

JEE MAIN SYSTEM OF PARTICLES AND ROTATIONAL MOTION — CENTRE OF MASS — PYQS

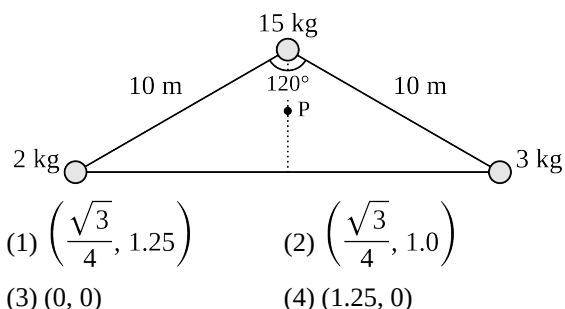
Max. Marks: 16

Questions: 4

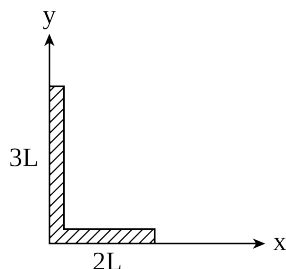
Section A (MCQ) — 4 questions

- Q.1** The position of center of mass of three masses 2 kg, 3 kg and 15 kg placed with respect to mid point (p) of normal bisector, as shown in the figure is _____.

[JEE Main 2026 (Online) 6th April Morning Shift]

Scan or tap for the
full solution

- Q.2** A rod of length 5 L is bent at right angle keeping one side length as 2 L.



The position of the centre of mass of the system :
(Consider $L = 10$ cm)

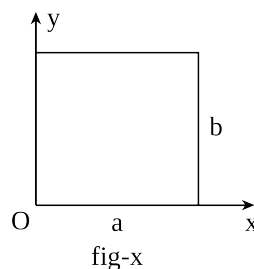
[JEE Main 2025 (Online) 7th April Morning Shift]

- (1) $4\hat{i} + 9\hat{j}$ (2) $2\hat{i} + 3\hat{j}$ (3) $5\hat{i} + 8\hat{j}$ (4) $3\hat{i} + 7\hat{j}$

Scan or tap for the
full solution

- Q.3** The center of mass of a thin rectangular plate (fig - x) with sides of length a and b, whose mass per unit area (σ) varies as $\sigma = \frac{\sigma_0 x}{ab}$ (where σ_0 is a constant), would be _____.

[JEE Main 2025 (Online) 28th January Morning Shift]



- (1) $\left(\frac{2}{3}a, \frac{2}{3}b\right)$ (2) $\left(\frac{2}{3}a, \frac{b}{2}\right)$
(3) $\left(\frac{1}{3}a, \frac{b}{2}\right)$ (4) $\left(\frac{a}{2}, \frac{b}{2}\right)$

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full solution

- Q.4** Consider a circular disc of radius 20 cm with centre located at the origin. A circular hole of radius 5 cm is cut from this disc in such a way that the edge of the hole touches the edge of the disc. The distance of centre of mass of residual or remaining disc from the origin will be

[JEE Main 2025 (Online) 23rd January Morning Shift]

- (1) 1.5 cm (2) 2.0 cm (3) 0.5 cm (4) 1.0 cm

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full solution

ANSWER KEY

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