

(6 pages)

Reg. No. :

Code No. : 20310 E Sub. Code : CNPH 31

U.G. (CBCS) DEGREE EXAMINATION, APRIL 2025.

Third Semester

Physics

Non-Major Elective – BASIC PHYSICS — I

(For those who joined in July 2021 and 2022 only)

Time : Three hours

Maximum : 75 marks

PART A — ($10 \times 1 = 10$ marks)

Answer ALL questions.

Choose the correct answer :

1. The rate of change of displacement of a body is
- (a) velocity (b) acceleration
- (c) momentum (d) force

2. The resultant of two forces P and Q acting along the same straight line, but in opposite direction is given by
- (a) $P+Q$ (b) $P-Q$
- (c) P/Q (d) Q/P
3. Solids have fixed
- (a) Volume only (b) Shape only
- (c) Position (d) Volume and shape
4. What is functioning under Pascal law?
- (a) Vernier caliper
- (b) Hydraulic press
- (c) Barometer
- (d) Screw gauge
5. The process of transfer of heat from liquid to gas is called _____
- (a) Conduction (b) Radiation
- (c) Convection (d) Absorption
6. Sound can be produced due to
- (a) friction (b) circulation
- (c) vibration (d) refraction

7. The mirror having reflecting surface curved inwards
 (a) plane (b) convex
 (c) concave (d) cylindrical
8. Colors are formed in thin films due to —————
 (a) Dispersion (b) Interference
 (c) Diffraction (d) Compton effect
9. Ohm's law is not applicable to
 (a) Semi-conductors
 (b) Conductor
 (c) Insulator
 (d) All
10. The commercial unit of electrical energy is

 (a) Joule (b) Kilojoules
 (c) Kilo-watt hour (d) Watt-hour

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) A body's speed is increased to a velocity of 20 m/s from rest in a time of 10 s. Calculate the acceleration of the body
 Or
 (b) Mention the differences between Energy and power.
12. (a) Brief the hydrostatic thrust.
 Or
 (b) Describe the working of Pitot's tube with a diagram.
13. (a) Write a short note on Thermo Flask.
 Or
 (b) What is Reverberation? What are the factors does it depend?
14. (a) Compare the properties of concave and convex mirrors.
 Or
 (b) Discuss the types of Diffraction.

15. (a) Comment on electric field and electric potential.

Or

- (b) State and explain Kirchhoff's laws.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Derive the three fundamental equations of motion.

Or

- (b) Elucidate the laws of conservation of energy and momentum with examples.

17. (a) State and prove Bernoulli's theorem.

Or

- (b) Describe the working of Venturimeter with a diagram.

18. (a) Discuss the effect of pressure on boiling point of a liquid.

Or

- (b) Describe the working of a diesel engine with a neat diagram.

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19. (a) Explain the interference due to reflected light on thin films.

Or

- (b) Describe the double refraction with a neat diagram.

20. (a) Describe the types of resistances.

Or

- (b) Explain the series and parallel connections of resistance.

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