

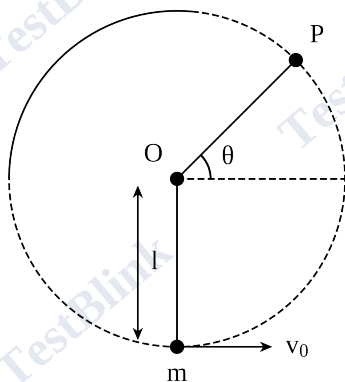
NEET WORK, ENERGY AND POWER — VERTICAL CIRCULAR MOTION — PYQS

Max. Marks: 24

Questions: 6

Section A (MCQ) — 6 questions

- Q.1** A bob of heavy mass m is suspended by a light string of length l . The bob is given a horizontal velocity v_0 as shown in figure. If the string gets slack at some point P making an angle θ from the horizontal, the ratio of the speed v of the bob at point P to its initial speed v_0 is: [NEET (UG) 2025]



- (1) $\left(\frac{\cos \theta}{2 + 3\sin \theta}\right)^{\frac{1}{2}}$ (2) $\left(\frac{\sin \theta}{2 + 3\sin \theta}\right)^{\frac{1}{2}}$
 (3) $(\sin \theta)^{\frac{1}{2}}$ (4) $\left(\frac{1}{2 + 3\sin \theta}\right)^{\frac{1}{2}}$

Scan or tap for the full solution



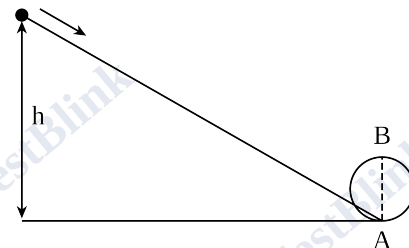
- Q.2** A mass m is attached to a thin wire and whirled in a vertical circle. The wire is most likely to break when : [NEET (UG) 2019]

- (1) the wire is horizontal
 (2) inclined at an angle of 60° from vertical
 (3) the mass is at the lowest point
 (4) the mass is at the highest point

Scan or tap for the full solution



- Q.3** A body initially at rest and sliding along a frictionless track from a height h (as shown in the figure) just completes a vertical circle of diameter $AB = D$. The height h is equal to [NEET 2018]



- (1) D (2) $\frac{3}{2}D$ (3) $\frac{7}{5}D$ (4) $\frac{5}{4}D$

Scan or tap for the full solution



- Q.4** What is the minimum velocity with which a body of mass m must enter a vertical loop of radius R so that it can complete the loop? [NEET 2016 (Phase 1)]

- (1) $\sqrt{3gR}$ (2) $\sqrt{5gR}$ (3) $\sqrt{gR}$ (4) $\sqrt{2gR}$

Scan or tap for the full solution



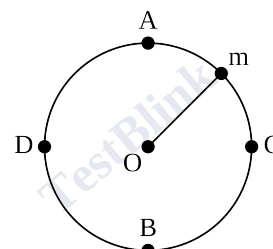
- Q.5** A stone is tied to a string of length l and is whirled in a vertical circle with the other end of the string as the centre. At a certain instant of time, the stone is at its lowest position and has a speed u . The magnitude of the change in velocity as it reaches a position where the string is horizontal (g being acceleration due to gravity) is [AIPMT 2003]

- (1) $\sqrt{2(u^2 - gl)}$ (2) $\sqrt{u^2 - gl}$
 (3) $u - \sqrt{u^2 - 2gl}$ (4) $\sqrt{2gl}$

Scan or tap for the full solution



- Q.6** As shown in the figure at point O a mass is performing vertical circular motion. The average velocity of the particle is increased, then at which point will the string break [AIPMT 2000]



- (1) A (2) B (3) C (4) D

Scan or tap for the full solution



ANSWER KEY

Ques.	1	2	3	4	5	6					
Ans.	2	3	4	2	1	2					