Section B

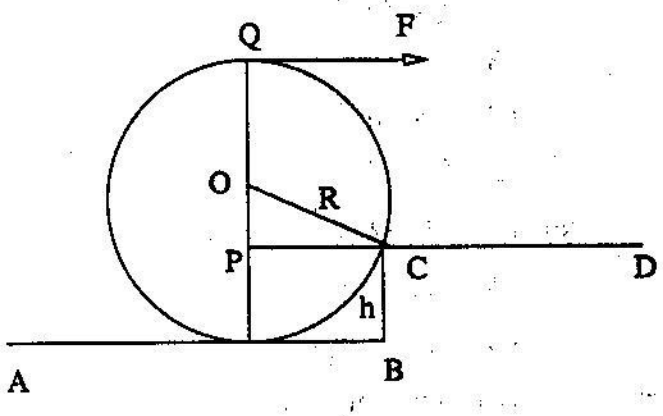
26. A sphere of radius R and weight W rests on a horizontal plane against a step of height h. The minimum horizontal force to be applied on the highest point Q of the sphere so that the sphere can climb up the step is

(A) $\frac{WR}{h}$.

(B) $W\sqrt{\frac{R}{2R-h}}$.

(C) $W\sqrt{\frac{h}{(2R-h)}}$.

(D) $\frac{WR}{\sqrt{(2R-h)^2+h^2}}$.



27. A cylinder of radius R, length L and density ρ floats upright in a fluid of density ρ_0. If it is given a small downwards displacement of amplitude x, the time period of resulting (undamped) oscillations is

(A) $2\pi\sqrt{\frac{\rho_0 L}{\rho g}}$.

(B) $2\pi\sqrt{\frac{\rho g}{\rho_0 L}}$.

(C) $2\pi\sqrt{\frac{\rho L}{\rho_0 g}}$.

(D) $2\pi\sqrt{\frac{\rho_0 g}{\rho L}}$.

28. An aircraft executes a horizontal loop of radius 1km with a steady speed of 900 km/hr. The ratio of the horizontal acceleration of the air craft to the acceleraion due to gravity is approximately

(A) 0.

(B) 5.

(C) 6.

(D) 7.