

# PYQSide

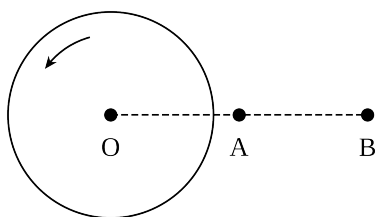
## NEET SYSTEM OF PARTICLES AND ROTATIONAL MOTION — TORQUE AND ANGULAR MOMENTUM — PYQS

Max. Marks: 28

Questions: 7

### Section A (MCQ)

- Q.1** A thin horizontal disc is rotating about a vertical axis passing through its fixed centre O. Its angular momentum is  $L_A$  and  $L_B$  computed about points A and B, respectively, with  $OB = 2 \times OA$ . The value of  $\frac{L_A}{L_B}$  is: [RE-NEET (UG) 2026]



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

Scan or tap for the full solution



- Q.2** Find the torque about the origin when a force of  $3\hat{j}$  N acts on a particle whose position vector is  $2\hat{k}$  m. [NEET (UG) 2020]
- (1)  $6\hat{j}$  N m      (2)  $-6\hat{i}$  N m  
(3)  $6\hat{k}$  N m      (4)  $6\hat{i}$  N m

Scan or tap for the full solution



- Q.3** The moment of the force,  $\vec{F} = 4\hat{i} + 5\hat{j} - 6\hat{k}$  at (2, 0, -3), about the point (2, -2, -2), is given by [NEET 2018]
- (1)  $-8\hat{i} - 4\hat{j} - 7\hat{k}$       (2)  $-4\hat{i} - \hat{j} - 8\hat{k}$   
(3)  $-7\hat{i} - 8\hat{j} - 4\hat{k}$       (4)  $-7\hat{i} - 4\hat{j} - 8\hat{k}$

Scan or tap for the full solution

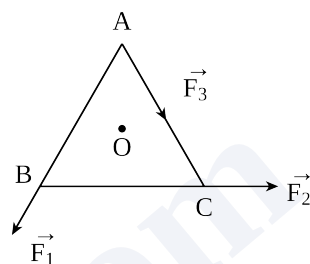


- Q.4** When a mass is rotating in a plane about a fixed point, its angular momentum is directed along [AIPMT 2012 (Prelims)]
- (1) a line perpendicular to the plane of rotation  
(2) the line making an angle of  $45^\circ$  to the plane of rotation  
(3) the radius  
(4) the tangent to the orbit

Scan or tap for the full solution



- Q.5** ABC is an equilateral triangle with O as its centre.  $\vec{F}_1$ ,  $\vec{F}_2$  and  $\vec{F}_3$  represent three forces acting along the sides AB, BC and AC respectively. If the total torque about O is zero then magnitude of  $\vec{F}_3$  is [AIPMT 2012 (Prelims)]



- (1)  $F_1 + F_2$       (2)  $F_1 - F_2$       (3)  $\frac{F_1 + F_2}{2}$       (4)  $2(F_1 + F_2)$

Scan or tap for the full solution

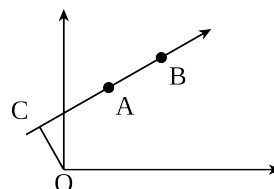


- Q.6** If  $\vec{F}$  is the force acting on a particle having position vector  $\vec{r}$  and  $\vec{\tau}$  be the torque of this force about the origin, then [AIPMT 2009]
- (1)  $\vec{r} \cdot \vec{\tau} > 0$  and  $\vec{F} \cdot \vec{\tau} < 0$   
(2)  $\vec{r} \cdot \vec{\tau} = 0$  and  $\vec{F} \cdot \vec{\tau} = 0$   
(3)  $\vec{r} \cdot \vec{\tau} = 0$  and  $\vec{F} \cdot \vec{\tau} \neq 0$   
(4)  $\vec{r} \cdot \vec{\tau} \neq 0$  and  $\vec{F} \cdot \vec{\tau} = 0$

Scan or tap for the full solution



- Q.7** A particle of mass m moves in the XY plane with a velocity v along the straight line AB. If the angular momentum of the particle with respect to origin O is  $L_A$  when it is at A and  $L_B$  when it is at B, then [AIPMT 2007]



- (1)  $L_A = L_B$   
(2) the relationship between  $L_A$  and  $L_B$  depends upon the slope of the line AB  
(3)  $L_A < L_B$   
(4)  $L_A > L_B$

Scan or tap for the  
full solution



### ANSWER KEY

| Ques. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |  |  |  |  |
|-------|---|---|---|---|---|---|---|--|--|--|--|
| Ans.  | 4 | 2 | 4 | 1 | 1 | 2 | 1 |  |  |  |  |