



C23-COMMON-103

23009

BOARD DIPLOMA EXAMINATION, (C-23)

OCTOBER/NOVEMBER—2024 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. Define fundamental and derived physical quantities.
2. Define moment of force. Write its SI units.
3. A force of 10 N pulled a body at an angle of 60° to the horizontal and displaced it by 5 m. Find the work done by the force.
4. Define absolute zero temperature. Write the relation between degree Celsius and Kelvin temperature.
5. Write any three applications of echo.
6. Write any three differences between musical sound and noise.
7. Define potential difference. Write its SI units.
8. State Coulomb's inverse square law of magnetism and write equation for it.
9. State the laws of photoelectric effect.
10. Write any three applications of super conductors.

PART—B

10×5=50

- 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.** (a) State and explain triangle law of addition of vectors. 6
(b) A force of 150 N acts on a particle at an angle of 30° to the horizontal. Find the horizontal and vertical components of force. 4
- 12.** (a) State and explain Newton's universal law of gravitation. 6
(b) List the factors affecting the value of acceleration due to gravity. 4
- 13.** (a) Mention the applications of artificial satellites. 6
(b) Define escape velocity and orbital velocity. 4
- 14.** (a) State the law of conservation of energy. 3
(b) Write the various examples of law of conservation of energy. 7
- 15.** (a) Derive ideal gas equation. 7
(b) The volume of a gas is 250 cc at a temperature of 27°C . Find its volume, if its temperature is increased to 227°C at constant pressure. 3
- 16.** (a) Explain the effects of noise pollution. 6
(b) Write any four applications of Doppler's effect. 4
- 17.** (a) State and explain Kirchhoff's first law of electricity. 7
(b) In a Wheatstone bridge experiment, three resistors P , Q , R are $4\ \Omega$, $12\ \Omega$ and $8\ \Omega$ respectively, find the value of fourth resistor to balance the bridge. 3

- 18.** (a) Explain the principle and working of an optical fiber. 6
- (b) Write any four applications of Nano materials. 4

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