FIRST QUARTERLY TEST AUGUST 2025

CLASS : I PUC **SUBJECT : PHYSICS (33)** **Max. Marks : 35**
TIME : 1 Hr. 30 Mins.

General Instructions :
1) All parts are compulsory.
2) Answers without relevant diagram/figure/circuit wherever necessary will not carry any marks.
3) Direct answers to the Numerical problems without detailed solutions will not carry any marks.
4) For Part-A questions, only the first written answer will be considered for evaluation.

PART-A

I **Answer the following:** **7x1=7**

1) The number of significant figure in the number is 0.003208
   a) 2 b) 0 c) 4 d) 3

2) The area under velocity-time graph for a particle in a given interval of time represents
   a) velocity b) acceleration c) work done d) displacement

3) A particle moves with uniform velocity, which of the following statements about the motion of the particle is true ?
   a) Its speed is zero
   b) Its acceleration is zero
   c) Its speed may be variable
   d) Its acceleration is opposite to the velocity

4) In case of a projectile motion, what is the angle between the velocity and acceleration at the highest point ?
   a) 0° b) 90° c) 45° d) 180°

5) The (x, y, z) coordinates of two points A and B are given respectively as (0, 4, −2) and (−2, 8, −4). The displacement vector from A to B is
   a) $-2\hat{i}+4\hat{j}-2\hat{k}$ b) $2\hat{i}-4\hat{j}+2\hat{k}$ c) $2\hat{i}+4\hat{j}-2\hat{k}$ d) $-2\hat{i}-4\hat{j}-2\hat{k}$

6) Which one of the following is not force ?
   a) Impulse b) Tension c) Thrust d) Weight

7) **Match the column I with column II**

Column I	Column II
A) Definition of force	(p) Newton's third law
B) Measure of force	(q) Impulse
C) Effect of force	(r) Newton's Second law
D) Recoiling of gun	(s) Newton's First law

   a) A-q, B-p, C-r, D-s
   b) A-p, B-q, C-r, D-s
   c) A-s, B-r, C-q, D-p
   d) A-s, B-q, C-r, D-p

II **Fill in the blanks by choosing appropriate answers given in the brackets for all the following questions:** **3x1=3**
(momentum, angular momentum, Force, acceleration)

8) The dimensions of Planck's constant are the same as that of _____.

9) The slope of the velocity-time graph represents the _____.

10) Product of mass and velocity is _____.

PART-B

III   Answer any THREE of the following questions :   3x2=6

11)   Define average velocity and Instantaneous velocity.

12)   What is the value of acceleration for a freely falling body. Draw acceleration - time graph for freely falling body.

13)   Two vectors acting at a point in plane when will be the resultant of two vectors is (i) Maximum (ii) Minimum

14)   Calculate the centripetal acceleration of a seconds needle of clock of length 0.1m.

15)   Mention any two types of inertia.

PART-C

IV   Answer any THREE of the following questions :   3x3=9

16)   Mention the limitations of Dimensional analysis.

17)   A car moving along a straight line with a speed of 108 kmh^{-1} is brought to a rest within a distance of 450 m. What is retardation of the car?

18)   State and explain parallelogram law of vector addition.

19)   Show that impulsive force is equal to change in momentum.

20)   Mention the laws of friction. https://www.karnatakaboard.com

PART-D

V   Answer any ONE of the following questions :   1x5=5

21)   What is V-t graph ? Derive $x = V_0 t + \dfrac{1}{2} at^2$ by using V-t graph.

22)   Show that the path of a projectile is a parabola.

VI   Answer any ONE of the following questions :   1x5=5

23)   The frequency of oscillation of simple pendulum which may depend on mass of the pendulum, length of the pendulum and acceleration due gravity. Derive the expression for frequency using dimensional analysis.

24)   A ball is thrown at a speed of $20 ms^{-1}$ in a direction 45° above the horizontal. Calculate (i) the maximum height   (ii) Range of the projectile.

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