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NEET SYSTEM OF PARTICLES AND ROTATIONAL MOTION — EQUILIBRIUM OF A RIGID BODY — PYQS

Max. Marks: 16 **Questions:** 4

Section A (MCQ) — 4 questions

Q.1 A uniform rod of mass 20 kg and length 5 m leans against a smooth vertical wall making an angle of 60° with it. The other end rests on a rough horizontal floor. The friction force that the floor exerts on the rod is (Take g = 10 m/s^2)

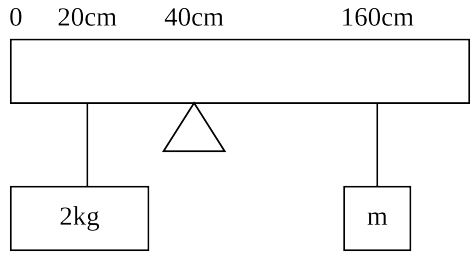
[NEET (UG) 2025]

(1) 200 N (2) $200\sqrt{3}$ N

(3) 100 N (4) $100\sqrt{3}$ N

Scan or tap for the full solution

Q.2 A uniform rod of length 200 cm and mass 500 g is balanced on a wedge placed at 40 cm mark. A mass of 2 kg is suspended from the rod at 20 cm and another unknown mass 'm' is suspended from the rod at 160 cm mark as shown in the figure. Find the value of 'm' such that the rod is in equilibrium. (g = 10 m/s^2) [NEET (UG) 2021]



(1) $\frac{1}{12}$ kg (2) $\frac{1}{2}$ kg (3) $\frac{1}{3}$ kg (4) $\frac{1}{6}$ kg

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Q.3 Which of the following statements are correct ?

A. Centre of mass of a body always coincides with the centre of gravity of the body.

B. Centre of mass of a body is the point at which the total gravitational torque on the body is zero.

C. A couple on a body produces both translational and rotational motion in a body

D. Mechanical advantage greater than one means that small effort can be used to lift a large load.

[NEET 2017]

(1) A and B only (2) B and C only

(3) C and D only (4) B and D only

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Q.4 A rod of weight W is supported by two parallel knife edges A and B and is in equilibrium in a horizontal position. The knives are at a distance d from each other. The centre of mass of the rod is at distance x from A. The normal reaction on A is

[AIPMT 2015 (Cancelled)]

(1) $\frac{W(d-x)}{x}$ (2) $\frac{W(d-x)}{d}$

(3) $\frac{Wx}{d}$ (4) $\frac{Wd}{x}$

Scan or tap for the full solution

ANSWER KEY

Ques.	1	2	3	4							
Ans.	4	1	4	2							