



ગુજરાત જહેર સેવા આયોગ

સેક્ટર - ૧૦-એ, છ-૩ સર્કલ પાસે, છ રોડ,
ગાંધીનગર - ૩૮૨૦૧૦

જહેરાત ક્રમાંક : ૧૧/૨૦૨૩-૨૪, પુરાતત્વીય રસાયણવિદ, વર્ગ ૨-ની જગ્યા પર ભરતી માટેની પ્રાથમિક કસોટીમાં ભાગ-૧ અને ભાગ-૨ ના ૧૮૦ મિનિટના સંયુક્ત પ્રશ્નપત્રનો અભ્યાસક્રમ

સીધી પસંદગીથી ભરતીની પ્રાથમિક કસોટીનો અભ્યાસક્રમ		
ભાગ-૧		
માધ્યમ: ગુજરાતી અને અંગ્રેજી.		કુલ ગુણ : ૧૦૦
મુદ્દા	વિષય	ગુણ
૧	ભારતની ભૂગોળ- ભૌગોલિક, આર્થિક, સામાજિક, કુદરતી સંસાધન અને વસ્તી અંગેની બાબતો- ગુજરાતના ખાસ સંદર્ભ સાથે	૩૦
૨	ભારતનો સાંસ્કૃતિક વારસો- સાહિત્ય, કલા, ધર્મ અને રચાપત્યો- ગુજરાતના ખાસ સંદર્ભ સાથે	
૩	ભારતનો ઇતિહાસ- ગુજરાતના ખાસ સંદર્ભ સાથે	
૪	ભારતની અર્થવ્યવસ્થા અને આયોજન	
૫	ભારતીય રાજનીતિ અને ભારતનું બંધારણ: (૧) આમુખ (૨) મૂળભૂત અધિકારો અને ફરજો (૩) રાજ્યનીતિના માર્ગદર્શક સિદ્ધાંતો (૪) સંસદની રચના (૫) રાષ્ટ્રપતિની સત્તા (૬) રાજ્યપાલની સત્તા (૭) ન્યાયતંત્ર (૮) અનુસૂચિત જાતિ, અનુસૂચિત જનજાતિ અને સમાજના પછાત વર્ગો માટેની ખેગવાઈઓ (૯) નીતિ આયોગ (૧૦) બંધારણીય તથા વૈધાનિક સંસ્થાઓ- ભારતનું ચૂંટણી પંચ, કોમ્પ્યુટર એન્ડ ઓડિટર જનરલ, માહિતી આયોગ	
૬	સામાન્ય વિજ્ઞાન, પર્યાવરણ અને ઇન્ફર્મેશન એન્ડ કોમ્યુનિકેશન ટેકનોલોજી	૧૦
૭	ખેલ જગત સહિત રોજબરોજના પ્રાદેશિક, રાષ્ટ્રીય અને આંતરરાષ્ટ્રીય મહત્વના બનાવો	૧૦

૮	<p>સામાન્ય બૌદ્ધિક ક્ષમતા કસોટી</p> <p>(૧) તાર્કિક અને વિશ્લેષણાત્મક ક્ષમતા</p> <p>(૨) સંખ્યાઓની શ્રેણી સંકેત અને તેનો ઉકેલ.</p> <p>(૩) સંબંધ વિષયક પ્રશ્નો.</p> <p>(૪) આકૃતિઓ અને તેના પેટા વિભાગ, વેન આકૃતિઓ</p> <p>(૫) ઘડીયાળ, કેલેન્ડર અને ઉંમર સંબંધિત પ્રશ્નો.</p> <p>(૬) સંખ્યા વ્યવસ્થા અને તેના માનક્રમ.</p> <p>(૭) રૈખિક સમીકરણ (એક કે બે ચલમાં)</p> <p>(૮) પ્રમાણ, હિરસો અને ચલ.</p> <p>(૯) સરેરાશ યા મધ્યક, મધ્યસ્થ અને બહુલક, ભારિત સરેરાશ. .</p> <p>(૧૦) ઘાત અને ઘાતાંક, વર્ગ, વર્ગમૂળ, ઘનમૂળ, ગુ.સા.અ. અને લ.સા.અ</p> <p>(૧૧) ટકા, સાદુ અને ચક્રવૃદ્ધિ વ્યાજ, નહો અને ગુકશાન.</p> <p>(૧૨) સમય અને કાર્ય, સમય અને અંતર, ઝડપ અને અંતર.</p> <p>(૧૩) સરળ ભૌતિક આકૃતિઓના ક્ષેત્રફળ અને પરિમિતિ, જથ્થો અને સપાટીનો વિસ્તાર (છ સમાંતર બાજુ ધરાવતો ઘન, ઘન, સિલિન્ડર, શંકુ આકાર, ગોળાકાર).</p> <p>(૧૪) રેખા, ખૂણા અને સામાન્ય ભૌમિતિક આકૃતિઓ-સાદી કે ત્રાંસી સમાંતર રેખાઓના ગુણધર્મો, ત્રિકોણની સાપેક્ષ બાજુઓના માપનના ગુણધર્મો, પાયથાગોરસનો પ્રમેય, ચતુર્ભૂજ, લંબગોળ, સમાંતર બાજુ ચતુષ્કોણ, સમભૂજ ચતુષ્કોણ.</p> <p>(૧૫) બીજગણિતનો પરિચય-BODMAS-કાનાભાગુવઓ-વિચિત્ર પ્રતિકોની સરળ સમજૂતિ.</p> <p>(૧૬) માહિતીનું અર્થઘટન, માહિતીનું વિશ્લેષણ, માહિતીની પર્યાપ્તતા, સંભાવના</p>	30
૯	<p>ગુજરાતી વ્યાકરણ</p> <p>(૧) ખેડણી</p> <p>(૨) સમાનાર્થી-વિરુદ્ધાર્થી શબ્દો</p> <p>(૩) રૂઢિપ્રયોગો અને કહેવતો</p> <p>(૪) સમાસ</p> <p>(૫) સંધિ</p> <p>(૬) અલંકાર</p> <p>(૭) છંદ</p>	૧૦
૧૦	<p>English Grammar</p> <p>(1) Articles, Pronouns, Adjectives, Prepositions, Conjunctions and Question tag.</p> <p>(2) Verb and Tense, Agreement between subject and verb, Gerund, Participles.</p> <p>(3) Modal auxiliaries. Usage of can, may, could, should, etc.</p> <p>(4) Use of some, many, any, few, a little. Since and for.</p> <p>(5) Active and passive voice</p> <p>(6) Degrees of adjectives.</p> <p>(7) Common errors of usage.</p>	૧૦

❖ મુદ્દા ક્રમાંક ૮ થી ૧૦ માટેનો અભ્યાસક્રમ ધોરણ- ૧૨ સમકક્ષ રહેશે.

Syllabus for preliminary test for recruitment from Direct Selection		
Part-1		
Medium: Gujarati and English		Total Marks: 100
Point No	Subject	Marks
1	Geography of India – Geographical, Economic, Social, Natural Resources and Population related topics – With Special reference to Gujarat	30
2	Cultural Heritage of India – Literature, Arts, Religion and Architecture - With Special reference to Gujarat	
3	History of India- With Special reference to Gujarat	
4	Indian Economy and Planning	
5	Indian Politics and Constitution of India: (1) Preamble (2) Fundamental Rights and Fundamental Duties (3) Directive Principles of State Policy (4) Composition of Parliament (5) Powers of the President of India (6) Powers of Governor (7) Judiciary (8) Provisions for Scheduled Casts, Scheduled Tribes and Backward Classes of the society (9) NITI Aayog (10) Constitutional and Statutory Bodies: Election Commission of India, Comptroller and Auditor General, Information Commission	
6	General Science, Environment and Information & Communication Technology	10
7	Daily events of Regional, National and International Importance including Sports	10
8	General Mental Ability Test (1) Logical Reasoning and Analytical Ability (2) Number Series, Coding-Decoding (3) Questions about relationship. (4) Shapes and their Sub-sections, Venn Diagram (5) Questions based on Clock, Calendar and Age (6) Number system and order of Magnitude (7) Linear Equations - in one or two Variables (8) Ratio, Proportion and Variation (9) Average of Mean, Median, Mode- including weighted Mean (10) Power and Exponent, Square, Square Root, Cube Root, H.C.F. & L.C.M. (11) Percentage, Simple and Compound Interest, Profit and Loss (12) Time and Work, Time and Distance, Speed and Distance (13) Area and Perimeter of Simple Geometrical Shapes, Volume and Surface Area of Sphere, Cone, Cylinder, Cubes and Cuboids (14) Lines, Angles and Common geometrical figures - properties of transverse or parallel lines, properties related to measure sides of a triangle, Pythagoras theorem, quadrilateral, rectangle, Parallelogram and rhombus. (15) Introduction to algebra-BODMAS, simplification of weird Symbols. (16) Data interpretation, Data Analysis, Data sufficiency, Probability	30

9	Gujarati Grammar (૧) જોડણી (૨) સમાનાર્થી-વિરુદ્ધાર્થી શબ્દો (૩) રૂઢિપ્રયોગો અને કહેવતો (૪) સમાસ (૫) સંધિ (૬) અલંકાર (૭) છંદ	10
10	English Grammar (1) Articles, Pronouns, Adjectives, Prepositions, Conjunctions and Question tag. (2) Verb and Tense, Agreement between subject and verb, Gerund, Participles. (3) Modal auxiliaries. Usage of can, may, could, should, etc. (4) Use of some, many, any, few, a little. Since and for. (5) Active and passive voice (6) Degrees of adjectives. (7) Common errors of usage.	10

❖ The standard of the syllabus for point no. 8 to 10 will be equivalent to Standard 12.

Syllabus for the Preliminary Test for the recruitment of Archaeological

Chemist, Class-II

Marks – 200

Questions-200

Medium: English

1. Physical Chemistry

Chemical Kinetics: Basic of the Kinetics, Effect of Temperature and Concentration, Order of the reactions.

Electrochemistry: Electrochemical Series, Electrochemical cell and Electrolytic cell, Reversible and irreversible electrodes and cell, Poggendorff's compensation method and Weston cell, Reference electrodes (i) Saturated Calomel Electrode (ii) Standard Hydrogen Electrode (iii) Quinhydrone Electrode.

Corrosion Science: Types of corrosion, Electrochemical series, Corrosion in acidic and neutral medium, Differential aeration principle, Atmospheric corrosion, Prevention of corrosion by various methods.

Polymer Chemistry: Types of polymerizations- polycondensation polymerization, polyaddition polymerization, ring-opening polymerization, free radical polymerization, ionic polymerization and coordination polymerization, Techniques of polymerization, Co-polymers, Bio-polymers, Polymer additives, Thermodynamics of polymer solution, Molecular weight determination of polymers: Number average molecular weight, Weight average molecular weight, Viscosity and Osmotic pressure method, Examples of natural polymers (used in ancient artifacts like silk, wool, cotton, leather, parchment, etc.) and synthetic polymers.

2. Inorganic Chemistry

Periodic Table Elements of the Periodic Table, Periodicity in Properties of Elements, Mendeleev's Periodic Table, Modern Periodic Table and Law, Table of Elements, Electronic Configuration of Elements, Periodic Trends in Ionization Enthalpy, Trends in Electron Gain Enthalpy. Different Types of Bonding (Ionic, Covalent and Coordination)

Metallurgy of ancient metals: Gold, Silver, Copper, Zinc, Iron, Mercury, Tin with special reference to methods used for extraction during ancient times. Alloys of Copper Brass, Bronze, etc.), Alloys of Iron and Basics of Cast Iron, Wrought Iron and Steel.

Concepts of acid and bases: Definition of acid and base, concept of pH and pOH, examples based on different theories, properties and uses.

Qualitative and Quantitative Analysis: Analysis of cations and anions, analysis of salts.

Basic concepts of spectroscopy: Basic concepts of IR, Raman, UV, X-Ray, XRD etc.

3. Organic Chemistry: Basics of Carbon and its Chemistry, Definition, isomerization and its examples, Alkane, Alkene, Alkyne and Aromatic compounds. Different Functional Groups, Definition and Examples (such as Alcohol, Phenol, Aldehydes, Ketone, Carboxylic Acids, Amide, Amine, Ether and Esters, etc.)

4. Basic Sciences (Geology, Environmental)

Types of rocks: Igneous, Metamorphic and Sedimentary rocks and their use in Indian Monuments and Artifacts

Environmental Chemistry: Pollution (Air, Water and Soil), Pollutants, NO_x, SO_x, H₂S, CO_x, Acid rain, examples of effects of pollution on cultural heritage. Concepts of Indoor Pollution with special reference to Artifacts inside the Museums and monuments.

5. Types of archaeological heritage: built, sites, remains etc. Types and properties of material used in archaeological heritage.

Causes and types of deterioration – environmental: effects of light, humidity, temperature and pollution; biological: fungi, insects, rodents and birds; human-carelessness, mishandling and wrong treatment; disasters: fire, flood, earthquake, arson, etc.

6. Need for conservation of archaeological heritage. Conservation Policy. Conservation audit. Ethics of conservation.

7. Definition and purpose of preventive and remedial conservation. Infrastructure required for setting up a conservation laboratory. Training opportunities in conservation in India and abroad.

8. Organizations dealing with conservation of cultural property: ICCROM, IIC, CCI, AIC, NRLC, INTACH, GCI, IASC, UNESCO, ICOMOS, ICOM-CC

9. Definitions of conservation terms. Traditional knowledge and methods of conservation.

10. Nature and properties of material used in archaeological collections – organic, inorganic and composite. Susceptibility of decay of and damage to different types of materials; aggressors (Natural/Public/Professional) of decay and damage to cultural property.

11. Effects of environment: air pollution, temperature, humidity, light and micro-organisms – their effect on different types of material and methods (modern and traditional) of monitoring and control. Tools and equipment used in monitoring temperature, R.H., radiation and air pollution.

12. Integrated pest management: Identification, control and termination of pests. Various fungicides, insecticides and rodenticides used in IPM. Good practices of Housekeeping and Rules of handling museum objects. Tools, materials and equipment used in housekeeping and handling. Principles of housekeeping.

13. Disaster Management: Types of disasters, preparedness and mitigation, recovery. Examples of recent disasters in cultural spaces with special reference to Gujarat.

14. Conservation during excavations: issues and approach. Packing and transportation. Rules of handling archaeological material; Tools and equipment used in handling.

15. Methodology of Remedial Conservation: techniques of examination, diagnosis of type and extent of decay, documentation and testing of probable treatments, treatment of objects using suitable materials and method. Recommendations for preventive care.

16. Materials, equipment, tools and techniques used in remedial conservation of following materials used in various type of archaeological heritage.

- i. Paper and archival materials
- ii. Paintings on different substrate such as wall, canvas, paper, wood, textiles, palm leaf etc.
- iii. Textiles and costumes
- iv. Wood, skin material, bone, horn and ivory
- v. Metallic objects made of iron, copper, bronze and silver
- vi. Stone objects
- vii. Ceramic and glass
- viii. Biological specimens

17. Legislations related to Heritage: The Indian Treasure Trove Act, 1878, The Ancient Monuments and Archaeological Sites and Remains Act, 1958, The Antiquities and Art Treasures Act, 1972 , The Wild Life Protection Act, 1972

18. The Gujarat Ancient Monuments and Archaeological Sites and Remains Act, 1965 and Monuments and Archaeological sites of Gujarat.

19. International Conventions: UNESCO World Heritage Convention, 1972, Convention on International Trade in Endangered species of Wild Flora and Fauna (CITES), 1973, The Venice Charter, 1964. The UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage, 2003, Burra Charter, 1979.

20. Current Trends and Recent Advancements in the above fields.