



## COLLECTORATE ; DEOGARH

(ST & SC Development Section)

E-Mail:-[dwo\\_deogarh@yahoo.com](mailto:dwo_deogarh@yahoo.com)

(Phone No.06641-226407)

Notification No. 1737 /SSD, Date : 29/12/2021

Applications in prescribed form are invited from the deserving candidates from native of Odisha for engagement as **Initial Appointee through WRITTEN EXAMINATION** in the following categories of posts in ST & SC Development Department Educational institutions run in Dogarh District. Preference will be given to the candidates belonging to the same district.

SL. No	Name of the post	Category wise position.								
		ST	ST(W)	SC	SC(W)	SEBC	SEBC(W)	UR	UR(W)	Total
1	2	3	4	5	6	7	8	9	10	11
1	BA, B.Ed.	01	-	-	-	-	-	01	01	03
2	BSc, B.Ed. (PCM)	-	-	-	-	-	-	01	-	01
3	BSc, B.Ed. (CBZ)	-	-	-	-	-	-	01	-	01
4	ISC, CT	01	-	-	-	-	-	01	01	03

The detail advertisement and the selection criteria may be obtained from office Notice Board of District Welfare Office, Deogarh and District Website [www.deogarh.nic.in](http://www.deogarh.nic.in). The candidates may download the advertisement, scheme/ syllabus (for written examination) and application format accordingly. The last date of receipt of application in the office of the District Welfare Office, Deogarh is **17.01.2022** by Regd Post/ Speed Post only.

By Order of the Collector

  
District Welfare Officer  
Deogarh



## COLLECTORATE ; DEOGARH

(ST & SC Development Section)

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(Phone No.06641-226407)

### ADVERTISEMENT

No. 1738 /SSD, Date : 29/12/2021.

Applications in prescribed form are invited from the deserving candidates from native of Odisha for engagement as **Initial Appointee** through **WRITTEN EXAMINATION** in the following categories of posts in ST & SC Development Department Educational institutions run in Deogarh District of Odisha.

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1	BA, B.Ed.	01	-	-	-	-	-	01	01	03
2	BSc, B.Ed. (PCM)	-	-	-	-	-	-	01	-	01
3	BSc, B.Ed. (CBZ)	-	-	-	-	-	-	01	-	01
4	ISC, CT	01	-	-	-	-	-	01	01	03

### 1. GENERAL ELIGIBILITY:

- i. He/ She must be a citizen of India.
- ii. He/ She must be able to speak, read and write Odia and must have passed the High School Certificate Examination or equivalent with Odia as principal subject or passed Odia test equivalent to M.E. School standard conducted by the School & Mass Education Department of Odisha.
- iii. Candidates having Bachelor Degree in Arts/ Commerce/ Science with Bachelor Degree in Education from any University of the State or its equivalency are eligible to apply. Regarding Universities/ Institutions of outside State, the candidates shall only be eligible for engagement after verification of genuineness of their educational/ training qualification from concerned University/ Institution from which they have obtained the Degree.
- iv. Such outside University/ Institution pass out candidates shall have to produce the authenticated proof of equivalency and NCTE recognition in support of their qualification at the time of verification failing which their case will not be considered.
- v. He/ She must not have more than one spouse living.
- vi. He/ She must have passed OTET examination conducted by Board of Secondary Education (BSE), Odisha, Cuttack for the post of Elementary Teachers.
- vii. He/She must have passed OSSTET examination conducted by Board of Secondary Education (BSE), Odisha, Cuttack for the post of TGTs.
- viii. Candidate must have registered himself/ herself in Employment Exchange.

2. **Age:-**

He/She must be below 32 Yrs. and above 21 Yrs. of age as on 30-November-2021 provided that maximum age limit shall be relaxed by 5 Years in case of candidates belonging to the ST, SC, SEBC, OBC & Woman categories. Age shall be relaxed for Ex- Serviceman as per Odisha Ex-Service Man Rule-1989. In case of Physically Handicapped candidates the upper age shall be relaxed by 10 years.

3. **Educational Qualification-**

<b><i>Post</i></b>	<b><i>MINIMUM ACADEMIC AND PROFESSIONAL QUALIFICATION</i></b>
TGT Arts	<p>1. Bachelor Degree in Arts/ Commerce or a Shastri (Sanskrit) Degree from a recognised university with two school subjects (school subjects as defined in the proviso here under) from a recognized university having 50% marks in aggregate (45% for SC/ST/PWD/SEBC candidates) and Bachelor in Education (B.Ed.)/3-year integrated B.Ed.-M.Ed. from a NCTE recognized institution.</p> <p style="text-align: center;">OR</p> <p>2. Four-year integrated B.A. B.Ed. from a NCTE recognized Institution with two school subjects (school subjects as defined in the proviso here under) having 50% marks in aggregate (45% for SC/ST/PWD/SEBC candidates)</p> <p>Provided that-</p> <p>In any case the candidate must have passed the Bachelor Degree with any two school subjects offered as Pass/Hons/Elective/Optional/Compulsory subject out of the following-</p> <p>English, Odia, Hindi, Sanskrit, History, Geography, Economics, Political Science, Indian Economy, Landmarks in Indian History, Indian Geography, Indian Polity.</p>
TGT Science (PCM) & TGT Science (CBZ)	<p>1. Bachelor Degree in Science/ B.Tech/ B.E. with two school subjects (school subjects as defined in the proviso here under) from a recognized university having 50% marks in aggregate (45% for SC/ST/PWD/SEBC candidates) and Bachelor in Education (B.Ed.)/ 3-year integrated B.Ed.-M.Ed. from a NCTE recognized institution.</p> <p style="text-align: center;">OR</p> <p>2. Four-year Integrated B.Sc. B.Ed. from a NCTE recognised institution with two school subjects (school subjects as defined in the proviso here under) having 50% marks in aggregate (45% for SC/ST/PWD/SEBC candidates)</p> <p>Provided that:</p> <p>In any case the candidate must have passed the Bachelor Degree with any two school subjects offered as Pass/Hons/Elective/Optional subject out of the following :</p> <p>a.For Trained Graduate Teacher-Science (PCM): Physics, Chemistry, Mathematics. b.For Trained Graduate Teacher-Science (CBZ): Chemistry, Botany, Zoology, Biology, Biotechnology.</p>
I.Sc. CT	He/ She must have passed C.T./ D.I.E.T. with Intermediate/ +2 Science from a recognized Council with OTET.

**(For the post of BA, B.Ed./ B.Sc.B.Ed. the candidates must have passed OSSTET and for the post of IA CT and ISC CT candidates must have passed OTET conducted by BSE, Odisha within the prescribed timeline)**

#### 4. Reservation:

The Odisha Reservation of Vacancies (In posts and service for ST & SC) Act. 1975 and the Odisha Reservation of Posts & Services for Socially & Educationally Backward Classes Act. 2008 and the rules made there under and such other principles of the post-based reservation as prescribed by the State Government on the land mark judgement of Hon'ble High Court/Supreme Court from time to time shall be followed.

One third of the notified vacancies will be reserved for Women Candidates of respective categories. Similarly, 3% will be reserved for Physically Handicapped as per the provision of Section-33 of the "persons with disabilities" (Equal Opportunities, Protection of Rights and Full Participation Act). 1% for eminent sports persons (having represented the country or the state in Govt. recognised sporting events) and 3% for Ex-Serviceman.

Instructions contained in SSPED Deptt. Resolution No.7140/ Dtd.05.09.2017 shall be adhered to for (PwDs) Candidates.

The PH candidates shall be referred to the Appellate Medical Board constituted by W & CD Department vide Notification No.-16430/WCD, Dt.06.09.2011 for Re-examination. Engagement order shall be issued if such candidates found genuine and eligible by the Board.

#### 5. Service Condition, Emoluments & Remuneration:

The emoluments and service conditions shall be guided as per the provisions of G.A. Deptt. Notification No.-32010/Gen., Dt.12.11.2013 & No.-19569/Gen, Dt.12.09.2017 & No.-19574/Gen, Dt.12.09.2017. The Contractual Teaching staff will be paid following consolidated remuneration as per Govt. in Finance Deptt. Letter No.-28090/F, Dt.22.09.2017.

Sl. No.	Category of Posts	Consolidated Remuneration per month
1.	Trained Graduate Teachers (Science/ Arts)	25,300/-
2.	I.A. / I.Sc. CT	15,000/-

#### 6. Selection Procedure:

All selection of teaching staffs shall be done through written examination (Multiple Choice Question) comprising of 100 marks **based on OMR**. Eligible candidates who meet all the requisite qualification and criteria shall be shortlisted for appearing in the written examination. The Selection will be made by the District Selection Committee headed by the District Collector, Deogarh with Inspector of Schools (SSD) and District Welfare Officer (Member Convenor) as members of the Committee as per Notification No.-S.R.O. No.-1169/93/ Dt.13.12.1993 of ST & SC Development Department. The Selection Committee shall prepare the list of suitable candidates on the basis of the results of written examination. The names of the candidates shall be arranged according to the marks secured in the written examination. Minimum cut-off mark for UR category is 35 and for Reserved Category is 30 out of the total 100 marks. Preference will be given to the candidates belonging to the same district.

- i. In case of two or more candidates secured the same marks the candidate older in age will be placed above in the rank.
- ii. If there is further tie, the higher percentage of marks secured in training qualification will be taken in to account.
- iii. Higher Education will not be given any weightage during preparation of merit list in all categories.

7. **ENCLOSURES TO BE ATTACHED WITH THE APPLICATION FROM: -**

- (i) Self Attested photo copies of certificates showing Academic Qualifications with Mark sheets.
- (ii) Self Attested photo copy of NCTE/ RCI approval to be attached in case of candidates who have passed B.Ed./ CT from outside Odisha.
- (iii) Self Attested photo copies of OSSTET & OTET pass certificate.
- (iv) Self Attested photo copy of Caste Certificate issued by the concerned Tahasildar (in case of ST/ SC/ SEBC/ OBC candidates). In case of SEBC candidates the caste certificate should have been issued within one year.
- (v) Self Attested photo copy of Resident Certificate issued by the concerned Tahasildar. The Residential Certificate should have been issued by the competent authority within one year.
- (vi) Self Attested photo copy of valid Employment Registration Card.
- (vii) Self Attested photo copy of certificates for Physically Handicapped Persons/ Ex-servicemen and sports person certificate.
- (viii) 3 nos. of self-attested recent passport size colour photographs with white background signed by the candidate in the front side out of which one has to pasted in the appropriate space provided in the application form and other two should be firmly tagged with the application form.

8. **Mode of application:**

Complete application in all respect along with above enclosures should be sent in a closed cover addressed to the District Welfare Officer, Deogarh, At- Near Collectorate Building, P.O./Dist.- Deogarh, Pin-768108 by Registered Post/ Speed Post only so as to reach on or before **17.01.2022** upto **5.00 PM**. Applications received after due date shall not be considered. Applications received through Courier Service/ By Hand shall not be accepted. Incomplete applications shall not be considered.

9. Category & name of the post applied for and this office **Notification No. 1737 /SSD. Dt. 29/12/2021** should be superscripted in bold capital letters on the cover containing the application form.
10. No TA/ DA will be paid to the candidates for their travel in connection with the recruitment and any time in course of verification of original certificates or interview.
11. The Collector, Deogarh reserves the right for cancellation/ modification of this advertisement and increase or decrease of posts without assigning any reason thereof.

  
**COLLECTOR, DEOGARH.**

Memo No. 1739 /SSD, Date : 29/12/2021.

Copy forwarded to the District Informatics Officer, NIC, Deogarh for kind information and necessary action with a request to display the Advertisement in the District Website for wide publications.

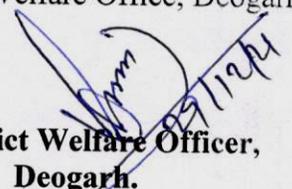
Copy submitted to the Project Administrator, ITDA, Tileibani for kind information and necessary action with a request to display the Advertisement in his Office Notice Board for wide publications.

Copy submitted to the Sub-Collector, Deogarh for kind information and necessary action with a request to display the Advertisement in his Office Notice Board for wide publications.

Copy submitted to the District Employment Officer, Deogarh for kind information and necessary action with a request to display the Advertisement in his Office Notice Board for wide publications.

Copy submitted to Block Development Officer, Barkote/ Reamal/ Tileibani for kind information and necessary action with a request to display the Advertisement in their respective Office Notice Board for wide publications.

Copy to Notice Board of Collectorate, Deogarh/ District Welfare Office, Deogarh.

  
**District Welfare Officer,  
Deogarh.**

**APPLICATION FORM.**



To  
The District Welfare Officer,  
\_\_\_\_\_.

**CATEGORY OF POST APPLIED FOR** \_\_\_\_\_  
(Notification No \_\_\_\_\_ / Dt \_\_\_\_\_)

1. Full name of the candidate. : \_\_\_\_\_  
(in Block Capital Letters)
2. Father's / Husband's name. : \_\_\_\_\_
3. Permanent Address. : \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
4. Present Address. : \_\_\_\_\_  
(for correspondence) \_\_\_\_\_  
\_\_\_\_\_
5. Whether SC / ST / SEBC / OBC / PH / Ex - Serviceman. : \_\_\_\_\_  
(xerox copy of the certificates to be attached in support of the claim)
6. Gender. (Male / Female) : \_\_\_\_\_
7. Date of Birth as recorded in the Matriculation certificate. : \_\_\_\_\_
8. Age as on 30.11.2021 Years  th
9. Name of the Employment Exchange and Registration No. : \_\_\_\_\_
10. Educational Qualification. : \_\_\_\_\_  
(Attach self-attested xerox copy of certificates and mark sheets)

Name of the Examination	Year of Passing	Board/ University	Full Marks (without extra optional)	Marks secured. (without extra optional)	Percentage of marks secured
1	2	3	4	5	6

**N.B.:** Marks secured in Extra optional / Ancillary / Foundation subject should not be included for calculation.

11. List of enclosures. :

**DECLARATION**

I do hereby declare that all the statements made in this application are true, complete and correct to the best of my knowledge and belief. I have read the details in the advertisement notice and do hereby declare that I fulfil all the conditions of eligibility prescribed. In case of any of the statement / particulars is /are found to be given wrong during or after the selection, my candidature for the said post will be cancelled / forfeited by the authority.

Place :  
Date :

Signature of the candidate.

**Scheme & Syllabus**

**For**

**Recruitment of Trained Graduate Teachers (Initial  
Appointee) in SSD Schools.**

**2021-22**

**ST & Sc Development, M&B C Welfare  
Department, Govt of Odisha**

**Scheme for Written Examination for Recruitment of Trained Graduate Teachers (Initial Appointee) in SSD Schools.**

Test Duration	90 Minutes
Total Questions	100 Objective Type Multiple Choice Questions
Total Marks	100 marks*

\*Each question will carry one mark each and there will be Negative marking @0.25marks for each wrong response.

Category	Part	Type of Questions	Number of Questions	Full Marks	Level	Language s	Subjects
Common Paper for TGT Science / Arts	I	MCQ	70	70	-NA-	English	a)General Knowledge & Current Affairs, b)Reasoning Ability, c)Computer Literacy, d)Pedagogy, Educational Management and Policy & Evaluation.
TGT Science PCM	II	MCQ	30	30	Graduation	English	a)Physics, b)Chemistry, c)Mathematics
TGT Science CBZ	II	MCQ	30	30	Graduation	English	a)Chemistry, b)Botany, c)Zoology
TGT Arts	II	MCQ	30	30	Graduation	English	a) History+ Political Science, b) Geography+ Economics, c) English
						Odia	d)Odia

Part-I

- |  |            |
|--|------------|
| 1. General Knowledge and Current Affairs                   | (20 Marks) |
| 2. Reasoning Ability                                       | (20 Marks) |
| 3. Computer Literacy                                       | (10 Marks) |
| 4. Pedagogy, Educational Management, Policies & Evaluation | (20 Marks) |

Part-II

- |            |            |
|------------|------------|
| 5. Subject | (30 Marks) |
|------------|------------|

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**Total Marks**

**(100 Marks)**

**Syllabus for Written Examination for Recruitment of Trained  
Graduate Teachers (Initial Appointee) in SSD Schools.**

**Part -1  
(Total 70 marks)**

[General Knowledge and Current Affairs, Reasoning Ability, Computer Literacy, Pedagogy, Educational Management, Policy and Evaluation]

**Section-I**

**1. General Knowledge and Current Affairs (20 Marks)**

- i. Current events of State (Odisha), National and International Importance
- ii. History of Odisha / India and Indian National Movement
- iii. Indian and World Geography
- iv. Indian Polity
- v. Economic and Social Development
- vi. Everyday Science

**Section-II**

**2. Reasoning Ability (20 Marks)**

- i. General mental ability,
- ii. Logical reasoning and analytic ability
- iii. Decision making and problem solving
- iv. Basic numeracy
- v. Data interpretation

**Section-III**

**3. Computer Literacy (10 Marks)**

- i. Basic computer literacy skills for use of ICT in classrooms
- ii. Concepts, terminology and operations that relate to general computer usage.
- iii. Basic Hardware of Computer
- iv. Common Applications,
- v. Networking and Internet
- vi. Social Networking
- vii. Digital Citizenship

**Section-IV**

**4. Pedagogy, Educational Management, Policies & Evaluation (20 Marks)**

**A. Child Development (Process of Growing Up)**

1. Growth and Development

- Concept, Difference & Principles of Development
  - Factors affecting Development (Nutrition, Intelligence, Psycho-social, Diseases, Injury etc.)
  - Growth and development during Adolescence
  - Counseling services for Adolescents
2. Factors Affecting Different Developmental Aspects
- Cognitive
  - Social(Erikson's Theory)
  - Emotional
  - Moral(Kohlberg theory)
  - Language Development
  - Needs and problems at childhood and Adolescence
3. Approaches to Understanding the Nature of Intelligence
- Psychometric approach (Thurstone, Guilford ,Gardener)
  - Information Processing Approach-Sternberg
  - Cognitive Development Approach-Piaget
  - Social Constructive Approach-Vygotsky

#### **B. Learning Process / Pedagogy**

1. Understanding the Learning Process
- Learning as a process and an outcome
  - Approaches – Humanistic (Karl Rogers)
  - Constructivist (Piaget and Vygotsky)
  - Basic conditions of learning: Readiness, Maturation, Motivation, Task and Methods
2. Organizing Learning
- Teacher-Centric, Learner –Centric, Learning-Centric
  - Characteristics and Process
3. Critical Pedagogy
- Concept, Characteristics, Process, Stages
  - Approaches
4. Addressing Classroom Diversity
- Using varieties of TLMs and AV Aids
  - Using context of the learner
  - Using variety of activities while group learning, small group learning and self learning
  - Learner in the context of Inclusive Education

#### **C. Educational Management**

- Educational Management: Concept, Importance and Scope, Types of Management, Democratic and Autocratic, Centralized and Decentralized
- Management Structure at different levels, National/State/District/Sub-district (BRCs, CRCs, SMCs, SMDC)
- School Development Plan (SDP): Concept, purpose, Key action by Headmaster, students, Parents and SMDC
- Steps in planning for school development
- Annual and prospective plan
- School Management: Role of Headmasters, Teachers, Community

#### **E. Educational Policies and Programmes**

- Kothari Commission 1968
- National Educational Policy 1986
- RTE Act, 2009

- National Curriculum Framework,2005
- National Education Policy 2020
- SSA, RMSA and Samagra Shiksha

#### **F. ASSESING THE LEARNER / PERFORMANCE (EVALUATION)**

##### 1. Assessment and Evaluation

- Assessment and evaluation in constructive perspective
- Concept, Continuous and Comprehensive Evaluation , Formative, Summative and Diagnostic Assessment

##### 2. Assessment and Learning

- Assessment of Learning, Assessment for learning, Assessment as Learning
- Subject-based learning in a constructivist perspective
- Assessment tools and techniques –Projects, Assignments, Observation, Teacher made Tests
- Self-assessment, Peer-assessment
- Portfolios, rubrics

##### 3. Test Construction

- Steps and Principles of Test Construction
- Development of blue print
- Preparation of test items
- Standardized and Teacher made Test

##### 4. Recent Developments in Assessment

- Grading
- Assessment in co-scholastic area
- Implementation strategy of Continuous and Comprehensive Evaluation
- Recommendations of NCF-2005

**Part -2**  
**(Total 30 Marks)**

**TGT Science: (PCM)**

(This section shall carry equal marks from Physics, Chemistry and Mathematics subjects with equal proportion of marks)

**Section I**

**PHYSICS**

[10 questions are to be asked. Each question carries 01 mark]

**Unit-1 Motion**

Newton's laws of motion, Kinematic Equations of motions with acceleration, Graphical representation of Kinematics Equations of motion, Relative velocity and relative acceleration, work energy and power, conservation of energy, collision problem and conservation of linear momentum, forces of nature, friction force.

Circular motion, Rotational Kinematics, Conservation of angular momentum, Moment of Inertia.

Motion under Gravity, project motion, Simple harmonic motion, and Kinematics of simple harmonic motion, simple pendulum.

**Unit-2 Gravitation**

Kepler's law of planetary motion, Newton's law of gravitation, Acceleration due to gravity, Gravitational field and potential, Escape velocity and satellite motion, Geo stationary Satellites.

**Unit-3 Properties of Matter**

Inter- atomic and intermolecular force, Elasticity, Stress, Strain and Hook's law , Elastic module

Kinetic theory of gases, concept of heat, pressure and temperature, specific heat, law of equipartition of energy, Universal Gas laws, measurement of Pressure

Surface tension, surface energy, angle of contact, excess pressure, capillarity, viscosity, Poiseuille's law, Stokes's Law, Bernoulli's Equation of fluid motion.  
Hydrostatics, Buoyancy, Archimedes Principle, Laws of flotation.

**Unit-4 Sound**

Waves, Progressive and stationary waves, mechanical waves, equation of a progressive wave, transverse vibration of a string, speed of sound waves, Newton's formula, Super-position of sound waves, Beats, Echo, Doppler's effect, Musical sound and its characteristics.

**Unit-5 Optics**

Laws of reflection and refraction in transparent medium, total internal reflection, refraction through prisms, Dispersion, Reflection and image formation plan and spherical mirrors, equation for object and image distances for spherical mirrors, image formation in convex and concave lenses, lens equation for convex and concave lenses, power of single and combination of two lenses. Image formation in the eye and defects of vision, microscope and astronomical telescope.

Wave optics, Huygens's principle, Coherent sources and interference, Young's double slit, Bi-prism, Newton's ring experiments, Diffraction of light through single slit and plane transmission grating.

#### **Unit-6 Electrostatics**

Coulomb's law and unit of charge, force on charge due to discrete and continuous charge distributions, lines of force and electric field, field due to a point charge and a dipole, electrostatic potential, potential due to a point charge and an electric dipole, electric potential energy of a group of point charges, electric flux, Gauss law and applications, Capacitor, capacitance of parallel plate and spherical capacitors, combinations of capacitors in series and parallel.

#### **Unit-7 Current Electricity**

Ohm's law, current and voltage measurements, resistance and Resistivity, combination of resistances in series and parallel, electromotive force, grouping of resistors and cells. Kirchhoff's laws and their applications.

Electric energy and power, heating effect of electric current, Faraday's law of electrolysis.

Magnetic field and magnetic induction, Biot-Savart law, magnetic field due to a straight conductor, a circular coil and a solenoid carrying current. Ampere's circuital law, Lorentz force on a charge particle in uniform electric and magnetic fields. Force between two parallel conductors carrying current.

#### **Unit-8 Electromagnetic induction**

Faraday's law of electromagnetic induction, Lenz's law, eddy current, self and mutual induction, emf induced in a rotating coil. Alternating current, average and RMS values of alternating currents, simple AC circuits (RC, RL and RLC), concept of admittance and impedance. Transformers and simple AC devices (motor, dynamo).

### **Section-II**

#### **CHEMISTRY**

10 questions are to be asked. Each question carries 01 mark

#### **Unit-1 Basic Concepts**

Atomic, molecular and equivalent masses, mole concept, types of chemical reactions, calculations based on stoichiometry. Equivalent mass of acid, salt, oxidant and reductant.

#### **Unit-2 States of Matter**

Gas laws- Boyle's law, Charles' law, combined gas equation, ideal gas equation, Graham's law of diffusion/ effusion, Dalton's law of partial pressure.

Characteristics of Liquids: Vapour pressure, viscosity and surface tension. Colligative properties of solutions (solute and solvent forming binary solution).

### **Unit-3 Structure of Atom**

Bohr's model and its limitations, concept of shells and sub-shells, dual nature of matter and light. De Broglie's relationship, Heisenberg uncertainty principles, concepts of orbital's, quantum numbers, shape of s, p and d orbital, rules of filling electrons in orbitals- Aufbau principle and Hund's rule, electronic configuration of atoms, stability of half filled and completely filled orbitals.

### **Unit-4 Classification and elements and periodicity in properties**

Modern periodic law and the present form of periodic table, periodic trends in properties of elements- atomic radii, ionic radii, ionization enthalpy, electron gain enthalpy, electro negativity, valency.

### **Unit-5 Chemical bonding and molecular Structure**

Ionic bond, covalent bond, polar character of covalent bond, covalent character of ionic bond, concept of hybridization, VSEPR Theory and shapes of some simple molecules, hydrogen bond and metallic bond.

### **Unit-6 Chemical reactions**

Types of chemical reactions, redox reaction, Oxidation number calculations, balancing of redox equations by oxidation number and ion electron methods, neutralization reactions and volumetric analysis.

### **Unit-7 Chemical Equilibria and Ionic Equilibria**

Equilibrium in physical and chemical processes, law of mass action, equilibrium constants ( $K_c$ ,  $K_p$ ,  $K_x$ ) relation among them, the reaction quotient and its relation with equilibrium. Le-Chateliers principle and its applications.

Theories of acids and bases, ionization of weak acids and bases, ionic product of water pH and other logarithmic terms, common- ion effect, solubility product and its application in salt analysis.

### **Unit- 8. General Principles of extraction of metals**

Occurrence of metals, ores and minerals, concentration, calcinations, roasting, smelting, reduction methods (carbon reduction, aluminothermic process, electrolytic and self- reductions) and metal extraction, flux and slag refining of metal. Reactions involved in the Blast furnace for extraction of iron.

### **Unit-9 Some basic principles of organic chemistry**

- a) Classification and IUPAC nomenclature of organic compounds
- b) Electronic displacement in covalent bond: inductive effect, electronic effect, resonance and hyper conjugation
- c) Homolytic and heterolytic fission of a covalent bond: free radicals, carbocations, carbanions, electrophiles and nucleophiles, types of organic reactions.

### **Unit-10 Hydrocarbons**

Classification of Hydrocarbons.

- a. Aliphatic Hydrocarbons: general methods of preparation, properties and uses of alkanes, alkenes and alkynes.
- b. Aromatic Hydrocarbons: benzene, resonance aromaticity, chemical properties, directive influence of functional group in mono-substituted benzene.

### Section-III

#### MATHEMATICS

[10 questions are to be asked. Each question carries 01 mark]

**1. Set Theory and its Application**

- Union, intersection, difference, complement, power set, number of elements in union and intersection of finite sets.

**2. Relations and Functions**

- Reflexive, Symmetric, transitive and equivalence relations, injective, surjective and bijective functions, inverse of a function.

**3. Number System**

- Natural numbers, integers, rational numbers, irrational number, real number, absolute values of numbers, triangle inequality.

**4. Quadratic & Linear Equations**

- Fundamental theorem of Algebra, roots, discriminates, nature the roots, relation between the roots and coefficients.

**5. Calculus of One Variable**

- Limit, continuity, derivative, tangent, normal, increasing and decreasing functions.

**6. Sequence and Series**

- Arithmetic and Geometric progressions, monotonic sequence, exponential series, logarithmic series, Taylor's series, Maclaurin's series.

**7. Coordinate geometry**

- Distance formula, section formula, area of a triangle, locus and its equation, straight line, circle, conic section.

**8. Analytical Solid Geometry**

- Plane, straight line, Sphere

**9. Probability**

- Trial, Sample point, Sample Space, Event, Addition Theorem, Binomial Distribution.

**10. Statistics**

- Mean, Mode, Median, Mean Deviation, Standard Deviation, Variance

**11. Trigonometry**

- Angles associated with 90, 180, 270, 360 compounded angle formula, sub-multiple angle formula, Trigonometry Equations, Inverse trigonometric functions, Height and Distance.

**12. Mensuration**

- Circumference of a circle, length of the arc of a circle, area of a circle, sector and segment, area of a circle annulus, area of a sectional region, area of segment, surface area and volume of a prism, right circular cylinder, cone and sphere.

## **TGT Science: (CBZ)**

(This section shall carry equal marks from Chemistry Botany and Zoology subjects with equal proportion of marks)

### **Section I**

#### **Chemistry**

[10 questions are to be asked. Each question carries 01 mark]

(Same as in TGT PCM Syllabus)

### **Section II**

#### **BOTANY**

[20 questions are to be asked. Each question carries 01 mark]

#### **1. Plant Diversity and Conservation**

- Nomenclature and classification of plant kingdom, plant divisions- Thallophyta, Bryophyte, Pteridophyta, Gymnosperms and Angiosperms, their habitat and complexity in their structural organization. Endangered plant species and their conservation measure.

#### **2. Tissue System**

- Meristematic and permanent tissues: their types, organization and functions.
- Tissue System: Epidermal, ground and vascular tissue system, internal structure of dicot and monocot stems and roots secondary growth in plants.

#### **3. Photosynthesis**

- Structure and photosynthetic pigments, Light reaction: light absorption, electron transport and photophosphorylation, Dark reaction- CO<sub>2</sub> fixation by C<sub>3</sub>, C<sub>4</sub> and CAM plants, photorespiration.

#### **4. Growth Regulators in Plants**

- Auxins, Gibberellins, Cytokinins, Ethylene and Abscisic acid, their role in plant growth regulation.

#### **5. Reproduction in plants**

- Vegetative reproduction: Fission, budding and cutting (grafting) and propagation in angiosperms.
- Asexual Reproduction: Sporulation, Conidia formation and other special structure formation.
- Sexual Reproduction: Isogamy, Anisogamy and Oogamy, double fertilization and triple fusion in angiosperms.
- Parthenogenesis: Tissue culture and micro propagation

#### **6. Mendelism**

- Mendelian factors, Monohybrid cross and principles of dominance and segregation.
- Di hybrid cross: Laws of independent assortment.
- Deviations from Mendelian principles

#### **7. Plant Diseases and Control Measures**

- Causal Organisms, symptoms, life cycle and control measures of following diseases: Late blight of potato, powdery mildew, Rust and Smut of Wheat, Leaf Spot and blast disease of rice.

**Section III**  
**ZOOLOGY**

[10 questions are to be asked. Each question carries 01 mark]

**1. Taxonomy**

- Five kingdom classification, Characteristics and Examples of each animal phylum (in case of phylum Chordate up to Classes)

**2. Cytology**

- Cell structure and cell division (mitosis and meiosis), DNA and RNA

**3. Genetics**

- Linkage, Crossing over, Mutation, Chromosomal aberration and chromosomal mechanism of sex determination

**4. Evolution**

- Darwinism, Modern Synthetic theory of evolution ( variation, selection and isolation)

**5. Ecology**

- Eco-system, Food Chain and Food Web, Energy Flow, Ecological Pyramids, Renewable and Non-renewable energy resources, Biodiversity (meaning and conservation), Causes, Effects and Control of Air pollution.

**6. Nutrition**

- Types of food and types of nutrition,

**7. Respiration**

- Types of respiration (aerobic and anaerobic) Glycolysis and Krebs Cycle

**8. Circulation**

- Blood (Composition and function) in man, structure and working of human heart

**9. Excretion**

- Human Kidney (structural details), mechanism of urine formation

**10. Control and Coordination**

- Structure of neuron, synaptic transmission, structure of human brain and function of its different parts, names of endocrine glands and secreted hormones with their specific functions

**11. Reproduction and Development**

- Structure of Gonads (ovary and testes) and Gametes in man, Fertilization. Types of cleavage.

**TGT Arts (Social Studies)**

**(30 Marks)**

(This section shall carry the questions from History & Political Science (05 Marks), Geography & Economics (05 Marks), English (10 Marks) & Odia (10 Marks) each.)

**Section- I**

**HISTROY + POLITICAL SCEINCE (05 MARKS)**

**HISTORY**

1. Great Rulers of Ancient India
  - Ashoka – Conquests, administration and missionary activities
  - Kharavela – Achievements as mentioned in Hatigumpha inscription
  - Samudragupta – Conquests
  - Harshavardhana – Conquests, administration and religious activities
2. Development of Art and Architecture during Maurya Age, Gupta Age and Kushana Age
3. Development of Literature and Science in Ancient India
4. Administration during Delhi Sultanate with special reference to Balban, Alauddin Khilji and Feroze Shah Tughlaq.
5. Mughal architecture and painting during the reign of Akbar, Jahangir and Shahjahan
6. Rise of British power in India from 1757 to 1856
  - Robert Clive and foundation of British Power
  - Administrative and judicial reforms of Warren Hastings
  - Revenue reforms of Lord Cornwallis
  - Subsidiary alliance
  - Reforms of Lord William Bentinck
  - Doctrine of Lapse
7. Growth of India Nationalism, 1857-1905
  - Revolt of 1857
  - Development of press and literature
  - Education
  - Formation of Political associations
8. Indian National Movement, 1905-1947
  - Swadeshi movement
  - Non-cooperation movement
  - Civil Disobedience movement
  - Quit India movement
  - Indian National Army
  - Partition and Independence
9. First World War and Russian Revolution
  - Causes and consequences of First World War
  - Causes Progress and Effects of Russian Revolution
10. Second World War- Causes and Consequences

**POLITICAL SCIENCE**

1. Salient features of Indian Constitution
2. Preamble, Fundamental Rights, Directive Principles of State Policy, Fundamental Duties
3. Union Government – President, Prime Minister, Council of Ministers, Parliament and Supreme Court

4. State Government – Governor, Chief Minister, Council of Ministers, Legislative Assembly and High Court.
5. Local Governance – Urban and Rural
6. Electoral Process and Election Commission
7. India's Foreign Policy and its relation with neighbours
8. United Nations – General Assembly, Security Council Human Rights
9. Socialism, Liberalism, Democracy, Authoritarianism, Welfare State and Globalization
10. Kautilya, Raja Ram Mohan Roy, Bal Gangadhar Tilak, Swami Vivekananda, Mahatma Gandhi, Nehru, B.R. Ambedkar

## **Section- II**

### **GEOGRAPHY + ECONOMICS (05 MARKS)**

#### **GEOGRAPHY**

1. Physical Geography of India
  - Physiography
  - Drainage
  - Climate
2. Resources with Special Reference to India
  - Types and Classification, Land Resources; Biotic Resources
  - Mineral, Energy, Water Resources
  - Agriculture and Industrial Resources
3. Physical Geography
  - First, Second and third order land forms; Development of land forms – work of rivers, wind and glaciers. Interior of the earth, rocks and their types
  - Structure and composition of the atmosphere, insolation and temperature; Pressure and Winds; Humidity and Rainfall
  - General relief of ocean floor: Salinity and temperature of the ocean water. Oceanic circulation – waves, tides currents
4. Globe and Maps
  - Basic features; types of maps; map scale; contours of relief features
  - Concept of latitude and longitude; International dateline Time Zones; Local and Standard Time.

#### **ECONOMICS**

1. Indian Economy
  - Features and broad demographic characteristics; Need and Policies for facing the challenges of over population
2. Current Challenges of Indian Economy
  - Poverty – Measures of poverty; causes, consequences, policy and programmes adopted for poverty eradication; Remedies.
  - Unemployment – Types and measures of unemployment; Causes, consequences and programmes adopted for reducing unemployment.
  - Inflation – Meaning and types; Demand pull and cost push inflation; Causes and consequences and measures taken to control inflation.
3. Economic Development

**Scheme & Syllabus**

**For**

**Recruitment of I.A CT and I.Sc CT  
Teachers (Initial Appointee) in SSD  
Schools.**

**2021-22**

**ST & Sc Development, M&BC  
Welfare Department, Govt of  
Odisha**

**Syllabus for Written Examination for Recruitment  
of IA CT and ISC CT Teachers (Initial Appointee) in  
SSD Schools.**

**Part -1**

(Total 70 marks)

[General Knowledge and Current Affairs, Reasoning Ability,  
Computer Literacy, Pedagogy, Educational Management,  
Policy and Evaluation]

**Section-I**

**1. General Knowledge and Current Affairs (20 Marks)**

- i. Current events of State (Odisha), National and International Importance
- ii. History of Odisha / India and Indian National Movement
- iii. Indian and World Geography
- iv. Indian Polity
- v. Economic and Social Development
- vi. Everyday Science

**Section-II**

**2. Reasoning Ability (20 Marks)**

- i. General mental ability,
- ii. Logical reasoning and analytic ability
- iii. Decision making and problem solving
- iv. Basic numeracy
- v. Data interpretation

**Section-III**

**3. Computer Literacy (10 Marks)**

- i. Basic computer literacy skills for use of ICT in classrooms
- ii. Concepts, terminology and operations that relate to general computer usage.
- iii. Basic Hardware of Computer
- iv. Common Applications,
- v. Networking and Internet
- vi. Social Networking
- vii. Digital Citizenship

**Section-IV**

**4. : CHILD DEVELOPMENT AND PEDAGOGY (20 Marks)**

**A. Understanding Child Development during Childhood  
(focus on children at primary level)**

- i. Concept, principles and stages of child development
- ii. Characteristics of physical, cognitive, social, emotional and moral development in childhood

- iii. Influence of heredity and environment in understanding the child

#### **B. Understanding Learning Process and Learners**

- i. Learning – concept, nature and individual differences in learning
- ii. Understanding how child learns – learning through observation, limitation
- iii. Understanding how child learns – various methods of learning
- iv. Basic conditions of learning and promotion of learning through motivation, classroom learning environment and teacher behaviour
- v. Development of creative thinking

#### **C. Concept of Inclusive Education and Understanding Children with special needs**

- i. Concept of inclusive education
- ii. Addressing the needs of diverse group of learning in inclusive classroom (CWSN, girls, SC / ST)
- iii. Addressing the talented, creative learning

#### **D. Approaches to teaching and learning**

- i. Teacher-centred, learner-centred and learning-centred approach
- ii. Competency-based and activity-based approach
- iii. TLM – its importance, use and preparation for classroom transaction
- iv. Teaching competency to handle mono-grade and multi-grade situation

#### **E. Assessment**

- i. Continuous and comprehensive assessment
- ii. Purpose of assessment
- iii. Assessing scholastic and other scholastic areas
- iv. Sharing of assessment outcomes and follow up

## **PART-II**

### SECTION A : LANGUAGE (ENGLISH)

#### GROUP – A : (PEDAGOGY)

**Unit – 1 :-** Learning English at the Elementary Level

- Importance of learning English
- Objectives of learning English (in terms of content and competencespecifications)

**Unit – 2 :-** Language Learning

- Principles of language teaching
- Challenges of teaching language in a diverse classroom

**Unit – 3 :-** Skills in learning English

- Four-fold basic skills of learning viz., listening, speaking, reading

and writing :interdependence of skills

- Techniques and activities for developing listening and speaking skills(recitation, story telling, dialogue)
- Development of reading skills : reading for comprehension, techniques andstrategies for teaching, reading (phonic, alphabet, word, sentence and story)
- Development of writing skill – teaching composition

**Unit – 4 :-** Assessment of English

- Assessing language comprehension and proficiency : listening, speaking,reading, writing

**GROUP – B : (CONTENT)**

**Unit – 5 :-** Comprehension

- Two unseen prose passage (discursive or literary or narrative or scientific)with questions on comprehension, grammar and verbal ability

**Unit – 6 :-** Language items

- Nouns, Adverbs, Verbs, Tense and Time, Preposition, Articles, Adjectives,Prepositions, Punctuation

**Section B : Mathematics**

**GROUP – A : (PEDAGOGY)**

**Unit – 1 :-** Mathematics Education in Schools

- Nature of Mathematics (exactness, systematic, patterns, preciseness)
- Aims and objectives of teaching Mathematics
- Specific objectives of teaching Mathematics

**Unit – 2 :-** Methods and Approaches to Teaching-Learning

Mathematics

- Methods : Inductive, deductive, analysis, synthesis, play-way
- Approaches : Constructivist and Activity-based

**Unit – 3 :-** Assessment in Mathematics

- Assessment in Mathematics
- Formal and informal assessment
- Different types of test items
- Planning for remedial and enrichment programme in Mathematics

**GROUP – B : (CONTENT)**

**Unit – 4 :-** Number System and Operation in Numbers

- Number system (natural, whole, rational, real) -
- Fundamental operation on numbers
- Fractional numbers and decimals – operations in fractional numbers and decimals
- Factors and multiples – HCF and LCM
- Percentage and its application

**Unit – 5 :-** Measurement

- Measurement of length, weight, capacity
- Measurement of area and perimeter of rectangle and square
- Measurement of time (concept of am, pm and time interval)

**Unit – 6 :-** Shapes and spatial Relationship

- Basic geometrical concepts (point, line segment, ray, straight line, angles)
- Geometry of triangles, quadrilaterals and circles
- Symmetry
- Geometrical solids (cube, cuboid, sphere, cylinder cone)

**Unit – 7 :-** Data Handling and Patterns

- Pictography, bar graph, histogram, pie chart Interpretation of these graphs
- Patterns in numbers and figures

**SECTION C : ENVIRONMENTAL STUDIES (EVS)**

**GROUP – A : (PEDAGOGY)**

**Unit – 1 :-** Concept

- Concept and Significance
- Integration of Science and Social Science
- Aims and objectives of teaching and learning EVS

**Unit – 2 :-** Methods and Approaches

- Basic principles of teaching EVS
- Methods : Survey, Practical Work, discussion, observation, project
- Approaches : Activity-based, theme-based

**Unit – 3 :-** Evaluation in EVS

- Tools and techniques for evaluation learning in EVS
- Diagnostic assessment in EVS

**GROUP – B : (CONTENT)**

**Unit – 4 :-** Governance

- Local-self, Government – State and Central

- Judiciary

**Unit – 5 :-** Physical Features of Odisha and India

- Landscape
- Climate
- Natural resources
- Agriculture and industry

**Unit – 6 :-** History of Freedom Struggle in India and Odisha

**Unit – 7 :-** Health and Diseases

- Nutritional, elements, balanced diet
- Nutritional, deficiency and diseases
- Waste materials and disposal
- First-aid
- Air and water pollution

**Unit – 8 :-** Internal Systems of Human Body

- Respiratory, circulatory, digestive and excretory system – structure and partsof plant – structure and function

**Unit – 9 :-** Matter, Force and Energy

- Matter and its properties
- Earth and sky, effect of rotation and revolution of earth
- Work and energy