MARGSHREE CLASSES PVT. LTD.

IIT-JEE / NEET / FOUNDATION (IX &X)

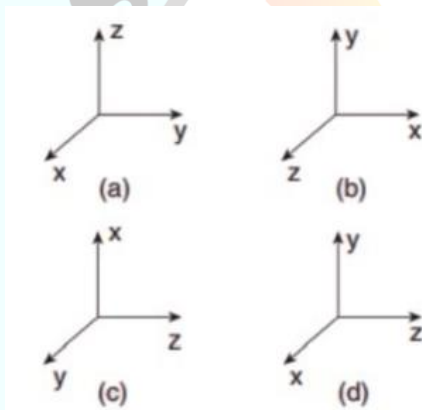| Time: 2 hours | Physics | IIT-JEE | Marks: 50 |
|---|---|---|

(Kinematics)

NAME OF THE STUDENT:-_____   DATE:-

INSTRUCTION – ATTEMPT ALL QUESTIONS

Q.1.   Which one of the following Cartesian coordinate systems is not followed in physics?

Q.2.   Identify the unit vector in the following

(a) $\hat{i} + \hat{j}$

(b) $\dfrac{\hat{i}}{\sqrt{2}}$

(c) $\hat{k} - \dfrac{\hat{j}}{\sqrt{2}}$

(d) $\dfrac{\hat{i} + \hat{j}}{\sqrt{2}}$

Q.3.   Which one of the following physical quantities cannot be represented by a scalar?

(a) Mass   (b) Length
(c) Momentum   (d) Magnitude of acceleration

Q.4.   Two objects of masses m_1 and m_2 fall from the heights h_1 and h_2 respectively. The ratio of the magnitude of their momenta when they hit the ground is

(a) $\sqrt{\dfrac{h_1}{h_2}}$

(b) $\sqrt{\dfrac{m_1 h_1}{m_2 h_2}}$

(c) $\dfrac{m_1}{m_2}\sqrt{\dfrac{h_1}{h_2}}$

(d) $\dfrac{m_1}{m_2}$

Q.5. If a particle has negative velocity and negative acceleration, its speed

(a) Increases   (b) decreases   (c) remains same   (d) zero

Q.6. If the velocity is $\vec{v} = 2\hat{i} + t^2\hat{j} - 9\hat{k}$ then the magnitude of acceleration at t = 0.5 s is

(a) 1m s^{-2} (b) 2 m s^{-2} (c) zero   (d) -1 m s^{-2}

Q.7. If an object is dropped from the top of a building and it reaches the ground at t= 4s, then the height of the building is (ignoring air resistance) (g = 9.8 ms-2)

(a) 77.3 m   (b) 78.4 m   (d) 80.5 m   (d) 79.2 m

Q.8. A ball is projected vertically upwards with a velocity v. It come back to ground in time t. Which v-t graph shows the motion correctly?

(a)   (b)   (c)   (d)
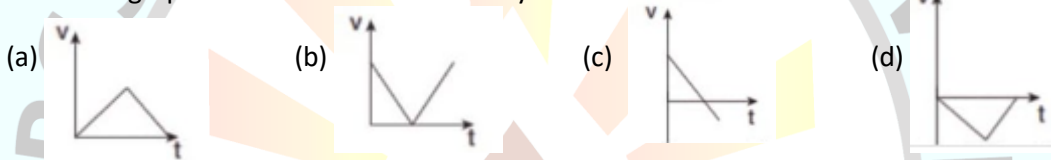
Q.9. If one object is dropped vertically downward and another object is thrown horizontally from the same height, then the ratio of vertical distance covered by both objects at any instant t is

(a) 1   (b) 2   (c) 4   (d) 0.5

Q.10. A ball is dropped from some height towards the ground. which one of the following represents the correct motion of the ball?

(a)

(b)

(c)

(d)
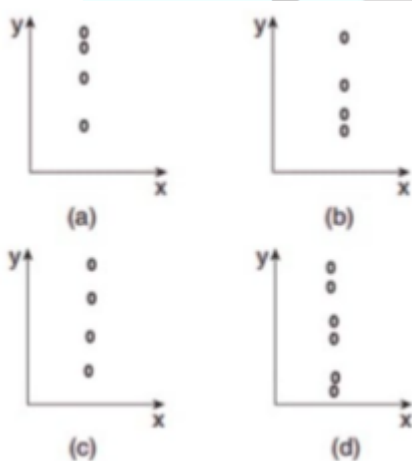
Q.11. If a particle executes uniform circular motion in the xy plane in clock wise direction, then the angular velocity is in

(a) +y direction   (b)+z direction

(c) –z direction   (d) –x direction

Q.12. If a particle executes uniform circular motion, choose the correct statement

(a) The velocity and speed are constant
(b) The acceleration and speed are constant
(c) The velocity and acceleration are constant
(d) The speed and magnitude of acceleration are constant.

Q.13. If an object is thrown vertically up with the initial speed u from the ground, then the time taken by the object to return back to ground is

(a) $u^2/2g$ (b) u^2/g (c) u/2g   (d) 2u/g

Q.14. Two object are projected at angles 30° and 60° respectively with respect to the horizontal direction. The range of two object are denoted as $R_{30°}$ and $R_{60°}$ Choose the correct relation form the following

(a) $R_{30°} = R_{60°}$ (b) $R_{30°} = 4R_{60°}$ (c) $R_{30°} = R_{60°}/2$ (d) $R_{30°} = 2 R_{60°}$

Q.15. An object is dropped in an unknown planet from height 50 m, it reaches the ground in 2s. The acceleration due to gravity in this unknown planet is

(a) g = 20 m s^{-2} (b) g = 25 m s^{-2} (c) g = 15 m s^{-2} (d) g = 30 m s^{-2}