

B.Sc. Semester - 1 (CBCS) Examination
Oct/Nov-2024 (As Per Syllabus Year June-2018)
PHYSICS(CORE)

Time: 2:30 Hours**Marks: 70****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate marks.

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- Que.1(A) Answer any two questions. (10)
- (1) Explain resolution of vectors.
 - (2) Explain scalar product of two vectors.
 - (3) Explain constancy of speed of light.
- Que.1(B) Answer any one question. (04)
- (1) Write a note on length contraction.
 - (2) Explain differential calculus as maxima and minima.
- Que.2(A) Answer any two questions. (10)
- (1) Explain energy bands in solids.
 - (2) Explain forward biased PN junction.
 - (3) Explain Zener diode and its characteristic.
- Que.2(B) Answer any one question. (04)
- (1) Write a note on P - type semiconductor.
 - (2) Write a note on ideal diode.
- Que.3(A) Answer any two questions. (10)
- (1) Explain work and work-energy theorem.
 - (2) Explain potential energy.
 - (3) Explain Angular momentum of a particle and its conservation law.
- Que.3(B) Answer any one question. (04)
- (1) Explain centre of mass of two particles.
 - (2) Derive an equation of moment of inertia of a solid cylinder about its axis.
- Que.4(A) Answer any two questions. (10)
- (1) State and prove Kepler's first law of planetary motion.
 - (2) Explain escape velocity.
 - (3) Explain gravitational potential and gravitational energy.
- Que.4(B) Answer any one question. (04)
- (1) Explain the state of weightlessness.
 - (2) Write a note on global positioning system.
- Que.5(A) Answer any two questions. (10)
- (1) Explain longitudinal strain, shearing strain and volume strain.
 - (2) Derive an equation of motion for simple harmonic motion.
 - (3) Explain energy conservation in simple harmonic motion.
- Que.5(B) Answer any one question. (04)
- (1) Write a note on damped oscillators.
 - (2) Write a note on bulk modulus.
