

Q1

Angular speed of second's hand of a watch in rads^{-1} is

A) π

C) $\frac{\pi}{30}$

B) $\frac{\pi}{2}$

D) $\frac{\pi}{180}$

Q2

The shaft of a motor rotates at a constant angular speed of 360rev/min. Angle turned through in 1 sec in radian is

A) π

C) 6π

B) 3π

D) 12π

Q3

The direction of angular velocity is along

A) Tangent to the circle

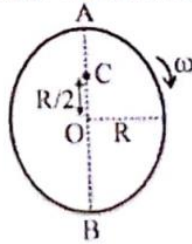
C) Axis of rotation

B) Inward the radius

D) Outward of the radius

Q4

A disc of radius $R=20$ cm is rotating about its axis with an angular velocity $\omega=20$ rad s^{-1} on a horizontal smooth surface. The linear speed of point C on the disc is



A) $1ms^{-1}$

B) $2ms^{-1}$

C) $4ms^{-1}$

D) $4\pi ms^{-1}$

Q5

A satellite moving round the earth constitutes

A) An inertial frame of reference

B) Neither inertial nor non inertial

C) Non inertial frame

D) Both inertial and non-inertial

Q6

A particle moves in a circle of radius 25 cm at two revolutions per second. The acceleration of the particle in m/s^2 is

A) π^2

B) $8\pi^2$

C) $4\pi^2$

D) $2\pi^2$

Q7

If the position vector of a particle is $\vec{r} = (3\hat{i} + 4\hat{j})$ meter and its angular velocity is $\vec{\omega} = (\hat{j} + 2\hat{k})$ rad/sec then its linear velocity is (in m/s).

- A) $-(8\hat{i} - 6\hat{j} + 3\hat{k})$ C) $(3\hat{i} - 6\hat{j} + 8\hat{k})$
B) $-(3\hat{i} - 6\hat{j} + 6\hat{k})$ D) $(6\hat{i} - 8\hat{j} + 3\hat{k})$

Q8

The mud flies off the tyre of a fast moving car in the direction

- A) parallel to the moving tyre C) anti parallel to the moving tyre
B) tangent to the moving tyre D) none of these

Q9

A satellite appears to be at rest when seen from the equator. Its height from the earth surface is nearly

- A) 35600 km C) such a satellite cannot exist
B) 356000 km D) 6400 km

Q10

A wheel rotates about an axis passing through the centre and perpendicular to the plane with slowly increasing angular speed. Thus it has:

- A) radial velocity and radial acceleration
B) tangential velocity and radial acceleration
C) tangential velocity and tangential acceleration
D) tangential velocity but acceleration having both components