

Multiple Choice Questions and Answers

1. The moments of inertia of a circular ring of mass M and radius r about a diameter is -

a. Mr^2 (b) $\frac{1}{4}Mr^2$ (c) $\frac{1}{2}Mr^2$ (d) $\frac{1}{8}Mr^2$

Answer: (c)

2. Moment of inertia of the elliptic disc $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ of mass M about minor axis is -

(a) $\frac{1}{4}Mb^2$ (b) $\frac{1}{4}Ma^2$ (c) $\frac{1}{2}Ma^2$ (d) $\frac{1}{2}Mb^2$

Answer: (b)

3. Moment of inertia of a uniform rod of length 6 cm and mass 8 gm about an axis through an extremity and perpendicular to it-

a. 96 gm.cm^2 (b) 48 gm.cm^2 (c) 384 gm.cm^2 (d) 192 gm.cm^2

Answer: (a)

4. Moment of inertia of a rectangular lamina of mass 20 gm and length 8 cm and breadth 6 cm about a line through its centre and parallel to the edge of length 8 cm-

a. 120 gm cm^2 (b) 60 gm cm^2 (c) 30 gm cm^2 (d) 150 gm cm^2

Answer: (b)

5. Find the moment of inertia of a rectangular parallelopiped of mass M and lengths of the sides are 8cm, 4cm, 6cm about an axis through its centre and parallel to the edge of length 8 cm -

(a) $\frac{13M}{3}$ (b) $\frac{25M}{3}$ (c) $6M$ (d) $12M$

Answer: (a)

6. Find the moment of inertia of a circular ring of diameter 10 cm and mass 25 gm about a line through the centre and perpendicular to its plane-

a. 125 gm cm^2 (b) 525 gm cm^2 (c) 625 gm cm^2 (d) $\frac{625}{2} \text{ gm cm}^2$

Answer: (c)

7. The moment of inertia of a hollow sphere of mass M and radius 3 cm about a diameter is –

- a. $\frac{18M}{5}$ (b) $\frac{72M}{5}$ (c) $6M$ (d) $24M$

Answer: (c)

8. The moment of inertia of a right circular cylinder about its axis whose mass is M and $2a$ be the diameter of its base –

- a. $\frac{1}{2}Ma^2$ (b) $\frac{1}{4}Ma^2$ (c) $\frac{2}{3}Ma^2$ (d) $\frac{1}{6}Ma^2$

Answer: (a)

