Circular Motion

Disclaimer: Physics

Date: 23/09/2022

Subject: Physics

Topic : Centripetal and Centrifugal Force

Class: Standard XI

Time: 00:20 hrs

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1. The force required to keep a body in uniform circular motion is

   A. centripetal force.

   B. centrifugal force.

   C. resistance.

   D. None of the above

2. A particle moves in a circle of radius $10\ cm$ with a constant speed and time period of $0.2\pi\ s$. The acceleration of the particle is

   A. $5\ m/s^2$

   B. $40\ m/s^2$

   C. $10\ cm/s^2$

   D. $10\ m/s^2$

3. A body of mass $500\ \mathrm{g}$ is moving in a circular path of radius $\frac{10}{\pi^2}\mathrm{cm}$ with an angular speed of $2\pi\ \mathrm{rad/s}$. The centripetal force is

   A. $0.1\ \mathrm{N}$

   B. $0.2\ \mathrm{N}$

   C. $0.3\ \mathrm{N}$

   D. $40\ \mathrm{N}$

4. A $30\ \mathrm{kg}$ boy is riding a merry-go-round. If the linear speed and angular speed of the boy are $6\ \mathrm{m/s}$ and $2\ \mathrm{rad/s}$ respectively. The magnitude of centripetal force on the boy is

   A. $60\ \mathrm{N}$

   B. $40\ \mathrm{N}$

   C. $360\ \mathrm{N}$

   D. $1080\ \mathrm{N}$

5. A particle is moving in a circular path of radius r with an angular speed $'\omega'$. Suddenly, the radius is quadrupled and angular speed is halved. Then which of the following statements is correct?

   A. Centripetal force is doubled

   B. Centripetal force is halved

   C. Centripetal force remains same

   D. None of the above