



ગુજરાત જાહેર સેવા આયોગ

સેક્ટર - ૧૦-એ, છ-૩ સર્કલ પાસે, છ રોડ,

ગાંધીનગર - ૩૮૨૦૧૦

જાહેરાત ક્રમાંક: ૧૫/૨૦૨૪-૨૫, નાયબ મુખ્ય હસ્તાક્ષર નિષ્ણાંત, 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 સ્થાપત્યો- 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) અનુસ્થાપિત જાતિ, અનુસ્થાપિત 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 ઈન્ફર્મેશન એન્ડ કોમ્યુનિકેશન ટેકનોલોજી	૧૦
૭	ખેલ જગત સહિત રોજબરોજના પ્રાદેશિક, રાષ્ટ્રીય અને આંતરરાષ્ટ્રીય મહત્વના બનાવો	૧૦
૮	સામાન્ય બૌદ્ધિક ક્ષમતા કસોટી (૧) તાર્કિક અને વિશ્લેષણાત્મક ક્ષમતા	૩૦

	<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 માનકમ.</p> <p>(૭) રૈખિક સમીકરણ (એક કે બે ચલમાં)</p> <p>(૮) પ્રમાણ, હિસ્સો 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 ગુક્ષાન.</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>	
૯	<p>ગુજરાતી વ્યાકરણ</p> <p>(૧) બેડણી</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	30

	<p>(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.</p> <p>(15) Introduction to algebra-BODMAS, simplification of weird Symbols.</p> <p>(16) Data interpretation, Data Analysis, Data sufficiency, Probability</p>	
9	<p>Gujarati Grammar</p> <p>(૧) જોડણી</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>	10
10	<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>	10

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

Syllabus for the post of Deputy Chief State Examiner of
Questioned Documents, Class-II

Marks : 200

Questions: 200

Medium: English

- 1. Introduction to Forensic Science and Crime Scene Management:**
Definition and Scope of Forensic Science, History of Forensic science, Forensic science laboratories/institutions in India, Organizational Structure of a Forensic Science Laboratory, Functions and responsibility of Forensic scientist. Introduction to the crime scene, Documenting the scene, Crime scene sketching, Steps in sketching a crime scene. Method of sketching a crime scene. The crime scene search, Crime scene search method, Processing of physical evidence. Discovering, recognizing and examining of physical evidence. Collecting, marking and identifying evidence. Safety measure for evidence collection, Packaging and preserving evidence. Maintaining the chain of custody, Reconstruction of scene of crime.
Expert testimony in the court of law: admissibility of forensic evidence laws and acts relevant to forensic science.
- 2. Statistics:** Statistical evaluation of data obtained by instrumental methods. Tests of hypothesis-tests of significance of attributes, Z-test of significance and coefficient of correlation, small sample test, T-test, paired test, chi-square test, F-test for equality of variance, large sample test, normal test.
- 3. The metric system:** Unit of measurement-SI units, Measuring devices, Accuracy, sensitivity and precision of measuring instruments, Errors in measurement, Significant figures.
- 4. Basics of Mechanics:** Laws of motion, Linear and rotational motion, Friction, Elasticity, Magnetism and Electricity and its Basic properties, Holography: Importance of coherence, Principle of holography and characteristics, recording and reconstruction, classification of hologram and application, non-destructive testing.
- 5. Introduction to Lasers:** Production, properties of laser beams, Basic laser systems, Gas Lasers, Solid State Lasers, Excimer laser, Laser Beam Propagation, properties of Gaussian beam, resonator, stability, various types of resonators, Gaussian beam focusing.
- 6. INSTRUMENTATIONS:**
Fundamentals of Spectroscopy: Classification of spectra i.e. line, band, continuous spectra / absorption, emission spectra; Wave properties of electromagnetic radiation; Particle/photon properties of electromagnetic radiation; Electromagnetic spectrum.

UV-VIS Spectroscopy: Theory; Beer and Lambert's law - limitations and deviations from the law; Terminologies associated with absorption measurements; Types of transitions; Factors affecting spectral characteristics (structural and nonstructural); Effect of conjugation; Woodward Fieser rule; Photometric titrations; Instrumentation, applications (in analysis of organic compounds and inorganic complexes), advantages and limitations of UV Visible spectroscopy; Quantitative analysis of binary mixtures of absorbing substances by simultaneous equation method; Calibration of UV Visible Spectrophotometer as per standard methods.

Fluorescence Spectroscopy: Introduction: luminescence, photoluminescence; Theory of Fluorescence and Phosphorescence; Jablonski diagram; Factors affecting fluorescence intensity (structural and nonstructural); Instrumentation, applications, advantages and limitations of fluorescence spectroscopy

IR Spectroscopy: Theory of absorption of Infrared radiation by molecules; Molecular vibrations; Factors influencing vibrational frequencies; Calculation of vibrational frequencies (Hooke's law); Sample handling techniques; Instrumentation (Dispersion and FTIR spectrometer) and applications of IR Spectroscopy; Calibration of IR Spectrophotometer as per Pharmacopoeia.

Atomic Spectroscopy: Basics of atomic spectroscopy; Principle of atomic absorption and atomic emission spectroscopy; Interferences in atomic spectroscopy; Factors affecting atomic spectroscopy like solvents, buffers, other ions, etc; Flame Photometry; Atomic emission spectroscopy with plasma and electrical discharge sources; Instrumentation (including radiation sources like hollow cathode lamp), applications, advantages and limitations of atomic absorption and atomic emission spectroscopy.

Mass Spectrometry: Theory; Ionization techniques, Ion separating techniques; Different types of ions and their significance in mass spectra, Fragmentation rules and rearrangements; Instrumentation and applications of mass spectrometry. Overview of GC-MS and GC-MS-MS, interpretation of results of Isomers.

Nuclear Magnetic Resonance spectroscopy: Fundamental Principles - nuclear spin, magnetic moment; Proton NMR spectroscopy - theory, chemical shift and factors affecting chemical shift, spin-spin coupling, coupling

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constant, relaxation process, Instrumentation and applications of PMR; Brief overview of C13 NMR.

X-ray spectroscopy Introduction; Generation of X-rays; X-ray diffraction, Bragg's law; Applications of X-ray diffraction, EDXRF: Principle instrumentation, how does it works & Applications of EDXRF.

Raman spectra : Basic principle, Instrumentation, application of Raman spectra, comparison of IR and Raman spectra.

Gas Chromatography: Introduction; Theory and Principle of Gas-Chromatography; Mobile phase, Stationary phases for GSC and GLC; Instrumentation (including temperature programming and derivatization) and applications of GC. Principle and applications of Gas chromatography with Head space Technique

High Performance Liquid Chromatography: Introduction; Theory, Classification and Principle of HPLC; Mobile phase, Stationary phases for normal and reversed phase HPLC; Instrumentation (including significance of guard column) and applications of HPLC; Comparison of HPLC with GC; Overview of LC-MS, LC-MS/MS. Basic principle, theory and applications of partition, adsorption, ion-exchange, size exclusion, Super critical fluid and Affinity chromatography.

7. Classification of Molecular Electronic States

Molecular electronic states, Symmetry properties of electronic Eigen functions (symmetry classification of electronic states)

8. Fluorescence and Phosphorescence

Luminescence, Mechanism of fluorescent emission, Mechanism of phosphorescent emission, Fluorescence spectrum compared with Raman spectrum.

9. Alpha Rays

Range of alpha particles, Disintegration energy of the spontaneous alpha decay, Alpha decay paradox - barrier penetration.

10. Beta Rays

Introduction, Continuous Beta ray spectrum - difficulties encountered to understand it, Pauli's Neutrino Hypothesis, Fermi's theory of Beta decay, the detection of neutrino, Parity non-conservation in Beta decay.

11. Gamma Rays

Introduction, Gamma-ray emission selection rules, Internal conversion, Nuclear isomerism.

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12. Analytical Chemistry:
Introduction, The nature of analytical chemistry, The role of analytical chemistry, Classification of analytical methods (classical and instrumental) Quantitative analytical methods. An internal role for chemical analysis.

13. Synthetic Dyes:
Classification of Dyes- Anionic and Cationic dyes, Mordant and Vat dyes, Reactive and Dispersed dyes, Synthesis of Alizarin, Malachite green, Indigo, Congo red, Eosin.

14. Phase Rule:
Binary system: Zn-Cd and Pb-Ag, Zeotropic and azeotropic mixtures, Steam distillation, Zone refining.

15. Advanced microscopy:
The compound microscope, comparison microscope, stereomicroscope, polarizing microscope, micro-spectrophotometer, scanning electron microscope, Detectors: photographic detectors, thermal detectors, photoelectric detectors, PMT and semiconductor detectors.

16. Forensic Photography and Material Science
Photography: Basic principles and techniques of black and white and color photography, cameras and lenses, exposing, development and printing, different kinds of developers and fixtures, crime scene and laboratory photography, IR, UV photography.
Material Science: Types of Glue (sticking material), Ink examination and its types with forensic importance.

17. Quality Management System:

Overview of ISO 9001 & ISO 17025:2017 requirements. Quality Control, Quality Assurance and Total Quality Management. Reference Standards & Certified Reference Material, Traceability, validation of the new methods and verification measurement of uncertainty, maintenance and calibration of instruments. Proficiency testing, Quality Audit, Management Review Meeting, Importance of Accreditation of Forensic Science Laboratories

18. Forensic Document Examination:

Documents and its types, Forgeries in documents and their types, basics of handwriting identification & individuality of handwriting, natural variations, process of comparison, Handling and preservation of document exhibits, basic tools needed for forensic documents examination, photography of document evidence

Examination, preservation and decipherment of secret writing, Indented writings and charred writings, determination of sequence of writing, chemical

composition of different types of inks, destructive and non-destructive techniques for ink differentiation, working of fountain pen, ball pen, gel pen, writing inks, Printing inks and printing toners. Viscosity, Surface tension, Capillary rise

Paper examination: Physical matching, chemical composition, sizing and loading materials, tensile strength, comparison techniques: destructive and non-destructive. Examination of printed documents, fax document, typewritten document, Photocopies, scanned documents, computer printouts, Concept of e-documents and digital signature.

Examination of security documents: Currency notes, Passport, Visa, Various identity cards, Stamp papers, seal and other mechanical impressions, travel documents. OVI ink, thermal ink, Examination of credit, debit and other plastic cards.

19. **Current Trends and Recent Advancements in the above fields.**

Jas Patel
(Praoun Patel)
DEPUTY SECRETARY
GUJARAT PUBLIC SERVICE COMMISSION