**Gulistan Academy**

Physics (FSc.I) Max.Marks = 20

Chapter No. 5 Pass Marks = 40

1. **Multiple Choice Questions: (10)** Time = 1 hour
2. **The rotational K.E. of hoop is**

(a) Equal to its translational K.E. (b) half than its translational K.E.

(c) Double than its translational K.E. (d) four times than its translational K.E.

1. **The number of revolution in 3π radians are**

(a) 2 (b) 3/2 (c) 6 (d) 1/60

1. **The direction of linear velocity of body moving in a circle is**

(a) along the axis of rotation (b) Along the tangent

(c) towards the centre (d) away from the centre

1. **In case of planets, the necessary acceleration is provided by**

(a) gravitational force (b) frictional force (c) coulomb force (d) centripetal force

1. **A 1000 kg car is turning round a corner at 10 ms-1 as it travels along an arc of a circle. If the radius of the circular path is 10 m, how large a force must be exerted by the pavement of the tyres to hold the car in the circular path?**

(a) 10 N (b) 100 N (c) 1000 N (d) 10000 N

1. **According to Einstein, the gravity interaction is possible between**

(a) material objects only (b) Electromagnetic radiations only (c) Both (d) None of these

1. **Global positioning system consists of how many satellites?**

(a) 24 Natural Satellites (b) 24 Artificial Satellites (c) 3 Synchronous Satellites (d) Both “b” and “c”

1. **In the solar eclipse of 1919 A.D., bending of starlight was measured to be**

(a) 1.745 degrees (b) 1.745 minute (c) 1.745 seconds (d) 1.745 radian

1. **A geostationary satellite covers how many degrees of longitude?**

(a) 90 degrees (b) 120 degrees (c) 150 degrees (d) 180 degrees

1. **For a body falling freely under gravity; the Apparent weight is**

(a) equal to real weight (b) less than real weight

(c) greater than real weight (d) Zero

1. **Give short answers of the following questions: (14)**
2. What is meant by moment of inertia? Explain its significance.
3. Show that orbital angular momentum *L0 = mvr.*
4. Explain why an object, orbiting the Earth, is said to be freely falling.
5. Why does a diver changes his body positions before and after diving in the pool?
6. Define the Centripetal Acceleration. And also writes its formula.
7. Can the real weight of a body be greater than its apparent weight? Explain.
8. Why a Geostationary Satellite is sent into a Geostationary Orbit?

**Question No. 3: (5 + 3)**

1. Describe the motion of Hoop and a Disc on an inclined plane.
2. A 1000 kg car travelling with a speed of 144 km h-1 round a curve of radius 100 m. Find the necessary Centripetal Force.

**Question No. 4: (5 + 3)**

1. Derive an expression for the radius of a Geostationary Orbit.
2. The Earth rotates on its axis once a day. Suppose, by some process the Earth contracts so that its radius is only half as large as at present. How fast will it be rotating then?