D-01

DETAILS OF ENTRANCE TEST – 2021

Name of the Faculty : Faculty of Engineering & Technology
Department : University Polytechnic
Name of the Program : Diploma in Engineering (Regular/SF)

Summary of Entrance Test

S. No.	Test-Component (Strike off, if not applicable	Max. Marks	Test Duration (in minutes)	Qualifying Marks	Negative Marking (Yes/No)
1.	Multiple Choice Questions on Mathematics	67	180	30	Yes -0.25 marks for each wrong answer
2.	Multiple Choice Questions on Physics	67			
3.	Multiple Choice Questions on Chemistry	66			

Any other information about the Entrance Test :

There will be negative marking 0.25 marks for each wrong answer in the Objective Type/Multiple Choice Questions in all programs of the University. Candidates obtaining less than 15% marks in the Objective Type/Multiple Choice Questions will not be shortlisted for admission.

Important Instructions for Test: (Please see on the OMR sheet)

Detailed Syllabus for the Entrance Test

Please See Annexure

Syllabus for Diploma in Engineering (Regular & SF) Entrance Test-2021

Duration : 3 hrs. **Marks: 200**

PHYSICS: Distance and displacement, Scalar and Vector quantities, addition and subtraction of Vectors, resolution of Vector. Speed and velocity, uniform and non-uniform motion, circular motion, mass and weight; momentum, impulse, laws of motion, conservation of momentum; work, power and energy, conservation of energy. Characteristics of sound waves, longitudinal and transverse waves, v =n relation. Spherical mirror, mirror formulae, laws of reflection and refraction, refraction through a glass slab and prism, total internal reflection, dispersion of light. Lens formulae, power of a lens. Microscope and Telescope. Coulomb's law, electric current, electric potential and potential difference; Ohm's law. Law of resistance in series and parallel. Heating effect of current -electric energy, electric power. Chemical effect of current - electroplating and electrolysis. Magnetic effect of current-electric motor, generator- A.C. and D.C. Nuclear Fission and Fusion, chain reaction.

CHEMISTRY: Atomic and molecular mass, mole concept, Avogadro's Number, Avogadro's law, ideal gas, gas laws, ideal gas equation, diffusion, STP. Fundamental particles, isotopes and isobars in an atom, cathode rays, Rutherford's experiment, Postulates of Bohr's theory, Electronic configuration of first twenty elements. Periodic classification of elements and gradation of properties (atomic size, ionization energies, electron affinities, electro-negativities and metallic character etc.) Electrovalent, covalent and co-ordinate bonds. Chemical equation. True solution, colloids and suspension. Strong and weak electrolytes. Acids, bases and salts. pH of a solution. Rate of the reaction and factors affecting the rate of the reaction. Oxidation and reduction. Metallurgical process. Manufacture & chemical properties of Sodium Carbonate and Ammonia. Properties of halogens & alkali metals. Properties of sulphur compounds (H2S, H2SO4 and SO2). Allotropes of Sulphur, Phosphorus and Carbon. Hydrocarbons: saturated and unsaturated, homologous series, functional group. Combustion of hydrocarbons.

MATHEMATICS: System of Linear equations in two variables and their solution by algebraic method. Application of linear equations in two variables in solving simple problems. Quadratic equations and their solutions by factorization and quadratic formula. Applications of quadratic equations in solving simple problems. General terms of an A.P., sum to n-terms of an A.P. and simple problems. Instalment payment and instalment buying. Surface area and volume of a cuboid, cube, cone and sphere. Theorems and problems based upon vertically opposite angles, congruence of triangles (SAS, ASA, SSS and RHS). Theorems and problems on similar triangles. Pythagorus theorem and problems based on it. Circle through three points, problems based upon equal chords, angle subtended at centre by an arc / chord of a circle, angle in semicircle and segments. Trigonometrical ratios of angles (Sin, Cos, & Tan for 0, 30, 45, 60 and 90). Simple height and distance problems. Collection and presentation of data, frequency distribution, mean of grouped data and bar chart. Co- ordinates of points, distance between two points, section formula and its application.

NOTE : As per Prospectus-2021-22, General Guidelines, Point No. 4 para (iii) : There will be negative marking 0.25 marks for each wrong answer in the Objective Type/Multiple Choice Questions in all programs of the University. Candidates obtaining less than 15% marks in the Objective Type/Multiple Choice Questions will not be shortlisted for admission.