



C09-CHPP-103/C09-EE-103

3035

BOARD DIPLOMA EXAMINATION, (C-09)

OCT/NOV—2014

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. Find the quantity \sqrt{g} , where g is acceleration due to gravity and λ is the wavelength of the water waves using dimensional analysis.

2. State and explain polygon law of vectors.

3. Derive the expression for the horizontal range of a projectile.

4. Show that $\tan \theta = \mu$, where μ is coefficient of friction and θ is angle of friction.

5. Write three conditions for SHM.

6. State the laws of thermodynamics.

7. Distinguish between musical sound and noise.

- * 8. State and explain Hooke's law.
9. Define specific resistance. Write its SI unit.
10. Write a short note on the working of an optical fiber.

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) Define dot product of two vectors and write its four properties. 6

(b) The resultant of two forces is 5 N when they are perpendicular to each other. If the angle between them is 120° , the resultant becomes $\sqrt{13}$ N. Find the forces. 4

12. (a) What is a projectile? Show that the path of a projectile is parabola in the case of horizontal projection. 1+6=7

(b) If a body is thrown up vertically with a velocity of 98 m/s, find the time taken by the to reach the ground. 3

13. (a) State and prove work-energy theorem. 6

(b) Calculate the power of an engine used to pump 5000 litre of water per minute from a well of 20 m deep if 30% power is wasted. 4

* 14. (a) Define seconds pendulum and write a method for determining acceleration due to gravity by simple pendulum. 1+6=7

(b) The time period of a simple pendulum is 3 seconds. If the length is made 4 times, what is the time period? 3

- * 15. (a) Define two specific heats of a gas. 4
(b) Derive $C_P - C_V = R$. 6
16. (a) What is Doppler effect? Mention its four applications. 6
(b) What is beats? Write two applications of beats. 4
17. (a) State Poiseuille's equation for coefficient of viscosity. 4
(b) What is surface tension? Explain how surface tension is experimentally determined by capillary rise method. 6
18. (a) State and explain Kirchhoff's laws. 4
(b) Derive an expression for the magnetic induction field strength B at a point on the axial line of a bar magnet. 6
