of Sentence Parts
12.	Shuffling of Sentences in a passage
13.	Cloze Passage
14.	Comprehension Passage

III. Quantitative Aptitude:

Arithmetic :

1. Number Systems : Computation of Whole Number, Decimal and Fractions, Relationship between numbers.
2. Fundamental arithmetical operations : Percentages, Ratio and Proportion, Square roots, Averages, interest (Simple and Compound), Profit and Loss, Discount, Partnership Business, Mixture and Alligation, Time and distance, Time and work.

Algebra :

1. Basic algebraic identities of School Algebra (and their simple applications) e.g. Formulas for $(a+b)^2$, $(a-b)^2$, $(a+b)^3$, $(a-b)^3$, a^3-b^3 , a^3+b^3 , a^2-b^2 ; if $a+b+c=0$, then $a^3+b^3+c^3=3 abc$ etc. and Elementary surds (simple problems).
2. Graphs of Linear Equations.

Geometry :

Familiarity with elementary geometric figures and facts:

1. Triangle and its various kinds of centres viz., Centroid, In-centre, Orthocentre, Circumcentre.
2. Congruence and similarity of triangles.
3. Circle and its chords, tangents, angles subtended by chords of a circle, common tangents to two or more circles.

-10-

Mensuration :

Triangle, Quadrilaterals, Regular Polygons (sum of the internal angles of a polygon), Circle, Right Prism, Right Circular Cone, Right Circular Cylinder, Sphere, hemispheres, Rectangular Parallelepiped, Regular Right Pyramid with triangular or square base.

Trigonometry :

1. Trigonometry (for acute angles θ with $0 \leq \theta \leq 90$):

Trigonometric ratios, Degree and Radian Measures, Standard Identities like $\sin^2 \theta + \cos^2 \theta = 1$ etc.

2. Complementary Angles, heights and Distances (simple problems only).

Statistical Charts :

Use of Tables and Graphs :

1. Histogram 2. Frequency polygon 3. Bar-diagram 4. Pie-chart.

IV General Awareness : Questions are designed to test the candidate's general awareness of the environment around him/her and its application to society of everyday observation and experience in their scientific aspect as may be expected of an educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining to History, Culture, Geography, Economic Scene, General policy and scientific research.

TYPING TEST:

1. The Typing Test will be conducted in English or Hindi and candidates while applying for a examination, will have to indicate their option.

2. Typing Test will be administered on Computer, to be provided by the Factory/Unit.

3. Candidates opting for English Typing shall have typing speed of 35 words per minute and those opting for Hindi Typing shall have typing speed of 30 words per minute on Computer. Thirty five w.p.m and thirty w.p.m. correspond to 10500 key depressions per hour and 9000 key depressions per hour respectively. The speed will be adjudged on the accuracy of typing on the Computer of a given text passage in 10 minutes.

4. Visually Handicapped candidates (with 40% disability and above) will be provided passage dictators for the Typewriting test by the Factory/Unit. The Passage Dictators will read out the passage to the VH candidates to the VH candidates within the allotted time period.

6. SUPERVISOR (NON-TECHNICAL)

AGE LIMIT: Not exceeding twenty seven (27) years.

EDUCATIONAL QUALIFICATION

Essential :

Degree in any subject from a recognized University.

Desirable :

Should have "O" level certificate as per Department of Electronics Accreditation Committee Certificate.

SCHEME/PATTERN & SYLLABUS FOR WRITTEN EXAMINATION

SCHEME OF EXAMINATION :-

(1) The examination will consist of Written Test of three objective type multiple choice question papers conducted in Two Tiers. Paper-I will be conducted in the First Tier and Paper -II & III will be conducted in the Second Tier.

12

- (2) After the First Tier examination the number of candidates to be called on the basis of merit for the Second Tier examination shall be in the ratio of 1:20 i.e. twenty times the number of vacancies.
- (3) Merit of Candidates will be decided on the basis of the total marks scored in the First Tier and Second Tier Written Examination.
- (4) Resolution of Tie Cases - Tie cases will be resolved by applying one after another, as applicable till the Tie is resolved:
- By referring to the total marks in Tier-II.
 - By referring to the total marks in Tier-I.
 - Date of Birth, with older candidate placed higher.
 - Alphabetical order in which the first names of the candidates appear.

SCHEME OF WRITTEN TEST :-

First Tier :-

Paper No.	Subject	Maximum Marks & Number of Questions	Duration
I	A. General intelligence & Reasoning (Graduation level) B. General Awareness (Graduation Level) C. Quantitative Aptitude (10+2 Level) D. English Comprehension (Graduation level) E. Basic Computer Concepts (Certificate level)	200 (200 Questions) Part A, B, C & D - 45 Questions each Part E - 20 questions.	Two hours.

NOTE 1: Question paper will be set in English/Hindi except Part-D of Paper-I which will be set in English.

NOTE 2: There will be negative marking of 0.25 marks for each wrong answer in Paper -I.

Second Tier :-

Paper No.	Subject	Maximum Marks & Number of Questions	Duration
II	Quantitative Ability (Graduation level)	200 (100 Questions)	Two Hours
III	English Language & Comprehension (10+2 Level).	200 (200 questions)	Two Hours

NOTE 1: Question paper for Paper-II will be in English/Hindi and that of Paper-III will be set in English.

NOTE 2: There will be negative marking of 0.50 marks for each wrong answer in Paper -II & negative marking of 0.25 marks for each wrong answer in Paper-III.

12

SYLLABUS OF WRITTEN TEST:-

First Tier:-

Paper - I:-

- A. General Intelligence & Reasoning :** It would include questions of both verbal and non-verbal type. This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgment, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc. The topics are, Semantic Analogy, Symbolic/Number Analogy, Figural Analogy, Semantic Classification, Symbolic/Number Classification, Figural Classification, Semantic Series, number Series, Figural Series, problem Solving, Word Building, Coding & de-coding, numerical Operations, Symbolic Operations, Trends, Space Orientation, Space Visualization, Venn Diagrams, Drawing inferences, punched hole/pattern-folding & un-folding, Figural Pattern - folding and completion, indexing, Address matching, Date & city matching, Classification of centre codes/roll numbers, Small & Capital letters/numbers coding, decoding and classification, Embedded Figures, Critical thinking, Emotional Intelligence, Social intelligence, Other sub-topics, if any.
- B. General Awareness :** Questions in this component will be aimed at testing the candidates general awareness of the environment around him and its application to society. Questions will also be designed to test knowledge of current events and of such matters of every day observations and experience in their scientific aspect as may be expected of any educated person. The test will also include questions relating to India and its neighboring countries especially pertaining to History, Culture, Geography, Economic Scene, General Policy & Scientific Research.
- C. Quantitative Aptitude :** The questions will be designed to test the ability of appropriate use of numbers and number sense of the candidate. The scope of the test will be computation of whole numbers, decimals, fractions and relationships between numbers. Percentage, Ratio & Proportion, Square roots, Averages, Interest, profit and Loss, Discount, Partnership Business, Mixture and Alligation, Time and Distance, Time & Work, Basic algebraic identities of School Algebra & Elementary Surds, Graphs of Linear Equations, Triangle and its various kinds of centres, Congruence and similarity of triangles, Circle and its chords, tangents, angles subtended by chords of a circle, common tangents to two or more circles, Triangle, Quadrilaterals, Regular Polygons, Circle, Right Prism, Right Circular Cone, Right Circular Cylinder, Sphere, Hemispheres, Rectangular Parallelepiped, Regular Right Pyramid with triangular or square base, Trigonometric ratio, Degree and Radian measures, Standard Identities, Complementary angles, Heights and Distances, Histogram, Frequency polygon, Bar diagram & Pie chart.
- D. English Comprehension :** Candidates' ability to understand correct English, his/her basic comprehension and writing ability, etc. would be tested.
- E. Basic Computer Concepts :** The questions will be designed to test the candidates computer literacy. Computer concepts, MS-windows, Note Pad, Word Pad, MS-Word, MS-Excel, MS-Power Point, Ms-Access, Computer Communication, Internet (user Account, E-Mail, Browsers, Searching).

Second Tier:-

Paper-II : Quantitative Ability : The questions will be designed to test the ability of appropriate use of numbers and number sense of the candidate. The scope of the test will be the computation of whole numbers, decimals, fractions and relationships between numbers. Percentage, Ratio & Proportion, Square roots, Averages, interest, Profit and Loss, Discount, Partnership Business, Mixture and Alligation, Time and Distance, Time & Work, Basic algebraic identities of School Algebra & Elementary surds, Graphs of Linear Equations, Triangle and its various kinds of centers, Congruence and similarity of triangles, Circle and its chords, tangents, angles subtended by chords of a circle, common tangents to two or more circles, Triangle, Quadrilaterals, Regular Polygons, Circle, Right Prism, Right Circular Cone, Right Circular Cylinder, Sphere, Hemispheres, Rectangular Parallelepiped, Regular Right Pyramid with triangular or square base, Trigonometric ratio, degree and Radian Measures, Standard Identities, Complementary angles, Heights and Distances, Histogram, Frequency polygon, Bar diagram & Pie chart.

Paper-III : English Language & Comprehension : Questions in this components will be designed to test the candidate's understanding and knowledge of English Language and will be based on spot the error, fill in the blanks, synonyms, antonyms, spelling/detecting mis-spelt words, idioms & phrases, one word substitution, improvement of sentences, active/passive voice of verbs, conversion into direct/indirect narration, shuffling or sentence parts, shuffling of sentences in a passage, close passage & comprehension passage.

7. STENOGRAPHER

AGE LIMIT: 18-27 years.

QUALIFICATION

1. 12th Standard.
2. A speed of 80 (eighty) Words Per Minute in Stenography (English or Hindi)

SCHEME OF EXAMINATION

1. The examination will consists of a Written Examination of 200 marks and skill test in Stenography.
2. After the written examination the number of candidates to be called on the basis of merit for the Skill Test shall be in the ratio of 1:5 i.e. five times the number of vacancies.
3. Merit of the candidate will be decided on the basis of total marks scored in the written examination subject to qualifying in the skill test in Stenography.
4. The skill test is of qualifying nature. Failure in the skill test shall be failure in the examination.
5. Resolution of Tie cases: Tie cases will be resolved by applying one after another, as applicable till the Tie is resolved.
 - (i) Date of birth, with older candidate placed higher.
 - (ii) Alphabetical order in which the first names of the candidates appear.

(A) SCHEME OF THE WRITTEN EXAMINATION AND SYLLABUS

The written examination will consist of one objective type paper as shown below:

Part	Subject	Maximum Marks	Total Duration for General candidates	Total Duration for Visually Handicapped candidates
I	General intelligence & Reasoning (50 Questions)	50	2 Hours	2 Hours 20 mins.
II	General Awareness (50 Questions)	50		
III	English Language and Comprehension (100 Questions)	100		

NOTE-1: The Paper will consist of Objective Type - multiple choice Questions only. The questions except in Part III will be set both in English & Hindi.

NOTE-2: There will be negative marking of 0.25 marks for each wrong answer. Candidates are, therefore, advised to keep this in mind while answering the questions.

NOTE-3: Standard of questions will be of the level to commensurate with educational qualification for the post i.e. 12th standard.

NOTE-4: Visually handicapped (VH) candidates with visual disabilities of forty percent or above can avail the assistance of a scribe in the Written examination, subject to such requests being made at the time of applying for the examination. Question Papers and Answer Sheets will not be provided in Braille.

Handwritten signature

-14-

NOTE-5: Persons with visual disability of less than 40% will not be considered as visually handicapped persons. One eyed candidates and partially blind candidates who are above to read with or without magnifying glass will be allowed to use the Magnifying glass in the examination hall and will not be entitled to a Scribe. Such candidates will have to bring their own Magnifying glass to the Examination Hall.

GENERAL INTELLIGENCE & REASONING:

It would include questions of both verbal and non-verbal type. The test will include questions on analogies, similarities and differences, space visualization, problem solving, analysis, judgment, decision making, visual memory, discriminating observation, relationship concepts, arithmetical reasoning, verbal and figure classification, arithmetical number series, non-verbal series etc. The test will also include questions designed to test the candidate's abilities to deal with abstract ideas and symbols and their relationship, arithmetical computation and other analytical functions.

GENERAL AWARENESS:

Questions will be designed to test the ability of the candidate's general awareness of the environment around him and its application to society. Questions will also be designed to test knowledge of current events and of such matters of everyday observation and experience in their scientific aspects as may be expected of an educated person. The test will also include questions relating to India and its neighboring countries especially pertaining to Sports, History, Culture, Geography, Economic scene, General Polity including India Constitution, and Scientific Research etc. These questions will be such that they do not require a special study of any discipline.

NOTE:

For VH candidates of 40% and above visual disability and opting for SCRIBE there will be no component of Maps/Graphs/Diagrams/Statistical Data in the General Intelligence & Reasoning / General Awareness paper.

ENGLISH LANGUAGE & COMPREHENSION:

In addition to the testing of candidates' understanding of the English Language, its vocabulary, grammar, sentence structure, synonyms, antonyms and its correct usage, etc. his/her writing ability, would also be tested.

B. SKILL TEST IN STENOGRAPHY:

Candidates who obtain the qualifying marks in the Written Examination will only be called for the Skill Test. THE SKILL TEST WILL BE OF QUALIFYING NATURE.

The candidates will have to appear for the stenography test. The candidates will be given one dictation for 10 minutes in English / Hindi at the speed of 80 w.p.m. The matter will have to be transcribed on computer only. The transcription time is as follows:-

50 minutes (English)
65 minutes (Hindi)

NOTE:

1. If the candidates do not indicate the medium of STENOGRAPHY TEST at the relevant place in the application Form, English will be considered as the medium of STENOGRAPHY TEST for such candidates and the candidates will not be allowed to change the medium at a subsequent stage.
 2. There is no exemption from skill test for any category of candidates.
 3. Candidates who opt to take the Stenography Test in Hindi will be required to learn English Stenography vice versa after their appointment.
 4. VH candidates will be required to transcribe the matter in 75 minutes for English Shorthand or in 105 minutes for Hindi Shorthand.
- 15-

7. TRAINED GRADUATE TEACHER (TGT) FOR ENGLISH, MATHEMATICS, SCIENCE & SOCIAL SCIENCE)

AGE LIMIT: Not exceeding thirty (30) years.

QUALIFICATION:-

Essential :

(a) Graduation and 2-year Diploma in Elementary Education (by whatever name known)

OR

Graduation with at least 50% marks and 1- year Bachelor in Education (B.Ed.)

OR

Graduation with at least 45% marks and 1 - year Bachelor in Education (B.Ed.), in accordance with the NCTE (Recognition Norms and procedure) Regulations issued from time to time in this regard.

OR

Senior Secondary (or its equivalent) with at least 50% marks and 4-year Bachelor in Elementary Education (B.El.Ed.)

OR

Senior Secondary (or its equivalent) with at least 50% marks and 4-year B.A/B.Sc.Ed or B.A.Ed./B.Sc.Ed).

Note : Relaxation up to 5% in the qualifying marks shall be allowed to the candidates belonging to reserved categories, such as SC/ST/OBC/PH.

AND

(b) Pass in Teacher Eligibility Test (TET), to be conducted by the appropriate Government in accordance with the Guidelines framed by the NCTE for the purpose.

Desirable :

Competent to teach both in Hindi or English and medium of instruction of the instruction of the School.

SCHEME OF EXAMINATION

(1) Written Test - There will be a written examination of 200 marks. Question paper will consist of multiple choice objective questions in two parts as per the following.

Part	Subject	Maximum No. of Questions	Maximum No. of Marks	Minimum Qualifying Marks (Subjectwise) (40%)	Minimum Qualifying Marks (Aggregate) 45%	Duration of examination
Part - I	English	20	20	8	18	3 Hours
	Hindi/ Medium of instruction of school	20	20	8		
Part - II	Current Affairs	20	20	NA	NA	
	Reasoning & Numerical Ability	20	20	NA	NA	
	Concerned subject	120	120	NA	NA	

Note -

(i) Part -II of the question paper of the candidate will be evaluated only if he/she qualifies in Part - I.

(ii) The merit will be based only on the basis of performance in Written Test.

(2) Teaching Skill Test - Candidates to be called on the basis of merit in written test in the ratio of 1:5. The Teaching Skill Test will be qualifying nature only. The Teaching skill of the candidates will be assessed in the following parameters/areas:-

(a) Communication Skills

(b) Teaching Methodology.

Note - Only CTET/State TET pass candidates will be allowed to apply as per recruitment rules.

- 16 -

SYLLABUS FOR WRITTEN EXAMINATION FOR TGT (ENGLISH)

Reading Comprehension (Section - A) - 25 Marks

Ability to Comprehend, analyse and interpret and unseen test: Three/four unseen texts of varying lengths (150-250 words) with a variety of objective type, multiple choice questions (including questions to test vocabulary) testing factual and global comprehension.

Writing ability (Section - B) - 25 Marks

Testing ability to express facts views / opinions in a coherent and logical manner in a style suitable to the task etc.

B.1 One short writing task such as : notice, message or a postcard.

B.2 Writing a report of an event, process, or place.

B.3 Writing an article / debate / speech based on visual / verbal input on a given current topic for e.g. environment, education, child labour, gender bias, drug abuse etc. presenting own vies fluently.

B.4 Writing a letter (formal/informal) on the basis of verbal / visual input. Letter types include: (a) letter to the editor (b) letter of complaint (c) letter of request (d) descriptive, personal letters.

Grammar and Usage (Section - C) - 35 Marks

Ability to apply the knowledge of syntax, language / grammatical items and to use them accurately in context. The Following grammatical items and to use them accurately in context. The following grammatical structures will be tested :

(1) Tenses (2) Modals (3) Voice (4) Subject - verb concord (5) Connectors (6) Clauses (7) Parts of Speech (8) Punctuation (9) Sequencing to form a coherent sentence or a paragraph.

Literature (Section - D) - 35 Marks.

To test the candidate's familiarity with the works of writers of different genres and periods of English literate.

The candidates should have a thorough knowledge of :-

- ✓ Shakespeare's works.
- ✓ Romantic Period (e.g. Shelley, Wordsworth, Keats, Coleridge, Byron etc.)
- ✓ 19th & 20th Century American and English Literature (e.g. Robert Frost Hemingway, Ted Huges, Whitman, Hawthorne, Emily Dickinson, Bernard Shaw etc).
- ✓ Modern Indian Writing in English (e.g. Anita Desai, Vikram Seth, Nissim Ezekiel, K.N. Daruwala, Ruskin Bond, R.K. Narayan, Mulk Raj Anand, Khushwant Singh etc.).
- ✓ Modern Writings in English from different parts of the world.

SYLLABUS FOR WRITTEN EXAMINATION OF TGT (MATHEMATICS)

Real Numbers : - Representation of natural numbers, integers, rational numbers on the number line, Representation of terminating / non-terminating recurring decimals, on the number line through successive magnification. Rational numbers as recurring / terminating decimals. Examples of non-recurring / non terminating decimals. Existence of non-rational numbers (irrational numbers) and their representation on the number line. Explaining that every real number is represented by a unique point on the number line and conversely, every point on the number line represents a unique real number. Laws of exponents with integral powers. Rational exponents with positive real bases. Rationalization of real numbers. Euclid's divisions lemma, Fundamental Theorem of Arithmetic. Expansions of rational numbers in terms of terminating / non terminating recurring decimals.

Elementary Number Theory : - Peano's Axioms, Principle of Induction; First Principle, Second Principle, Third Principle, Basis Representation Theorem, Greatest Integer Function, Test of Divisibility, Euclid's algorithm, The Unique Factorisation Theorem, Congruence, Chinese Remainder Theorem, Sum of divisors of a number. Euler's totient function, Theorems of Fermat and Wilson.

16

Matrices : - R, R^2, R^3 as vector spaces over R and concept of R^n . Standard basis for each of them. Linear independence and examples of different bases. Subspaces of R^2, R^3 . Translation, Dilation, Rotation, Reflection in a point, line and plane. Matrix form of basic geometric transformations. Interpretation of eigenvalues and eigenvectors for such transformations and eigenspaces as invariant subspaces. Matrices in diagonal form. Reduction to diagonal form upto matrices of order 3. Computation of matrix inverses using elementary row operations. Rank of matrix. Solutions of a system of linear equations using matrices.

Polynomials : - Definition of a polynomial in one variable, its coefficients, with examples and counter examples, its terms, zero polynomial. Degree of a polynomial. Constant, linear, quadratic, cubic polynomials; monomials, binomials, trinomials. Factors and multiples. Zeros / roots of a polynomial / equation. Remainder Theorem with examples and analogy to integers. Statement and proof of the Factor Theorem. Factorization of quadratic and of cubic polynomials using the Factor Theorem. Algebraic expressions and identities and their use in factorization of polynomials. Simple expressions reducible to these polynomials.

Linear Equations in two variables : - Introduction to the equation in two variables. Proof that a linear equation in two variables has infinitely many solutions and justify their being written as ordered pairs of real numbers, Algebraic and graphical solutions.

Pair of Linear Equations in two variables : - Pair of linear equations in two variables. Geometric representation of different possibilities of solutions / inconsistency. Algebraic conditions for number of solutions. Solution of pair of linear equations in two variables algebraically - by substitution, by elimination and by cross multiplication.

Quadratic Equations : - Standard form of a quadratic equation. Solution of the quadratic equations (only real roots) by factorization and by completing the square, i.e. by using quadratic formula. Relationship between discriminant and nature of roots. Relation between roots and coefficients, Symmetric functions of the roots and coefficients, Symmetric functions of the roots of an equation. Common roots.

Arithmetic Progressions: - Derivation of standard results of finding the n th term and sum of first n terms.

Inequalities : - Elementary Inequalities, Absolute value, inequality of means, Cauchy-Schwarz Inequality, Tchebychev's Inequality.

Combinatorics : - Principle of inclusion and Exclusion, pigeon Hole Principle, Recurrence Relations; Binomial Coefficients.

Calculus: - Sets. Functions and their graphs: polynomial, sine, cosine, exponential and logarithmic functions. Step function. Limits and continuity. Differentiation. Methods of differentiation like Chain rule, Product rule and Quotient rule. Second order derivatives of above functions. Integration as reverse process of differentiation. Integrals of the functions introduced above.

Euclidean Geometry: - Axioms / postulates and theorems. The Five postulates of Euclid. Equivalent versions of the fifth postulate. Relationship between axiom and theorem. Theorems on lines and angles, triangles and quadrilaterals. Theorems on areas of parallelograms and triangles, Circles, theorems on circles, Similar triangles, Theorem on similar triangles. Constructions. Ceva's Theorem, Menelaus Theorem, Nine Point Circle, Simson's Line, Centres of Similitude of Two Circles, Lehmus Steiner Theorem, Ptolemy's Theorem.

Coordinate Geometry: - The Cartesian plane, coordinates of a point, Distance between two points and section formula, Area of a triangle.

Areas and Volumes: - Area of a triangle using Hero's formula and its application in finding the area of a quadrilateral. Surface areas and volumes of cubes, cuboids, spheres (including hemispheres) and right circular cylinders / cones. Frustum of a cone. Area of a circle; area of sectors and segments of a circle.

= 18

Trigonometry: - Trigonometric ratios of an acute angle of a right-angled triangle. Relationships between the ratios. Trigonometric identities. Trigonometric ratios of complementary angles. Heights and distances.

Statistics : - Introduction to Statistics : Collection of data, presentation of data, tabular form, ungrouped / grouped, bar graphs, histograms, frequency polygons, qualitative analysis of data to choose the correct form of presentation for the collected data. Mean, median, mode of ungrouped data. Mean, median and mode of grouped data, Cumulative frequency graph.

Probability: Elementary Probability and basic laws. Discrete and Continuous Random variable, Mathematical Expectation, Mean and Variance of Binomial, Poisson and Normal distribution. Sample mean and Sampling Variance. Hypothesis testing using standard normal variate, Curve Fitting. Correlation and Regression.

SYLLABUS FOR WRITTEN EXAMINATION FOR TGT (SCIENCE)

EFFECT OF CURRENT: - Potential; potential difference ohms law; series combination of resistors, parallel combination of resistors; Power dissipation due to current; due to current; Inter relation between P,V,I and R Magnetic field & magnetic lines, Magnetic field due to current carrying conductor; Fleming left hand rule, Electromagnetic Induction; Induced Potential Difference, Induced current; Direct current, Alternating current; Frequency of Ac, Advantage of Electronic Motor & Electronic Generator.

LIGHT : - Convergence and Divergence of lights; Images formed by a Concave Mirror; related concepts, centre of curvature; principal axis, optic centre, focus, focal length, Refraction & laws of refraction. Images formed by convex lens; functioning of vision and remedies. Applications of spherical mirrors and lenses. Appreciation of concept of refraction index; Twinkling of stars; Dispersion of light; Scattering of light.

SOURCES OF ENERGY: - Different forms of Energy, Leading to different sources for human use: Fossil Fuels, Solar energy; Biogas; Wind; Water and Tidal Energy; Nuclear Energy. Renewable versus non-renewable sources.

MOTION ; FORCE AND NEWTON'S LAWS: - Displacement, Velocity, uniform & Non-Uniform motion along a straight line, acceleration distance-time and velocity, time graphs for uniform and uniformly accelerated motion; Equations of motion by graphical method Equations of motion by graphical method; Elementary idea of uniform circular motion. Force and Motion; Newton's laws of motion, Inertia of a body; Inertia and Mass, Momentum Force and acceleration, Elementary idea of conservation of momentum, Action and Reaction forces.

GRAVITATION; WORK, ENERGY AND POWER: - Gravitation; Universal law of Gravitation, Force of Gravitation of the earth: gravity, acceleration due to gravity; mass and weight; free fall. Work done by a force energy, power; Kinetic and Potential energy; law of conservation of energy.

FLOATATION: - Thrust and Pressure, Archimedes' Principle, Buoyancy, Elementary idea of relative density.

SOUND: - Nature of Sound and its Propagation in various media, Speed of Sound, Range of hearing in Humans; Ultra Sound, Reflection of sound; Echo and SONAR; Structure of the Human Ear (Auditory aspect only).

MATTER: - NATURE AND BEHAVIOUR; STATES OF MATTER: - Gases, liquids, solids, plasma and Bose - Einstein condensate, types of intermolecular forces. Classification of matter into mixtures and pure substances. Henry's Law. Concentration of solution. Colloids - phases of colloids, Tyndall effect, Brownian movement. Suspension. Properties of matter. Measurement of properties of matter - S.I. system of units, physical and chemical changes. Laws of chemical combination: Gay Lussac's law, Avogadro's law, atomic and molecular masses, average atomic mass, mole concept and molar masses, percentage composition.

STRUCTURE OF ATOM: - Dalton's atomic theory, Discharge tube experiments; J J Thomson's model of atom, Rutherford's model, Bohr's model of atom, electronic configuration, formation of ions, Characterization of elements as metals, metalloids, or non-metals, isotopes (their applications), Isobars and isotones.

- 18

PERIODIC CLASSIFICATION OF ELEMENTS : - Mendeleev's periodic law, Periodic properties of elements, - trends in the periods and groups: Importance of the periodic table, position of hydrogen in the periodic table.

CHEMICAL SUBSTANCES: - Nature of behaviour Acid, Bases and Salts: Classical definition of acids and bases, Bronsted - Lowry theory, Lewis concept of acid and bases, relative strengths of acids and bases, logarithmic or p scale - pH, pOH and p^{K_w} , ionic equilibria in a solution Action of indicators on acids and bases, sources of acid and bases, Salt - Classification of salts and their pH.

CHEMICAL REACTIONS: - Formulation of chemical equations, balancing chemical equations, Types of chemical equations with examples.

METALS AND NON - METALS : - **Characters of metals and non-metals including all properties and applications.** Occurrence of metals in nature : ores and minerals, enrichment of ores - metallurgical operations.

Corrosion : rusting of iron - prevention of corrosion.

CARBON COMPOUNDS : - Position of carbon in the periodic table. Concept of hybridization and shapes of molecules structural formula and models, types of reactions undergone by organic compounds, homologous series of compounds having different functional groups, isomerism, IUPAC nomenclature of organic compounds. Hydrocarbons - their classification formation of coal and petroleum. Industrial sources, preparation and properties of alkanes.

Alcohols: Preparation and properties. Qualitative analysis of alcohols, iodoform test, effect of alcohols on living being.

Carboxylic acids; Preparation and properties. Functional group analysis of carboxylic acid. Soaps, detergents, biodegradable detergents. Carbon fibres.

CONSERVATION OF NATURAL RESOURCES : - Pollution of river water, Ganga action plan for improving quality of water, Need for sustainable management of natural resources. Development of non-conventional energy resources to prevent pollution and atmospheric conservation.

MAN MADE MATERIAL : - Ceramics, cement, porcelain, glass, carbon fibres, soaps and detergents, polymers, fibres and plastics.

Life Processes

- ❖ What are life Processes.
- ❖ Need for Nutrition.
- ❖ Different modes of Nutrition in animals.
- ❖ What is Photosynthesis
- ❖ Various steps of holozoic nutrition.
- ❖ Aerobic and anaerobic respiration.
- ❖ Transportation in Human beings.
- ❖ Transportation in Plants.
- ❖ Transportation in animals.
- ❖ Excretion in animals including Human beings.
- ❖ Excretion in Plants.

Control & Co-ordination.

- ❖ Animals - nervous system.
- ❖ Basic unit of Nervous System in animals.
- ❖ Reflex action.
- ❖ Human Brain
- ❖ Co-Ordination in plants.
- ❖ Geotropism - Positive, Negative.
- ❖ Hormones in animals.
- ❖ Endocrine & Exocrine glands.

ru

Reproduction.

- ❖ Importance of variation.
- ❖ Modes of Reproduction used by single organisms.
- ❖ Sexual Reproduction used by single organisms.
- ❖ Reproduction in Human beings.
- ❖ What happens when egg is not fertilized
- ❖ Modes of avoiding pregnancy (family planning)

Heredity and Evolution

- ❖ What is heredity?
- ❖ Mendel's Law of inheritance.
- ❖ How is sex determined.
- ❖ Evolution & Classification.
- ❖ Acquired and inherited traits.
- ❖ Homologous and Analogous organs.
- ❖ What are fossils?
- ❖ Human Evolution.

The Human eye and colourful world.

- ❖ Structure of eye
- ❖ Defects of eye and their correction

Natural resources

- ❖ The fundamental unit of Life.
- ❖ What are living organisms made of?
- ❖ Structure organization of cell

Tissues

- ❖ Define tissue
- ❖ Types of plants tissue and animals tissues.

Diversity of living organisms

- ❖ Basis of Classification.
- ❖ Classification & Evolution.
- ❖ Hierarchy of classification - groups.
- ❖ Plantae, Animalia,
- ❖ Nomenclature.

Why do we fall ill

- ❖ Health & its failure.
- ❖ Diseases and their causes
- ❖ Types of diseases - Infectious, Non-infectious.
- ❖ Prevention of diseases.
- ❖ Immunization

NATURAL RESOURCES

1. Our Environment :

Atmosphere, roll of atmosphere in climate control, wind, rain, environmental pollution: Global warming and green house effect, acid rain, particulate pollutants, smog, formation of photochemical smog. Formation of ozone and its break down ozone hole, causes of ozone hole formation, polar vortex, effects of depletion of ozone hole. Water pollution-oxygen demand, chemical oxygen demand, international standard of drinking water, processing of drinking water. Soil pollution: waste recycling, Strategies to control environmental pollution, its collection and proper methods of disposal.

Biogeochemical cycles: water cycle, carbon cycle, and oxygen cycle.

- 21
2. Breath of life: Air, Air pollution
 3. Water a wonderful liquid.
 4. Water pollution.
 5. Biochemical cycles, nitrogen cycle. Carbon Cycle. Oxygen cycle.
 6. The green house effect.
 7. What is ozone layer. How does it protect the earth. What are the causes of depletion of ozone layer. How can it affect day to day life of living organisms.

Improvement in Food Resources

1. Improvement in crop yield.
2. Animal Husbandry.
3. Need for intercropping.
4. Cross Breeding.

SYLLABUS FOR WRITTEN EXAMINATION FOR TGT (SOCIAL SCIENCE)

HISTORY

- ❖ Contemporary World
 - a. Industrial Revolution.
 - b. Economic Depression
 - c. Labour & Peasant class issue
 - d. Growth of industries in India in twentieth
 - e. Century
 - f. Features of colonial society in India

- ❖ Modern European History
Ancient India, Modern India

GEOGRAPHY

Introduction to solar system: origin of earth.

Motion of the Earth: Rotation, Revolution, Occurrence of Day and Night; change of seasons; Latitudes and Longitudes; Finding time. Earth's Interior: Origin of continents and ocean basins Wegener's Continental drift theory, Theory of Plate Tectonics, Earthquakes and Volcanoes, Folding and faulting.

Rocks and Minerals: Types of rocks; soil formation; major types and characteristics.

Agents of gradation: Weathering, mass wasting running water, wind, glaciers, sea waves and Karsat topography.

Climate:

Atmosphere - Composition and structure, elements of weather and climate Insulation - Heat Budget, Heating and cooling of atmosphere, Conduction, Convection, Solar Radiation, Terrestrial radiation, Advection, Temperature, Factors controlling temperature, distribution of temperature-horizontal and vertical Pressure - Pressure belts, winds, cyclones and anticyclone, Evaporation, condensation and precipitation and their forms: Humidity, rainfall and its type. World climates - Classification, greenhouse effect, global warming and global climate change. Water (Oceans): Distribution of water bodies on the Earth's surface; hydrological cycle. Ocean - Submarine relief, distribution of temperature and salinity; movement of ocean water's-waves, tides currents of Atlantic, Pacific and Indian Ocean Maps and Scales - Definition and classification Finding direction, Conventional signs Techniques of representing relief features on map; contours, Hechures, hill shading, layer tinting. Representation of climatic data; line and bar Graph, (Climograph) Isotherms, isobars and isohyets Biosphere: ecology, type of Ecosystem, structure and functions of Eco-system-Food Chain, Food Web, World Biomes, Ecological Balance, Biodiversity and its conservation.

21

-22-

India (Size and location) – Physical features of India

Geological Structure, physiographic divisions, drainage system and its evolution.

Climate: origin and mechanism of Indian monsoon, Seasons of India, Classification of Climate of India (Coeppen's) Soil: Types and distribution: Natural vegetation: types and distribution.

Population:

Growth and Distribution of population: Causes & Factors

Migration – Causes and consequences

Population theories & their relevance – Malthus, Demographic transition – theory. Population composition and its Attributes: Population and sustainable development; Population as a resource; Population problems and policies with reference to India.

Resources and Development

Meaning, nature and Components of resources and environment; Resources, environment and technology interface; classification of resources. Distribution, utilization, economic and environmental significance and conservation of water, Minerals, Forests and fisheries; production and distribution of major crops, wild life resource and energy resources.

Agriculture

Wet and dry agriculture, Intensive, Extensive, shifting, commercial and plantation agricultural development and problems, crop intensity, major crops.

Manufacturing Industries

Classification, locational factors, types and distribution, industrial clusters of India, Production and distribution of sugar, Cotton Textile Iron and steel, chemicals and electronic industries.

Life lines of National Economy

Means of transportation and communication, Roads, Railways, waterways and airways, oil and gas pipelines, National electric grid, radio, television satellite and computers.

International trade – Changing pattern of India's foreign trade, sea ports and airports: Tourism and trade.

Understanding Disaster and Hazards.

Type of Disasters – Natural & Manmade.

1. Disaster Management : Becoming and Disaster manager. Components of disaster management.
 2. Disaster risk reduction: Disaster risk management. Understanding Disaster mitigation. Specific Hazards and mitigation.
 3. Common manmade Disasters and their prevention.
 4. Community based Disaster Management and social planning for Disasters.
 5. Tsunami: The killer sea waves.
 6. Survival skills: During and After Disaster.
 7. Alternative Communication system.
 8. Safe construction Practices
 9. Sharing Responsibilities
 10. Planning Ahead
- 24

- 23 -

Components of production

People as Resource

- Economic activities/non economic activities
- Population
- Education
- Health
- Unemployment/Employment

Poverty as a challenge

- Poverty line
- Poverty & inequality
- Policies for poverty reduction
- Poverty estimates

Food security in India

- Food Security
- Green revolution
- Buffer stock
- Issue price/Support price
- Role of co-operative societies in food security

Development

Growth/Development and structural development:

- Growth and distribution, sustainable agricultural growth
- Growth structural changes
- Population and human resource development
- Purchasing power parity (PPP)
- Main features of Indian Economy at the time of Independence
- Economic development
- Gross enrolment ratio
- Foreign trade & Economic development
- Development & under Development
- Distribution of Income/factors of development

Sectors of the Economy

Classification of Sectors like – Primary/Secondary/Organized/Unorganized/Public/Private sector

Small and Large Industry

Performance of the Public Sector

Privatization

Employment growth in the Industrial sector

Money & Credit

- Indian Monetary System
- Function of Money
- Banks :
 - Central Bank function
 - Commercial Banks
- Self help Groups (SHGs)
- Debt trap
- Demand of Money & supply of money
- Financial markets
- Money and capital market
- Monetary aggregates in India.

- 24 -

CIVICS

- Power Sharing
- Federalism
- Democracy and Diversity
- Political Parties
- Elections
- Challenges to Democracy
- Democracy
 - Concept
 - Salient Features
 - Local Self Government
 - Elections
 - Democracy in India & the World
- Indian Constitution
 - Framing of the constitution
 - Adoption of the constitution
 - Working of Institutions - Parliament, Judiciary
 - Fundamental Rights.

8. THE CATEGORY OF CANDIDATES ELIGIBLE FOR AGE RELAXATION IN UPPER AGE LIMIT FOR THE ABOVE SAID POSTS :

(i)	For SC/ST	:	05 Years. (only in respect of the post reserved for SC/ST)
(ii)	For OBC (with Non-Creamy Layer)	:	03 Years. (only in respect of the post reserved for OBC)
(iii)	For PH	:	10 Years. (SC/ST-15 Years, OBC - 13 Years).
(iv)	For ExSM	:	Period of Military Service + 03 Years
(v)	For Ex-TAs of Ordnance Factories	:	To the Extent of period for which they had under gone training (only for Semi-Skilled posts)
(vi)	For Government Servant	:	40 Years with 3 years of continuous service. (SC/ST - 45 years. OBC - 43 Years)
(vii)	For Widows, Divorced women and Women judicially separated from their husbands and who are not re-married.	:	35 Years (SC/ST 40 Years)

9. EXAMINATION FEES

A Demand Draft from any Nationalized Bank worth of Rs.50/- (Rupees Fifty Only) drawn in favour of The General Manager, Cordite Factory, Aruvankadu, payable at Coonoor or Udhagamandalam (Ooty) towards application fee should be submitted along with application for each post separately. However, applicants belong to SC/ST/PHP/Ex.SM are eligible for fee exemption. Candidates are required to write their name and date of birth on the back side of the demand draft without fail. **No other mode of payment will be accepted.**

10. HOW TO APPLY

The application should be made on plain paper either neatly hand written or typed as per the prescribed format, affixed with latest passport size photograph duly self attested. **Two extra copies** of the same photographs to be **self attested (in front of the photographs)** should be enclosed.

The envelope must be clearly superscribed as "APPLICATION FOR THE POST OF _____". Application will be rejected if not superscripted.

Application to be forwarded to the following address only:

The General Manager,
Cordite Factory,
Aruvankadu, The Nilgiris District.
Tamilnadu Pin -643 202.

11. CLOSING DATE FOR RECEIPT OF APPLICATION

Closing date for receiving of application will be **21 days from the date of first appearance** of the Advertisement in the Employment News.

If the closing date falls on a Holiday for the Factory, then the next working day shall be considered as the closing date for all purposes.

12. GENERAL CONDITIONS:

- ❖ The Question paper would be either in Hindi & English as opted by the candidate and for the post of MTS the question paper will be either in Hindi, English or Tamil as opted by the candidate.
- ❖ The answers are required to be entered in OMR sheets only.
- ❖ Candidates should darken the circles in the OMR sheet with blue/black pen only. Other method of marking in OMR sheets will not be evaluated.
- ❖ No marks would be allotted for questions in which multiple darkening has been done in the OMR Sheet.
- ❖ The crucial date for age, mandatory qualification etc will be the closing date for receiving application.
- ❖ Language (ENGLISH/HINDI) in which the question paper is required to be provided must be clearly ticked (✓) in the appropriate place in the application form.
- ❖ Those working in Govt. establishment, public sector undertakings and autonomous bodies should apply through proper channel. Advance applications will not be considered. Further, they should produce certificate from their establishment that "No disciplinary action is contemplated/pending against them and that they have no objection in releasing them if selected".
- ❖ The appointments are proposed to be made at Cordite Factory, Aruvankadu but after appointment the candidates are liable to be posted to any other Ordnance Factory in India.
- ❖ The new pension scheme i.e., Defined Contribution Pension Scheme is compulsory for all Central Government Employees appointed after 01/01/2004 and the same will be applicable for the appointed candidates against this advertisement.
- ❖ The self attested copies of education qualifications, certificate for age proof, experience certificate from institutions etc., should be enclosed along with the application. In case of persons working in Central/State Govt./PSU, 'No Objection Certificate' in original should be produced. For Ex-Serviceman self attested copies of discharge certificate should be enclosed along with the application. For Widows, Divorced women and women judicially separated from their husbands and who are not re-married should submit the adequate proof from the competent authorities.
- ❖ The OBC candidate applying for the post under OBC category should also have to submit duly signed undertaking in the format given at **Appendix-I** of the Application Form.
- ❖ The Ex-Serviceman candidate applying for the post under Ex-Service category will also have to submit duly signed undertaking in the format given at **Appendix-II** of the Application form.
- ❖ Submission of false / incorrect / incomplete information and / or dubious / bogus documents shall disqualify the candidature.
- ❖ Individuals have to submit separate applications for each post in **separate** envelopes. Multiple Applications in single envelope will be rejected.
- ❖ Submission of more than one application by the same individual for a post will summarily be rejected.
- ❖ SC/ST candidates shall be paid second class TA as admissible under the rules in the shortest route of travel, on production of Bus / Train ticket and Caste / Community Certificate.
- ❖ **No correspondence/enquiry through Phone/messenger will be entertained.**
- ❖ Canvassing in any form will lead to disqualification.
- ❖ Mere submission of application form does not guarantee, issue of "Admit Card" for written test/physical test/Skill Test.
- ❖ Only selected candidates will be informed for their selection in due course.
- ❖ Candidates appearing for Written Test / Physical Test / Trade test/ Skill test will have to travel on their own expenses.
- ❖ Cordite Factory, Aruvankadu will not be responsible for late./ non-receipt of filled-in application/ Call letters / admit cards etc., due to postal delay or any other reasons.
- ❖ E-mail ID & Phone/Mobile Numbers should be kept active till the completion of whole recruitment process.

13. Rejection of Application/Cancellation of Candidature:-

- a. If the age of candidates is found to exceed the prescribed age limit on closing date of application.
- b. If the candidate is not found to possess the essential qualification on closing date of application.
- c. If the photocopies of all related documents not enclosed with self attestation (in front side).
- d. If application is incomplete in any respect as per requirement specified in the advertisement and/or date & signature and Left Thumb Impression are not put at the assigned places on the application form.

- e. If the application of departmental candidate/candidate employed in Govt. Service/Semi Govt. Service/PSIJ is not received through proper channel with NOC.
- f. If duly signed Appendix-I is not enclosed with application Form (in case of OBC candidate only). The OBC certificate should be in the specific format for applying for appointment to the posts under Government of India with Non-creamy layer clause obtained from the Competent Authority within a period of 3 years).
- g. If duly signed Appendix-II is not enclosed with application form (in case of ExSM only)
- h. If additional Two Self attested photos not enclosed along with application.
- i. Not mentioning of category against which the candidates applied for.
- j. Not submitting the examination fee except those eligible for fee exemption.
- k. If the candidate has not specified the language of examination.
- l. If the candidate fails to produce/submit all the essential documents as and when asked to do so.
- m. In case candidates are found using unfair means or adopting any malpractice at any stage of selection process.

14. CAUTION TO ALL CANDIDATES:

Some unscrupulous elements may approach you with the assurance of procuring appointment for you in the factory through illegal gratification. You must not fall prey to such false assurance or exploitation and must not entertain or encourage such elements in any way. It is emphasized and re-assured that the written test and the selection exercise will be done on merit in a transparent manner.

DECLARATION BY OBC CANDIDATES ONLY

(Similar endorsement should be given in the caste certificate from the competent authority)

I Son/Daughter of Shri

Resident of village/town/city District

State Hereby declare that I belong to the
community which is recognized as a backward class by the Government of India for the purpose of
reservation in services as the orders contained in DOPT OM No.36012/22/93-Estt.(SCT) dated
08-09-1993 and as amended. It is also declared that I do not belong to persons/sections (Creamy Layer)
mentioned in column 3 of the Schedule to the above referred Office Memorandum dated 08-09-1993 and
as amended.

Date :

(Signature of the Candidate)

APPENDIX - II

**FORM OF UNDERTAKING TO BE GIVEN BY CANDIDATES APPLYING
FOR CIVIL POSTS UNDER EX-SERVICEMEN CATEGORY**

I understand that, if selected on the basis of the recruitment/examination to which this application relates, my appointment will be subject to my producing documentary evidence to the satisfaction of the Appointing Authority that I have been duly released/retired/discharged from the Armed forces that I am entitled to the benefits admissible to Ex-Servicemen in terms of the Ex-Servicemen (Re-employment in Central Civil Services and Posts) Rules, 1979, as amended from time to time.

I also understand that I shall not be eligible to be appointed to a vacancy reserved for Ex-Servicemen in regard to the recruitment covered by this examination, if I have at any time prior to such appointment, secured any employment on the civil side (including Public Sector Undertakings, Autonomous Bodies/Statutory Bodies, Nationalized Banks etc.) by availing of the concession of reservation of vacancies admissible to Ex-Servicemen.

Date :

(Signature of the Candidate)

[Handwritten Signature]

- 28 -
PROFORMA FOR APPLICATION

Place for recent passport size photo of the applicant (self attested) to be firmly pasted (not to be stapled)

To

The General Manager,
Cordite Factory,
Aruvankadu
The Nilgiris – 643 202
Tamil Nadu

01.	Post Applied for			
02.	Name in Block Letters (as mentioned in 10 th std. certificate)			
03.	Father's / Husband's Name			
04.	Date of Birth	Day (dd)	Month (mm)	Year (yyyy)
05.	Nationality			
06.	Caste / Category [Mention whether SC/ST/OBC/UR/WIDOW/DIVORCED WOMEN]			
07.	Address & pin code in full for communication			
08.	Nearest Railway Station			
09.	Phone/Mobile Number			
10.	E-mail ID			
11.	Two Prominent and visible identification Marks	i)		
		ii)		
12.	Language in which question paper is required. Please tick (√) Other than the post of Multi Tasking Staff .	ENGLISH	HINDI	
13.	Language in which question paper is required. Please tick (√) Only for the post of Multi Tasking Staff	ENGLISH	HINDI	TAMIL

14. Details of educational and other qualifications starting from X Standard/SSLC:

Name of School/College	Name of Recognized University / Board of Examination	Examination Passed	Year of Passing

15. Only for the post of LOWER DIVISION CLERK

Typing speed on Computer (Mandatory)* [Select one]	35 words per minute in ENGLISH	30 words per minute in HINDI
--	-----------------------------------	---------------------------------

*Typing on computer with the specified speed is compulsory.

15. Only for the post of STENOGRAPHER.

Medium of Stenography Test [Select one]	ENGLISH	HINDI
---	---------	-------

16. Whether Ex-servicemen, if yes, please furnish the detail and enclose self attested copy of discharge certificate.

Date of Entry in Armed Forces	Date of Discharge	Number of years Service rendered	Whether service rendered in Central / State Govt/Quasi Govt/Semi Govt. body/Autonomous body after date of discharge, if yes furnish the details.

17. Details of Passing NCVT (NAC/NTC) Examination - if applicable

Name of Trade	Whether Ex-Trade Apprentices Of Ordnance Fys. (Yes/No)	Name of Ord. Fy. Or Institution	Training period		NCVT Batch No.	Year of Passing	Certificate No. & Date of Issue
			From	To			

18. Whether employed in Govt. Service / PSU, if yes, furnish following details:-

Name of Organization/ Department	Post & Pay Scale /Grade Pay	Nature of Duty	Date from which Employed

19. If Candidate belonging to PwD (Persons with Disabilities) : Yes / No. _____

Type of PH	% of PH	Category*	Certificate No. & Date	Name of Issuing Medical Authority

* Refer first page of the advertisement.

19(a)	If visually handicapped candidates (with 40% disability and above), mention whether the assistance of scribe is required	Yes	No
-------	--	-----	----

20. Check List of Enclosures:

Sl.No	ENCLOSURES	YES / NO
1	Proof of Date of Birth	
2	Educational Qualification Certificate	
3	Demand Draft for ₹ 50/- (except SC / ST / PH / Ex - Servicemen)	
4	Caste Certificate : (SC / ST / OBC) - in prescribed proforma	
5	Declaration by OBC candidates - Appendix - I	
6	Discharge Certificate / NOC (in case of Ex-SM/Departmental Candidates)	
7	Form of Under taking : Appendix - II (In case of Ex-Serviceman)	
8	PH Certificate in prescribed proforma for employment in Central Govt.	
9	NCVT (NTC or NAC) certificate - if applicable	
10	Whether all above documents / certificates are self attested	
11	Two copies of self attested photographs	

DECLARATION

I, Shri / Smt / Kum _____ have read the instructions carefully before sending this application. I hereby declare that all the statements made in this application are correct to the best of my knowledge and belief. I understand that any discrepancy found in the information will lead to cancellation of my candidature / debarment at any time.

Left hand thumb impression of the candidate

Signature of the Candidate

Date :
Place :

37 damp 10201/11/0552/1516.