

Note: You have four choices for each objective type question as A, B, C and D. The choice which you think is Correct, fill that circles in front of that question number. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero mark in that question.

Q. 1	QUESTIONS	(A)	(B)	(C)	(D)
1.	A force of 10 N is making an angle of 30° with the horizontal. Its horizontal component	4 N	5 N	7N	8.7 N
2.	The formula to find resultant force 'F' is	$\sqrt{F_x^2 + F_y^2}$	$\sqrt{F^2 + F_1^2}$	$\sqrt{F_x^2 + F_y^2}$	$\sqrt{F_x + F_y}$
3.	The unit of torque is.	Nm ⁻²	N cm	Nm ⁻¹	Nm
4.	Sin 45° is	0.707	0.5	0.80	0.2
5	$\frac{\text{BASE}}{\text{Hypotenuse}} = \text{is called}$	sin θ	cos θ	tan θ	cot θ
6.	The number of perpendicular components of a vector is.	1	2	3	4
7.	The turning effect of a force is called.	Momentum	Torque	Pressure	Work
8.	Racing cars are made stable by	Increasing their speed	Decreasing their mass	Lowering their centre of gravity	Decreasing their width
9.	In right angle triangle, length of base is 4 cm and is hypotenuse is 5 cm, the length of perpendicular is	1 cm	3 cm	20 cm	9 cm
10.	The value of tan 45° is	0.5	1.732	0.5777	1
11	Centre of gravity of sphere is	Centre of sphere	Outside sphere	Radius sphere	None of these
12.	The centre of gravity of irregular shaped body can be found with the help of.	Wedge	Meter rod	Plumb line	Screw gauge

A B C D

A B C D

A B C D

A B C D

A B C D

1	A B C D	4	A B C D	7	A B C D	10	A B C D	13	A B C D
2	A B C D	5	A B C D	8	A B C D	11	A B C D	14	A B C D
3	A B C D	6	A B C D	9	A B C D	12	A B C D	15	A B C D

نوٹ: معروضی سوال نامے کو توہرے پرچھیں اور ہر MCQ کی درست آپشن A, B, C, D کو پین کی سیاہی یا مارکر سے اس طرح پُر کریں کہ سیاہی دائرے سے باہر نہ نکلے۔ ایک سے زیادہ دائروں کو پُر کرنے یا کاٹ کر پُر کرنے کی صورت میں مذکورہ جواب غلط تصور ہوگا۔

(PART – I)

2. Write short answers to any Five (5) questions:

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- (i) Define Resultant vector.
- (ii) Give an example of a moving body which is in equilibrium?
- (iii) Think of a body which is at rest but not in equilibrium?
- (iv) Define Parallel forces and types.
- (v) What is meant by addition of forces?
- (vi) What is meant by resolution of forces?
- (vii) What is meant by rigid body and axis of rotation?
- (viii) What is meant by torque and unit of torque.

3. Write short answers to any Five (5) questions:

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- (i) Define line of action of force and moment arm.
- (ii) Difference between Centre of mass and Centre of Gravity?
- (iii) Difference between like and unlike forces?
- (iv) Define plumb line.
- (v) Define couple and couple arm.
- (vi) Define First condition of equilibrium.
- (vii) Define Second condition of equilibrium.
- (viii) Define stable equilibrium and Unstable equilibrium.

4. Write short answers to any Five (5) questions:

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- (i) Different between torque and couple.
- (ii) Define Neutral equilibrium.
- (iii) Why a vehicle is made heavy at its bottom to keep its centre of gravity as low as possible?
- (iv) How is wheel of bicycle rotated?
- (v) Why there is a need of second condition for equilibrium if a body satisfies first condition for equilibrium.
- (vi) Write Head to tail rule.
- (vii) Write Clockwise and anticlock wise torque?
- (viii) Why door is easy to open or close by pushing or pulling at handle?

(PART – II)

Note:- Attempt any TWO questions.

5. (a) What is meant by torque or moment of a force? Explain the factors on which it depend 4
 (b) A mechanic tightens the nut of a bicycle using a 15 cm long spanner by exerting a force 5
 of 200 N. Find the torque that has tightened it.
6. (a) What is meant by principle of moments? Explain clockwise torque and anticlock 4
 wise torque.
 (b) The steering of a car has a radius 16 cm. Find the torque produced by a couple of 50 N. 5
7. (a) Define parallel forces. Also explain its types or what is the difference between Like and 4
 Unlike parallel forces?
 (b) A force is acting on a body making an angle of 30° with the horizontal. The horizontal 5
 component of the force is 20 N. Find the force.

