



# Dnyansagar Coaching Classes, A'nagar

## Unit Test

Std. - XII<sup>th</sup>

Sub- Physics-I

(Chapter 1 Circular Motion)

Time - 1 hr

Max Marks - 20

- Q.1 Select & write the most appropriate answer from the given alternatives for each sub question.** 4
- Circular motion is a motion of a partical along the .....of circle.
    - Radius
    - Diameter
    - Circumference
    - None of these
  - $V = u + \dots\dots\dots$ 
    - $at$
    - $a^2t$
    - $at^2$
    - $st$
  - The average angular ----- is defined as the time rate of change of angular velocity .
    - Acceleration
    - velocity
    - displacement
    - $\theta$
  - If the angular acceleration is 10 rad/s & radius is 4m then  $V = \dots\dots\dots$ 
    - 40m/s
    - 20m/s
    - 0.4m/s
    - 8m/s
- Q.2A) Attempt any one.** 2
- A car of mass 2000 kg round a curve of radius 250m at 90km/hr . Compute its
    - anguler speed
    - centripetal force
  - Calculate the angular velocity and linear velocity of a tip of minute hand of length 10cm.
- B) Attempt any two.** 6
- Derive the expression for - Relation between linear velocity & angular velocity in magnitude form.
  - What is UCM .Define period & frequency also.
  - Derive an expression for linear velocity at lowest & highest position for a partical revolving in a vertical circle.
- Q.3A) Attempt any two.** 4
- Show that  $a = r\alpha$
  - Show that acceleration in UCM(Radial acceleration), by calculus method.
  - Distinguwish between centripetal force & centrifugal force.
- B) Attempt any one.** 4
- What is banking of roads & Derive an expression for  $\theta$  & v for it.?
  - Define conical pendulum? Derive an expression for velocity of bob, angular velocity of bob .

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