



C16-EE/CHPP-103

6036

BOARD DIPLOMA EXAMINATION, (C-16)

MARCH/APRIL—2017

DEEE—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. State the limitations of dimensional analysis.
2. Define dot product. Give one example.
3. A stone is thrown vertically up with an initial velocity of 14 m/s. Find its maximum height.
4. Define SHM and give two examples.
5. State any three differences between r and R .
6. Define reverberation and reverberation time.
7. Define capillarity and angle of contact.
8. Define viscosity and give two examples of viscosity.
9. Define magnetic field and magnetic induction field strength.
10. Write any three properties of superconductors.

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 parallelogram law of addition of vectors and derive the expression for the magnitude and direction of resultant vector. 7
(b) A force of $2i - 10j + 6k$ N produces displacement $8i - 2j + k$ m. Find the work done. 3
- 12.** (a) Show the path of the projectile is parabola in the case of oblique projection. 6
(b) A body is projected at an angle of 30° with horizontal with a velocity of 19.6 m/s. Calculate (i) maximum height (ii) time of flight. 4
- 13.** (a) State the laws of friction. 4
(b) Derive the expression for acceleration of a body, sliding up on a rough inclined plane. 6
- 14.** (a) Define kinetic energy. 2
(b) Derive an expression for the KE. 5
(c) A body of mass 20 kg is lifted to the height 3 m from the ground. Find the work done. 3
- 15.** (a) Derive an expression for the time period of simple pendulum. 7
(b) Calculate (i) amplitude, (ii) angular velocity, (iii) time period of a particle in SHM whose displacement is $y = 5 \sin(10t - 60)$. All values are in SI unit. 3
- 16.** (a) Show that $C_p - C_v = R$. 6
(b) The pressure of gas at temperature 27°C is 70 mm of Hg. Find its pressure at temperature 227°C , if it is heated at constant volume. 4

- * 17. (a) Write the six methods of controlling noise pollution. 6
(b) Write four applications of Doppler effect. 4
18. (a) State and explain Ohm's law. 4
(b) Derive an expression for magnetic induction field strength at a point on the equatorial line of a bar magnet. 6

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