



c09-c-103

3013

BOARD DIPLOMA EXAMINATION, (C-09)

MARCH/APRIL—2014

DCE—FIRST YEAR EXAMINATION

ENGINEERING PHYSICS

Time : 3 hours]

[*Total Marks* : 80

PART—A

3×10=30

Instructions : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Define dimension and dimensional formula. Give one example for each.
2. A force of 50 N acting on a body at an angle of 30° with the horizontal. Find its horizontal and vertical components.
3. Define acceleration due to gravity. Write its units and dimensional formula.
4. State any three laws of static friction.
5. Derive the expression for displacement of a particle executing SHM.
6. State first and second laws of thermodynamics.
7. Define reverberation time and state Sabine's formula for reverberation time.
8. State and explain Young's modulus.
9. Write any three characteristics of magnetic lines of force.
10. Write the applications of optical fibers.

PART—B

10×5=50

- Instructions :** (1) Answer *any five* questions.
(2) Each question carries **ten** marks.
(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

- 11.** (a) State and explain triangle and polygon law of vectors. 6
(b) Write any four properties of vector product. 4
- 12.** (a) Show that the path of the projectile in horizontal projection is a parabola. 6
(b) A body is projected at an angle of 45° with a velocity of 30 m/s. Find the magnitude and direction of velocity after 3 seconds. 4
- 13.** (a) Define potential and kinetic energies with two examples for each. 4
(b) State the law of conservation of energy and prove in the case of a body, falling freely from a certain height. 6
- 14.** (a) Write any four conditions for SHM. 4
(b) Explain briefly the procedure to determine the acceleration due to gravity at a place using simple pendulum. 6
- 15.** (a) State Boyle's law. Write the experimental verification of Boyle's law. 6
(b) Evaluate gas constant. 4
- 16.** (a) Distinguish between musical sound and noise. 5
(b) Derive the expression for apparent frequency of sound for a moving source towards a stationary observer. 5
- 17.** (a) Define viscosity. Write the Poiseuille's equation for coefficient of viscosity of a liquid. 4
(b) Write the experimental method of determining surface tension of the liquid. 6
- 18.** (a) State and explain Kirchhoff's laws. 4
(b) Derive the expression for magnetic induction field strength at a point on the axis of a bar magnet. 6
