

Physics - FSC Part 1 Physics Chapter 5 Short Questions Preparation

Q1. What is meant by INTEL SAT? At what frequencies the INELSAT-VI operates ?

Ans 1: The largest satellite system managed by 126 countries is international. Telecommunication Satellite Organization (INELSAT).

The INELSAT-VI operates at microwaves frequencies of 4, 6, 11 and 14 Ghz.

Q2. Define angular velocity, How its direction is determined?

Ans 1: The rate of change of angular displacement is called angular velocity. The direction of angular velocity is along the axis of rotation and can be determined by right hand rule:

"Grasp the axis of rotation in right hand with the fingers curling in the direction of rotation then the erect thumb will give the direction of angular velocity."

Q3. Define Moment of Inertia. Write its formula.

Ans 1: The property of the body to resist any change in its state of rest or uniform angular velocity is called moment of inertia. For a point mass 'm' situated at a distance 'r' from the axis of rotation, the moment of inertia 'I' is given by ; $I=mr^2$

Significance;

Moment of inertia plays the same role in angular motion as that of mass plays in linear motion. It is also called measure of rotational inertia in angular motion. Moment of inertia determines the angular acceleration while mass determines the linear acceleration.

Q4. Define centripetal force and centripetal acceleration.

Ans 1: The force needed to bend the normally straight path of the particle into a circular path is called the centripetal force.

The instantaneous acceleration of an object traveling with uniform speed in a circle is directed towards the centre of the circle and is called centripetal acceleration.

Q5. How is artificial gravity created?

Ans 1: Artificial gravity is the gravity like effect produced in an orbiting spaceship to overcome weightlessness. To create artificial gravity the spaceship is set into rotation around its own axis. The astronaut then presses towards the outer rim and exerts a force on the floor of the spaceship in much the same way as on the earth.

Q6. Define centripetal force; write its formula and unit.

Ans 1:

Q7. Explain the difference between tangential velocity and angular velocity.

Ans 1: The linear velocity of a particle moving along a curve or circle is called tangential velocity. Its direction is always along the tangent to the circle.

The rate of change of angular displacement is called angular velocity. The direction of angular velocity is along the axis of rotation of the body by right hand rule. $\dot{\theta} = \omega r$

Q8. What is Geo-stationary satellite? How many minimum number of geo-stationary satellites are required for global coverage of T.V transmission?

Ans 1: A satellite whose orbital motion is stationary along the earth is called geostationary satellite. The time period of satellite is equal to the time period of spin motion of the earth.

A geostationary satellite covers 120° of longitude. So the whole earth can be covered by three correctly positioned geo-stationary satellites.

Q9. What is meant by centripetal force? Write down its formula.

Ans 1:

Q10. Why do you wear seat belts?

Ans 1: During collision, the passengers move forward towards the windscreens due to inertia. The seat belt prevents the passenger from moving forward. And lessened the chances of injury.