Physics - ICS Part 1 Physics Chapter 5 Short Questions Test

Q1. What are geostationary orbit and geostationary satellites?

Ans 1: Geostationary Orbit: An orbit in which the time period of satellite is equal to the time period of spin motion of the earth is called geostationary orbit.

Geostationary Satellites: A satellite whose orbital motion is stationary along the earth is called geostationary satellite.

Q2. How would you determine the direction of angular momentum?

Ans 1: The direction of angular momentum can be determined by right hand rule:
"Grasp the axis of rotation in right hand with the figures curling in the direction rotation then the erect thumb will give the direction of angular momentum."

Q3. 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.

Q4. 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 figures curling in the direction of rotation then the erect thumb will give the direction of angular velocity."

Q5. Why banked tracks are needed for turns?

Ans 1: Banked tracks are needed because friction alone cannot provide energy for centripetal force.
If the road is banked, so that the outer edge is above the inner edge, then a portion of the normal force from the road on the tyre points towards the center of the track; this fraction of the normal force can provide enough centripetal force to keep the car moving in a circle.

Q6. Explain how many minimum number of Geo-stationary satellites are required for global coverage of T.V transmission.

Ans 1: A geostationary satellite covers 120° of longitude. So the whole earth can be covered by three correctly positioned geostationary satellites.

Q7. Write down application of communication satellites.

Ans 1: A satellite communication system consist of three geo-stationary satellites.There are over 200 Earth stations which can transmit and receive signals.INTELSAT-VI operates at microwave frequencies 4, 4, 11 and 14 Ghz and has a capacity of 30,000 two way telephone circuits plus three TV channels.
Geo-stationary satellite are very useful for worldwide communication,weather observation, navigation, and other military uses.

Q8. 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.

Q9. Define angular displacement and write its S.I unit.

Ans 1:

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

Ans 1: