CBSE

OSCILLATIONS WS 3

Class 11 - Physics

Section A

1. The motion of a particle executing SHM in one dimension is described by x = -0.5 sin(2t + $\frac{\pi}{4}$) where x is in metres and t in seconds. The frequency of oscillation in Hz is **[1]**

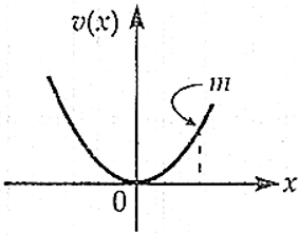
   a) $\frac{\pi}{2}$ b) $\frac{1}{\pi}$

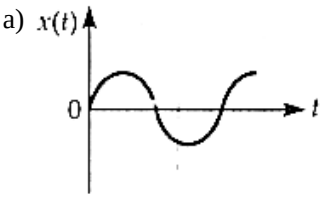
   c) 2 d) π

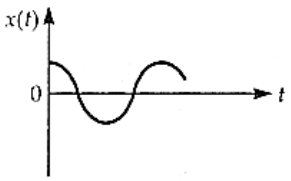
2. **Fill in the blanks:** **[1]**

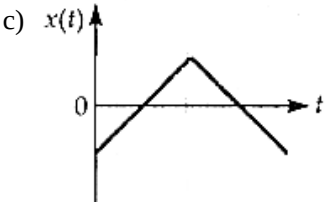
   (a) _____ variable is measured as a function of time having both positive and negative values. **[1]**

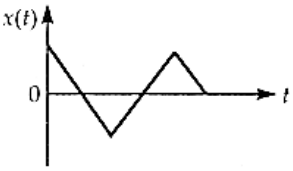
3. A particle of mass m is released from rest and follows a parabolic path as shown. Assuming that the displacement of the mass from the origin is small, which graph correctly depicts the position of the particle as a function of time? **[1]**



a) 

b) 

c) 

d) 

Section B

4. i. For the wave on a string described by Y = 0.06sin2π /3xcos(120π), do all the points on the string oscillate with the same (a) frequency, (b) phase, (c) amplitude? Explain. **[2]**

   ii. What is the amplitude of a point 0.375 m away from one end?

5. A particle is executing S.H.M of amplitude 4cm and T = 4sec. find the time taken by it to move from positive extreme position to half of its amplitude? **[2]**

Section C

6. Draw the graphical representation of simple harmonic motion showing the **[5]**

   i. displacement-time curve

   ii. velocity-time curve and

iii. acceleration-time curve