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C23-CHPC-CHPP-EE-EEVT-CHOT–103

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BOARD DIPLOMA EXAMINATION, (C-23)

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ENGINEERING PHYSICS

Time : 3 hours] [*Total Marks* : 80

PART—A

3×10=30

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

(DFK TXHVWLRQ FDUULHV three marks

$QVZHUV VKRXOG EH EULHI DQG VWUDLJKW W
QRW H[FHHG ILYH VLPSOH VHQWHQFHV

1. Write any three advantages of SI units.

2. Define moment of force. Write its SI unit.

3. If the momentum of a body is doubled, how does its kinetic energy FKDQJH"

4. Convert 0 °C, –100 °C and 37 °C temperatures into degree Kelvin WHPSHUDWXUHV

5. Distinguish between musical sound and noise.

6. Write any three applications of Doppler effect.

7. State Ohm's law and write its formula and name the terms in it.

8. Write any three properties of magnetic lines of force.

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9. Write a brief note on *n*-type semiconductors.

10. Write any three 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 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 50 N acts on a particle at an angle of 60° to the horizontal. Find the horizontal and vertical components of the force. 4

12. *(a)* State and explain the Newton's law of gravitation. 6

(b) Two spherical metal balls of mass 1 kg and 5 kg are placed 10 cm apart. Find the gravitational force of attraction between them. (Given $G = 6.67 \times 10^{-11}\ Nm^2/kg^2$) 4

13. *(a)* Derive the relationship between g and G. 5

(b) Write the various applications of artificial satellites. 5

14. *(a)* State the law of conservation of energy. Write an example for it. 3

(b) Explain the principle and working of photovoltaic cell. 7

15. *(a)* Derive the ideal gas equation. 7

(b) What are the different modes of transmission of heat? 3

16. *(a)* Write any five methods of reducing noise pollution. 5

(b) Define echo. Write three applications of it. 5

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17. *(a)* Derive an expression for balancing condition of Wheatstone bridge with neat circuit diagram. 7

(b) In a Wheatstone bridge, if three resistances are given as $P = 3\,\Omega$, $Q = 4\,\Omega$, $S = 8\,\Omega$, find the fourth resistance required to balance the bridge. 3

18. *(a)* Define photoelectric effect. Write any four applications of it. 7

(b) Write any three applications of superconductors. 3

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