** Bharatiya Vidya Bhavan’s Public School, Jubilee Hills,Hyd**

**Class: IX Subject: Physics**

Question Bank

MOTION-2

1) Why is the motion of an athlete moving along the circular path an accelerated motion? 1m

2) a) Define circular motion

b) “Uniform circular motion is an accelerated motion “. Justify this statement with reason.

c) An artificial satellite is moving in a circular orbit of radius 42250km. calculate its speed if it takes 24h to revolve once around the earth. 5m

3) An object starts linear motion with a velocity ‘u’ and under uniform acceleration ‘a’ it acquires a velocity in time’s’. Draw its V-T graph. From this graph obtain the equation for Position-Velocity relation. 3m

4) a) Derive the equation of motion v = u + at, using graphical method. 5m

b) A train starting from rest attains a velocity of 72km/h in 5min. assuming the acceleration is uniform, find 1) the acceleration 2) The distance travelled by the train for attaining this velocity.

5) a) Name the quantity which is measured by the area occupied below the V-T graph.

b) Plot a V-T graph to show the uniform acceleration & uniform retardation of body. 3m

6) a) Draw D-T graph for a body: 1) at rest 2) in uniform motion 3) in non-uniform motion

(b) Can D-T graph be parallel to the distance axis? Justify your answer 5m

7) (a) Differentiate between uniform linear motion and uniform circular motion

(b) Write any four examples of uniform circular motion

(c) Is uniform circular motion an accelerated motion? 2 + 2 + 1 = 5m

8) An object starting from rest attains a speed of 25m/s after travelling a distance of 50m. Calculate the acceleration produced and the total time taken to cover the distance. 3m

9) Use V-T graph to derive graphically the equation for position – time relation for travelling a distance‘s’ under uniform acceleration ‘a’. 3m

10) A car is moving with a uniform velocity of 10m/s. The driver of the car decided to overtake a bus moving ahead of the car. So the driver of the car accelerates at 1m/s2 for 10seconds.Find the velocity of the car at the end of 10seconds. Also find the distance travelled by the car while accelerating. 3m