CHERCHER SECONDARY SCHOOL

Grade 11Th Physics Work Sheet From Unit Three

From The Given Alternatives Choose The Best Answer

1. A particle moves along the *x* axis. Its position varies with time according to the expression $x = -4t + 2t^2$, where *x* is in meters and *t* is in seconds. What is the displacement of the particle in the time intervals $t = 0$ to $t = 1$s?

   A. 0 **B.** -2m **C.** 4m **D.** 3m

2. A block starts from rest and slides without friction down a plane inclined at an angle of 30^0 above the horizontal. How long does it take the block to acquire a speed of 20m/s? (Hint :- $sin30^0 = 0.5$, g=10m/s^2, a=gsinθ) **A.** 12 sec **B.** 8 sec **C.** 6 sec **D.** 4 sec

3. A car travels along a straight line at a constant speed of 20m/s for a distance d and then another distance d in the same direction at a constant speed of 36km/hr. what is the average speed for the entire trip?

   A. 48km/hr **B**. 54km/hr **C.** 24km/hr **D.** 60km/hr

4. A wheel rotates with a constant acceleration of 2.0 rad/s2. If the wheel starts from rest, how many revolutions will it make in the first 10 seconds?

   A. 16 rev **B.** 160 rev **C.** 50 rev **D.** 100 rev

5. Which of the following is wrong about uniform circular motion ?

   A. When a body is moving in a horizontal circle, the speed remains constant.

   B. When a body is moving in a vertical circle, the speed remains constant.

   C. When a body is moving in a horizontal circle, the velocity changes.

   D. When a body is moving in a vertical circle, the speed does not remains constant.

6. A ball is thrown vertically upward. It has a speed of 10 m/sec when it has reached one half of its maximum height. How high does the ball rise? (Take g = 10 m/s^2)

   A. 10 m **B.** 5 m **C.** 15 m **D.** 20 m

7. Among the following, which one is true about instantaneous acceleration?

   A. Instantaneous acceleration is difference in displacement between two points divided by the time taken to travel between the two points.

   B. Instantaneous acceleration is change in velocity divided by the time taken for the change to happen.

   C. Instantaneous acceleration is acceleration of an object at a point.

   D. Instantaneous acceleration is difference in velocity between two points divided by the time taken to travel between the two points.

   8. A particle moves in a circular path of radius **r** with speed **v**. When the speed of the particle is decreased by halved at travelling along the same circular path, the centripetal acceleration is: **A.** Halved. **B.** doubled. **C.** quadrupled. **D.** quartered

   9. What does the area of a velocity Vs time graph represent?

Contact me :- ***Telegram:-*** Team Physics Study
Facebook :- Team Physics Study
Email:- sufiyanhusen307@gmail.com
Phone Number:- 0921491508

A. Distance **B.** Acceleration **C.** Displacement **D.** Speed

10. A fly wheel is rotating with an angular velocity of 2.0 rad/s and acted by an acceleration of 1/ πrad/s^2. How long will it take to complete three revolutions?

A. 0.5πs **B.** π *s* **C.** 2π *s* **D.** 4π *s*

11. A woman is rotating a bucket of water in a vertical circle of radius 0.9m. The mass of bucket and water is 5kg. What is the bucket's minimum speed at the top of the circle if no water is to spill out? **A.** 0 **B.** 1m/s **C.** 3m/s **D.** 9m/s

12. A car starts from rest and uniformly accelerates to a final speed of 20.0 m/s in a time of 15.0 s. How far does the car travel during this time?

A. 150 m **B.** 300 m **C.** 450m **D.** 600 m

13. An astronaut in an orbiting space craft attaches a mass *m* to a string and whirls it around in uniform circular motion. The radius of the circle is *R*, the speed of the mass is *v*, and the tension in the string is *F*. If the mass, radius, and speed were all to double the tension required to maintain uniform circular motion would be

A. *F* B. 2*F* *C.* 4*F* D. 8*F*

14. A pendulum bob has a mass of 1kg. the length of the pendulum is 10m. The bob is pulled to one side to an angle of 60°from the vertical. What is the velocity of the pendulum bob as it swings through its lowest point**?** **A.** 100m/s **B.** 10m/s **C**. 20m/s **D**. 4m/s

15. The velocity of a particle moving along the *x* axis varies in time according to the expression V*x*= (40 - 5t^2) m/s where *t* is in seconds. What is average acceleration in the time interval t=0 to *t* =2.0 s **A**.-20m/s^2 **B.** 10m/s^2 **C**. -10m/s^2 **D.** 40m/s^2

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