

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 : 2400124

Sub Code : 24UFPH11

UG Degree - End Semester Examinations, November 2024

First Semester

B.Sc. Physics

FC - INTRODUCTORY PHYSICS

(For those who joined in July 2024 onwards)

Time : 3 Hours

Maximum : 75 Marks

PART A - ($10 \times 1 = 10$ Marks)

Answer ALL Questions

Choose the correct answer :

1. Vector product is

(a) Commutative

(b) Anti-commutative

- (c) Associative (d) Infinite
2. The value for Planck's constant
- (a) $6.626 \times 10^{-34} \text{ Js}$ (b) $6.673 \times 10^{-34} \text{ Nm}^{-2}$
(c) $1.602 \times 10^{-19} \text{ C}$ (d) $1.38 \times 10^{-21} \text{ JK}$
3. Which of the following forces are always attractive?
- (a) Electrostatic (b) Magnetic
(c) Gravitational (d) Muscular
4. Short range force is
- (a) Electrostatic (b) Magnetic
(c) Molecular (d) Nuclear
5. Power is
- (a) Rate of energy creation (b) Rate of doing work
(c) Rate of momentum (d) Ability to do work
6. Find the potential energy stored in a ball of mass 5kg placed at a height 3m above the ground
- (a) 121J (b) 147J
(c) 227J (d) 182J
7. If the velocity of the body is doubled, its kinetic energy
- (a) doubled (b) half
(c) 4 times (d) No change
8. If the body moves in a horizontal direction, the work done

by a gravitational force on a body is

- (a) positive
- (b) negative
- (c) zero
- (d) infinite

9. Which of the following has highest melting point

- (a) copper
- (b) aluminum
- (c) tungsten
- (d) Gold

10. The phenomenon of super conductors was first discovered by

- (a) Kammerlingh onnes
- (b) Neil bohr
- (c) J J Thomson
- (d) Dolto

PART B - (5X5=25 Marks)

Answer ALL Questions choosing either (a) or (b).

Answer should not exceed 250 words.

11. (a) Describe addition of vectors and give examples

(OR)

(b) Give the units and dimensional formula for the following quantities

- i) Force
- ii) Surface tension
- iii) Viscosity
- iv) Stress
- v) Gravitational constant

12. (a) Short notes on electrostatic forces

(OR)

(b) Explain in detail gravitational force

13. (a) Write about the different types of energy?

(OR)

(b) Define Energy. Derive the expression for the work is done by the force

14. (a) Define projectile. Show that the path of the projectile is a parabola

(OR)

(b) Distinguish streamline and turbulent motion

15. (a) Write a note on semi conductors with suitable example.

(OR)

(b) Give any five applications of superconductors

PART C - ($5 \times 8 = 40$ Marks)

Answer ALL Questions choosing either (a) or (b).

Answer should not exceed 500 words.

16. (a) Describe scalars and vectors. Give their properties

(OR)

(b) Find the resolution and resultant vectors

17. (a) Explain in detail about nuclear force

(OR)

(b) compare the two types of forces: centripetal and centrifugal forces

18. (a) Explain work energy theorem

(OR)

(b) State and explain the law of conservation of momentum

19. (a) Describe simple harmonic motion, Find velocity and acceleration

(OR)

(b) Compare the light and sound waves

20. (a) Explain the classification of materials based on their electrical properties

(OR)

(b) Describe in detail about superconductors