



उत्तराखण्ड अधीनस्थ सेवा चयन आयोग,

थानों रोड, रायपुर, देहरादून।

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Syllabus for the Post Advertised in Advertisement No. 44/उ०अ०से०च०आ०/
2022 दिनांक 03 जनवरी, 2022 के संदर्भ में:-

विज्ञापन संख्या 44/उ०अ०से०च०आ०/2022 दिनांक 03 जनवरी, 2022 में विज्ञापित क्रमांक-1 पर पदनाम मुख्य आरक्षी (पुलिस दूरसंचार) पद पर चयन हेतु 100 अंकों की वस्तुनिष्ठ प्रकार (Objective type with Multiple Choice) की 02 घंटे की एक लिखित परीक्षा होगी।

उक्त पद हेतु निर्धारित पाठ्यक्रम के अंतर्गत लिखित प्रतियोगी परीक्षा के पाठ्यक्रम के अनुसार प्रश्न-पत्र के तीन भाग (Part) होंगे।

प्रथम भाग (First part) भौतिक विज्ञान (Physics) का होगा, द्वितीय भाग (Second Part) गणित (Math) का होगा। First part तथा Second Part से 40-40 प्रतिशत प्रश्न पूछे जायेंगे तथा तृतीय भाग (Third part) अंग्रेजी का होगा। इस भाग से 20 प्रतिशत प्रश्न पूछे जायेंगे। पाठ्यक्रम आयोग की वेबसाइट पर प्रकाशित है।

(संतोष बडोनी)
सचिव।

**SYLLABUS FOR THE POST ADVERTISED IN ADVERTISEMENT
NUMBER 44/UKSSSC/2022 Dated 03/01/2022**

Part 1: PHYSICS

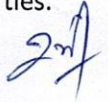
Dimensional analysis and its applications, Scalar and vector quantities, Product of scalar and vector, Projectile motion, Circular motion, Newton's laws of motion, Friction and its laws, Centripetal force with examples, Energy, Work-energy theorem, Power, Conservative and non-conservative forces, Centre of mass of a system, Torque, Angular momentum, Moment of inertia and their applications, Kepler's laws of planetary motion, Acceleration due to gravity and its variation with altitude and depth, Escape Velocity, Geo-stationary satellites, Hooke's Law, Pascal's Law and its applications, Viscosity, Bernoulli Theorem and its applications, Surface Energy, Surface Tension and its applications, Thermal Expansion, Specific Heat, Heat Transfer Methods, Heat, Work and internal energy, Laws of Thermodynamics, Heat Engines and Refrigerators, Kinetic Energy of perfect gases, rms Speed of gas molecules, Degrees of freedom, Law of equipartition of energy and its applications, Mean free path, Periodic motion, Simple Harmonic Motion (S.H.M.) and its equations, Energy in SHM, Simple Pendulum; Free, forced and Damped Oscillations, Wave Motion, Principle of Superposition of waves, Standing Waves in strings and organ pipes, Fundamental mode and Harmonics, Beats, Doppler Effect.

Coulomb's Law, Gauss's Theorem and their applications, Electric Potential and Electric Dipole, Conductors and Insulators, Dielectrics and Electric Polarisation, Capacitors and Capacitance, Capacitance of a parallel plate capacitor with and without dielectric medium between the plates, Energy stored in a capacitor, Ohm's Law, Electric Resistance, V-I characteristics (linear and non-linear), Resistivity and Conductivity, Kirchhoff's Law and its Applications, Wheatstone Bridge, Biot-Savart Law, Ampere's Law and their applications, Magnetic Dipole moment, Earth's Magnetic Field and Magnetic Elements, Para, Dia, and Ferro Magnetic Substance with examples, Faraday's Law, Lenz's Law, Self and mutual Inductance, Alternating Currents, LCR Series Circuit, Power in AC Circuits, AC Generator and Transformer, Displacement Current, Electromagnetic Waves and their Characteristics, Electromagnetic Spectrum and their uses, Spherical mirrors, Mirror Formula, Total Internal Reflection, Optical Fibers, Thin Lens Formula, Magnification and power of Lenses, Prism, Scattering of light, Optical Instruments, Microscope and Telescopes, Young's Double slit Experiment and expression for Fringe Width, Diffraction due to single slit, Polarisation of Light, Dual Nature of radiation, Photoelectric Effect, Einstein's Photo Electric Equation, Particle nature of light, De Broglie Relation, Atomic Models, Isotopes, isobars and isotones, Radioactivity, Radioactive Decay Law, Mass Defect, Binding Energy, Nuclear Fusion, Nuclear Fission, and Nuclear Reactors, Semiconductor, Semiconductor Diodes, Junction Transistor, Transistor as an amplifier, and Oscillator, Logic gates, Elements of Communication System, Bandwidth of signal, Bandwidth of transmission medium, Propagation of Electromagnetic Waves in the atmosphere, Sky and Space Wave propagation, Modulation and Demodulation.

Part 2: MATHEMATICS

01. MATRICES: Concept, order and different types of matrices, addition and subtraction of matrices, multiplication of matrices, Elementary row and column operations, Singular and Non-Singular matrices, Inverse of a matrix.
02. DETERMINANTS: Determinant of a square matrix up to order 3×3 , Properties of Determinants, Minors, Cofactors, Application of Determinants, Consistency and inconsistency of system of equations, Solution of System of linear equations.



03. COORDINATE GEOMETRY: System of coordinates in two and three dimensions, Distance between two points, Straight Line and its various forms, Shortest distance between two lines, Angle between two lines, Cartesian and vector equation of a plane, Angle between two planes, Distance of a point from a line and plane, Circle, Parabola, ellipse and hyperbola and their general properties, direction ratio's and direction cosines.
04. COMPLEX NUMBER: Complex number, Modulus and Argument of a complex number and their properties, Square root of complex numbers, Argand plane and polar representations of complex numbers, Solution of quadratic equations in the complex number system.
05. DIFFERENTIAL CALCULUS: Limit and Continuity, Differentiation of various functions (like trigonometric, algebraic, logarithmic etc), Product rule and Quotient rule of differentiation, Derivative of implicit functions, Derivative of parametric functions, Differentiation of functions up to 2nd order, General application of derivatives, Tangent And Normal, Rolle's Theorem , Lagrange's mean value theorem, Maxima and minima of one variable functions.
06. INTEGRAL CALCULUS: Integration of some standard functions (like trigonometric, algebraic, logarithmic etc), Integration by substitution, Integration by parts, Integration using partial fractions, Basic properties and evaluation of definite integrals, Definite integral as a limit of a sum, Fundamental theorem of Calculus, Simple applications of definite integrals.
07. DIFFERENTIAL EQUATIONS: Concept of differential equations, Order and Degree of a differential equations, First Order Differential Equations: Separable Variables, Homogeneous differential equations, Linear Differential Equations etc.
08. STATISTICS AND PROBABILITY: Measures of central tendency, Measures of dispersion, Analysis of frequency distributions, Correlation and Regression, Random experiments and their outcomes, Different types of events (mutually exclusive, dependent and independent events etc), Conditional probability, Baye's theorem, Random Variable and its probability distribution, Mean and Variance of Random variable, Binomial distribution.
09. ALGEBRA: Permutation and combinations and their Simple applications, Binomial Theorem and simple applications, Arithmetic progression, Geometric progression and their properties, Sum of n terms of the special series, Linear inequalities, Solution of linear inequalities up to 2 variables.
10. VECTOR ANALYSIS: Vectors and Scalars, Magnitude and direction of vectors, Different Types of Vectors and their properties, Scalar product and vector product of two vectors, Projection of a vector on a line.
11. TRIGONOMETRY: Angles and Arc lengths, Measuring of angles in radians and degrees, Trigonometric identities, Trigonometric functions of all angles, Domain and range of the trigonometric functions, Trigonometric functions of compound and multiple angles, Inverse circular functions and their properties.
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12. SET THEORY: Meaning of sets, Different types of sets, Venn diagram, Union, Intersection and difference of sets, Cartesian product of sets, Complement of a set and its properties.

13. FUNCTION AND RELATIONS: Meaning of Function and relations, Domain, co-domain and range of function and relations, Different types of functions and their sum, difference, product and quotients, Types of relation: Reflexive, symmetric and transitive and equivalence relations, One-One and Onto functions, Composite functions, Inverse of a function.

PART 3: ENGLISH

Questions will be framed on the basis of following units to test Candidate's understanding of English Language and its usage as per the prescribed qualifying examination.

UNIT I

- Tenses
- Subject-Verb Agreement
- Reported Speech
- Active -Passive Voice
- Transformation of Sentences
- Spotting the Error/s

UNIT II

- One Word Substitution
- Idioms and Phrases
- Figures of Speech
- Parts of Speech
- Synonyms and Antonyms

UNIT III

- Preposition
- Modals
- Conditionals
- Non-finites
- Spellings

