KAMARAJ COLLEGE (Autonomous)

Accredited with A+ Grade by NAAC

(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)

THOOTHUKUDI – 628 003

(5 Pages) **Reg. No: ……**

Question Code No : 25O01212 **Course Code : 24UFPH11**

UG Degree - End Semester Examinations, November 2025

First Semester

B.Sc. PHYSICS

Introductory Physics

(For those who joined in July 2024 onwards)

Time: 3 Hours **Maximum : 75 Marks**

PART – A (10 × 1 = 10 Marks)

Answer ALL Questions

Choose the correct answer:

1. Current is a _____ quantity.

   (a) Scalar (b) Vector

   (c) Tensor (d) Constant

2. If vector a and vector b are parallel vectors, then

   (a) a x b = 0 (b) a. b = 0

   (c) a = kb (d) b = ka

3. Nuclear force is a _____ force.

(a) Long range (b) Short range

(c) Weak (d) Electric

4. Velocity of light in air _____ ms^{-1}

(a) 330 (b) 3×10^8

(c) 3×10^{10} (d) 333

5. Unit for kinetic energy

(a) Watt (b) Joule

(c) Second (d) Kg

6. Formula for momentum P =

(a) mv (b) ma

(c) F/A (d) FA

7. In SHM acceleration is directly proportional to

(a) Velocity (b) Displacement

(c) Force (d) Energy

8. The path of the projectile is a

(a) Circle (b) Ellipse

(c) Parabola (d) Hyperbola

9. Example for semiconducting material

(a) Cu (b) Au

(c) Si (d) Sn

10. When the temperature of semiconductor increases, it changes into

(a) Good conductor (b) Insulator

(c) Never change (d) Partially conduct

PART – B (5 X 5 = 25 Marks)

Answer ALL Questions choosing either (a) or (b).
Answer should not exceed 250 words.

11. (a) Distinguish between scalars and vectors.

(OR)

(b) Determine the resultant of multiple vectors.

12. (a) Explain the characteristics of nuclear forces.

(OR)

(b) Describe electrostatic force.

13. (a) Define energy and explain potential energy.

(OR)

(b) Derive the expression for workdone by the force.

14. (a) Differentiate streamline flow from turbulent flow.

(OR)

(b) Mention the characteristics of simple harmonic motion.

15. (a) Explain the classification of materials on the basis of electrical conduction in detail.

(OR)

(b) Describe about super conductors.

PART – C (5 X 8 = 40 Marks)

Answer ALL Questions choosing either (a) or (b).
Answer should not exceed 500 words.

16. (a) Explain the basic operation of vectors.

(OR)

(b) Give the units and dimensional formula for

i) Force

ii)Angular momentum

iii)Energy iv) Surface tension & v) Co-efficient of viscosity

17. (a) State Newton's law of gravitation and explain gravitational force.

(OR)

(b) Explain electromagnetic wave.

18. (a) State and prove work energy theorem.

(OR)

(b) State and explain conservation of linear momentum.

19. (a) Give the properties of light waves.

(OR)

(b) Define projectile motion and explain the path of the projectile.

20. (a) Describe electrical properties of materials in detail.

(OR)

(b) Explain the thermal properties of materials.