



Moazzam Irfan

## Physics

### Assignment

{ Ans no: - (2) }

we know that

$$F = \frac{mv^2}{R} \therefore F = W = mg$$

$$mg = \frac{mv^2}{R}$$

$$\sqrt{v^2} = \sqrt{gR}$$

$$v = \sqrt{9.8 \times 6.4 \times 10^6}$$

$$v = 7900 \text{ kms}^{-1}$$

$$v = 7.9 \text{ Kms}^{-1}$$

{ Ans no: - (6) }

Given:-

$$S = 2.50 \text{ m}$$

$$r = 3.8 \times 10^8 \text{ m}$$

Find

$$Q = ?$$

Sol:-

$$Q = S/r$$

after putting values we get

$$Q = 6.6 \times 10^{-9} \text{ rad}$$

{ Ans no: - (7) }

$$r_o = 3.85 \times 10^8 \text{ m}$$

$$r_s = 1.74 \times 10^6 \text{ m}$$

$$\frac{L_s}{L_o} = ?$$

$$L_o = I_o \omega$$

$$L_o = m r_o^2 \omega$$

$$\frac{L_s}{L_o} = \frac{2 r_s^2}{5 r_o^2}$$

$$\frac{L_s}{L_o} = \frac{2 (1.74 \times 10^6)^2}{5 (3.85 \times 10^8)^2}$$

$$\frac{L_s}{L_o} = 8.2 \times 10^{-8}$$

[Ans no:- (4)]

$$v = 1.01 \text{ Km/s}$$

$$r = 390400 \text{ Km}$$

$$r = R + h$$

$$r = 6400 +$$

$$\text{Formula } \frac{2\pi R}{v}$$

$$\frac{2(3.14)(390400)}{1.01}$$

$$= \boxed{2,427} \text{ Days.}$$

[Ans no:- (3)]

We know that

$$W = mg$$

elevator accelerating upward with (a) g:

$$a = g$$

$$F = ma$$

$$F = mg + ma$$

$$F = 2mg$$

$$W = 2mg$$

$$W' = 2W$$

Proof:-

• elevator at rest  $W = mg$

• elevator accelerating upward  $F = ma = mg$

• Weight ( $W$ ) =  $2mg = 2W$

[Ans no:- (5)]

$$r = \frac{GMT}{4\pi}$$

$$G = 6.67$$

$$M = 24 \text{ Kg}$$

$$T = 86,400 \text{ seconds}$$

$$r \approx 42,164 \text{ Km}$$

$$R = 6,371 \text{ Km}$$

$$h = r - R \Rightarrow h = 35,793 \text{ Km}$$

That's why geostationary satellite is speed approximately 35,793 Km.