

UNIT-4**MULTIPLE CHOICE QUESTIONS****BOOK- MCQs**

1. A pair of unlike parallel forces having different lines force produce-----.
a) equilibrium
c) a couple
b) torque
d) unstable equilibrium
2. Head to tail rule can be used to add----- forces.
a) two
c) five
b) three
d) any number of
3. A force of 15 N makes an angle of 60° with horizontal. Its vertical component will be:
a) 15N
c) 13N
b) 10N
d) 7 N
4. A body is in equilibrium when it has
a) uniform speed
c) both a and b
b) uniform acceleration
d) zero acceleration
5. A body is in stable equilibrium after slight tilt if its Centre of gravity
a) remains above the point of contact
b) remains on one side of point of contact
c) passes over the point of contact
d) is at lowest position
6. A body is in unstable equilibrium after slight tilt if its center of gravity
a) remains on one side of the point of contact
b) remains above the point of contact
c) passes over the point of contact
d) is positioned at its bottom
7. A body is in neutral equilibrium when its Centre of gravity
a) Is at the lowest position
c) Is at highest position
b) Remains at same height
d) Is at its base
8. Bunsen burner is made stable by
a) Increasing its length
c) Decreasing its base area
b) Increasing its mass
d) Increasing its base area
9. A tight rope walker carries a long pole to
a) Increase his weight
b) Raise his Centre of gravity
c) Lower his Centre of gravity
d) Keep his Centre of gravity in fixed position
10. Stability of a racing car is increased by
a) Increasing its height
c) Decreasing its width
b) Raising its Centre of gravity
d) Lowering its Centre of gravity

UNIT-4**EXAMS PRACTICE
MULTIPLE CHOICE QUESTIONS**

1. The process of splitting a vector into its components is called:
a) Addition of vectors
b) Resolution of vectors
c) Resultant force
d) Moment of force
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2. A force of 50 N acts at an angle of 60° with the horizontal. Its horizontal component is:
a) 5 N
c) 25 N
b) 8.66 N
d) 17.3 N
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3. The resultant of two forces acting in the same direction is found by:
a) Subtracting the forces
b) Multiplying the forces
c) Adding the forces
d) Dividing the forces
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4. Two forces of 12 N and 8 N act in the same direction. Their resultant is:
a) 2 N
b) 20 N
c) 14 N
d) 48 N
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5. A vector has horizontal component 3 N and vertical component 4 N. Its resultant magnitude is:
a) 1 N
b) 15 N
c) 7 N
d) 5 N
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6. A force of 20 N acts at an angle of 60° with the horizontal. Its vertical component is:
a) 10 N
b) 17.3 N
c) 20 N
d) 34.6 N
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7. Two forces of 15 N and 5 N act in opposite directions. Their resultant is:
a) 20 N
b) 10 N
c) 75 N
d) 5 N
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8. Torque is also known as:
a) Linear force
c) Speed of force
b) Turning effect of force
d) Mass effect
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9. The SI unit of torque is:
a) Newton
c) Newton metre
b) Joule
d) Watt
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10. A force of 20 N is applied perpendicular to a spanner of length 0.5 m. The torque is:
a) **10 Nm** b) 20 Nm
c) 40 Nm d) 0.025 Nm
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11. The torque produced by a force is maximum when the angle between force and moment arm is:
a) 0° b) 30°
c) **90°** d) 180°
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12. A force of 50 N acts at a distance of 0.2 m from the pivot at 30° . The torque is:
a) **5 Nm** b) 10 Nm
c) 25 Nm d) 250 Nm
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13. A couple consists of two forces that are:
a) Equal and same direction
b) Unequal and opposite direction
c) **Equal, opposite, and parallel**
d) Equal and perpendicular
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14. Two equal forces of 10 N form a couple. The perpendicular distance between their lines of action is 0.4 m. The torque of the couple is:
a) 40 Nm b) 10 Nm
c) 25 Nm d) **4 Nm**
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15. A couple produces:
a) Translational motion only
b) **Rotational motion only**
c) No motion d) Linear acceleration only
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16. The first condition of equilibrium is:
a) Sum of all torques is zero
b) **Sum of all forces is zero**
c) Body must be at rest
d) Body must rotate
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17. The second condition of equilibrium is:
a) Sum of all forces is zero
b) **Sum of all torques is zero**
c) Body must move with uniform acceleration
d) Body must have maximum force
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18. Mathematically, the first condition of equilibrium is written as:
a) $\sum F=ma$ b) **$\sum F=0$**
c) $\sum \tau=Fd$ d) $\sum v=0$
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19. Mathematically, the second condition of equilibrium is written as:

- a) $\sum F=0$
- c) $\sum F = Fd$

- b) $\sum \tau=0$**
 - d) $W=mg$
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20. If the net force on a body is zero, the body has:

- a) Uniform acceleration
- c) Increasing velocity

- b) Zero acceleration**
 - d) Decreasing mass
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21. For complete equilibrium, a body must satisfy:

- a) First condition only
 - b) Second condition only
 - c) Both first and second conditions**
 - d) Neither condition
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22. The first condition of equilibrium prevents:

- a) Rotational motion
 - b) Translational motion**
 - c) Change in mass
 - d) Change in shape
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23. The second condition of equilibrium prevents:

- a) Translational motion
 - b) Rotational motion**
 - c) Change in weight
 - d) Change in temperature
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24. A book resting on a table is an example of:

- a) Unbalanced forces
 - b) Equilibrium**
 - c) Uniform acceleration
 - d) Torque only
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25. A body is said to be in equilibrium when:

- a) It moves with increasing speed
- b) It has zero acceleration**
- c) It changes direction continuously
- d) It has maximum velocity