General Instructions and Sample Question Paper for Entrance Exam for Admission to M.Sc. (Physics)

Scheme

It will consist of 100 Objective Type Questions (Multiple Choice with four responses i.e. A, B, C & D) carrying a total of 100 marks.

Syllabus

The standard of the question paper shall be based on latest syllabus prescribed for Bachelor's degree by UGC (1st, 2nd and 3rd Year together) in Physics covering following topics:

1) Mechanics
2) Electricity and Magnetism
3) Thermal and Statistical Physics
4) Waves and Optics
5) Solid State Physics
6) Atomic and Molecular Physics
7) Quantum Mechanics
8) Nuclear and Particle Physics
9) Electronics

Sample questions

1. If x = a sin $\left(\omega t + \frac{\pi}{6}\right)$ and x' = a cos ωt, then what is the phase difference between the two waves

(A) $\frac{\pi}{3}$

(B) $\frac{\pi}{6}$

(C) $\frac{\pi}{2}$

(D) π

2. An ideal gas is compressed to half its initial volume by means of several processes. Which of the process results in the maximum work done on the gas?

(A) Isothermal

(B) Adiabatic

(C) Isobaric

(D) Isochoric

3. For diamagnetic materials, magnetic susceptibility is

(A) small and negative

(B) small and positive

(C) large and negative

(D) large and positive

4. The work function of metals is in the range of 2eV to 5eV. Find which of the following wavelength of light cannot be used for photoelectric effect. (Consider, Planck constant = 4×10^{-15} eVs, velocity of light = 3×10^{8}m/s)

(A) 510 nm

(B) 650 nm

(C) 400 nm

(D) 570 nm

5. A radioactive substance contains 10,000 nuclei and its half-life period is 20 days. The number of nuclei present at the end of 10 days is

(A) 7,500

(B) 8,000

(C) 9,000

(D) 7,070