Physics (New Book) - FSC Part 1 Physics Chapter 5 Short Questions Preparation

Q1. Why is the axis of rotation of Earth remains fixed in one direction with respect to the universe around it?

Ans 1: The major force acting on Earth is the pull of the Sun and no other sizeable toque is experienced by it. The Earth's axis of rotation, therefore remains fixed in one direction with reference to the universe around us.

Q2. State the right hand rule to find the direction of angular displacement.

Ans 1: It states that
"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 and angular momentum"

Q3. 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 (INTELSAT).
The INELSAT-VI operates at microwaves frequencies of 4, 6, 11 and 14 Ghz.

Q4. Define angular momentum and give its dimension.

Ans 1:

Q5. On what factors moment of inertia depends?

Ans 1: The moment of inertia is $I = mr^2$
So it depends upon the mass of the body and its distance from the axis of rotation.

Q6. 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.

Q7. What is meant by moment of inertia? Explain its significance.

Ans 1: The product of mass of the particle and square of its perpendicular distance from the axis of rotation is called the moment of inertia.

$I = mr^2$
The moment of inertia plays the same role in angular motion as the mass in linear motion.

Q8. Explain why earth's satellite despite of being freely falling object does not reach the earth.

Ans 1: To orbit the planet and not come crashing down, a spacecraft has to travel forward (tangential to Earth) fast enough that it compensates for the fall downwards. The trajectory of its fall has the same curvature as earth's surface. So it will never reach the earth.

Q9. What is Geo-stationay satellite? How many minimum number of geo-stationary satellites are required fro global coverage coverage of T.V transmission ?

Ans 1: S 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.

Q10. Define centripetal force; write its formula and unit.

Ans 1: