O.P.JINDAL SCHOOL,SAVITRI NAGAR
PERIODIC TEST –I (Round-1) (2024-25)

CLASS-XI   **MAX.MARKS-20**
SUBJECT-PHYSICS   **MAX.TIME-1HOUR**

General Instruction:-

(i)All questions are compulsory .There are 11 questions in this question paper with internal choice.

(ii) **SECTION –A:** Question numbers 1 to 6 are MCQs , carrying 1 mark each.

(iii) **SECTION –B:** Question numbers 7 to 10 are short answer questions carrying 2 marks each.

(iv) **SECTION –C:** Question numbers 9 and 11 are long questions carrying 3marks each.

SECTION-A

Q1. Dimension of electrical resistivity are

(a) $M L^2 T^{-3} A^{-1}$ (b) $M L^2 T^{-3} A^{-3}$

(c) $M L^3 T^3 A^{-2}$ (d) $M L^{-1} T^3 A^2$

Q2. The numbers 3.845 and 3.835 on rounding off to three significant figures will be

(a)3.85 and 3.84   (b)3.84 and 3.83

(c)3.85 and 3.83   (d)3.84 and 3.84

Q3.A particle located at x=0 , at time , t =0 start moving along positive x-direction with a velocity v that varied as $v = \alpha \sqrt{x}$. The displacement of the particle varied with time as

(a) $t^{1/2}$ (b) t^3

(c) t^2 (d) t

Q4. The displacement-time graphs for the two particles A and B are straight lines inclined at angles of 30° and 45° with the time-axis. What is the ratio of the velocities $V_A : V_B$?

(a)$\sqrt{3}$:1   (b) 1:$\sqrt{3}$

(c)1:$\sqrt{2}$ (d)$\sqrt{2}$:1

Q5. If $x = a + bt + ct^2$, where x is in metre and t in second, then what is the unit of 'c'?

(a)m/s   (b)kg/s

(c)m/s^2 (d)m^2/s

Q6. A man goes from A to B at V_1 speed and returns from B to A at V_2 speed , then the average speed of man is

(a) $\dfrac{V_1 + V_2}{2}$ (b) $\dfrac{2V_1 V_2}{V_1 + V_2}$

(c) $\dfrac{V_1 + V_2}{2V_1 V_2}$ (d) $\dfrac{2}{V_1 + V_2}$

SECTION-B

Q7. In the relation $P = \left(\dfrac{a}{b}\right) e^{-ax/\theta}$, P is pressure, x is distance, and θ is the temperature. What is the dimension of a and b.

OR

Derive an expression among various physical quantities for centripetal force acting on a particle to mass 'm' moving with a velocity 'V' in a circle of radius 'R'.

Q8. A body covers one-third of its journey with speed 20m/s, next one-third with speed 30m/s and the last one-third with speed 40m/s. Calculate the average speed of the body during the entire journey.

Q9. Convert 50J into erg using principle of homogeneity.

Q10. Write the unit and dimension of following physical quantities.
(i) Electric potential
(ii) Torque

SECTION-C

Q11. A balloon is ascending at the rate of 14 ms^{-1} at a height of 98 m above the ground when the food packet is dropped from the balloon. After how much time and with what velocity does it reach the ground? Take g = 9.8ms^{-2}.

Q12. The velocity of a particle is given by the equation, $V = 2t^2 + 5$ ms^{-1}. Find
(i) the change in velocity of particle during the time interval between $t_1 = 2s$ and $t_2 = 4s$.
(ii) the average acceleration during the same interval
(iii) the instantaneous acceleration at t = 4s

OR

The acceleration of a particle in ms^{-2} is given by , $a = 3t^2 + 2t + 2$, where t is in second . If the particle start with a velocity $V = 2$ms^{-1} at t=0 , then find the velocity at the end of 2 second.

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