6003

C16-COMMON–**103**

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BOARD DIPLOMA EXAMINATION, (C-16)

DECEMBER—2022

FIRST YEAR (COMMON) 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. Write any three advantages of S.I units.

2. Define vector quantity. Give two examples.

3. A body is thrown vertically upwards from the ground with a velocity of 19·6 m/s. Calculate the maximum height reached.

4. Define simple harmonic motion. Give one example.

5. State the first law of thermodynamics and write the equation for it.

6. Define doppler effect.

7. Define capillarity. Give one example.

8. Write the Poiseuille's equation for coefficient of viscosity and name the symbols in it.

9. State the Coulomb's inverse-square law of magnetism and write equation for it.

10. Write any three applications of optical fibres.

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PART—B

Instructions : (1) Answer *any* **five** questions.

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

(3) Answers should be comprehensive and the criteria for valuation is the content but not the length of the answer.

11. Define dot product. Mention any four properties of dot product. 2+8=10

12. *(a)* Define projectile. Give two examples. 4

(b) Show that the path of the horizontal projectile is a parabola. 6

13. *(a)* Define static and kinetic friction. 4

(b) Explain any three methods of reducing friction. 6

14. *(a)* Define kinetic energy and derive equation for it. 7

(b) Calculate the kinetic energy of a body of mass 1 kg moving with a velocity of 5 m/s. 3

15. *(a)* Derive equation for the time period of oscillations of a simple pendulum. 7

(b) Calculate the value of acceleration due to gravity where the length of the seconds pendulum is 1 m. 3

16. *(a)* State Boyle's law, Charles laws. 6

(b) Write any four differences between isothermal and adiabatic processes. 4

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17. *(a)* Define beats and mention any three applications of it. 2+3=5

(b) Write any five methods of controlling noise pollution. 5

18. *(a)* State the Ohm's law. 2

(b) Derive an equation for the balancing condition of a Wheatstone bridge with a neat diagram. 8

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