

Name \_\_\_\_\_

**Q. No. 1 Note: Select the Correct Option.**

1. When a body moves along a circular path, its velocity  
(a) remains same (b) become zero (c) changes continuously (d) sometime changes
2. The S.I unit of angular displacement is  
(a) degree (b) radian (c) revolution (d) meter
3. A body rotating in a circle of radius 1m with an angular speed 10 rad/s has the tangential velocity  
(a) 2 m/s (b) 5 m/s (c) 10 m/s (d) 20 m/s
4. One radian is equal to  
(a)  $67.3^\circ$  (b)  $60^\circ$  (c)  $57.3^\circ$  (d)  $47.3^\circ$
5. The moment of inertia is measured in  
(a)  $\text{kg m}^2$  (b)  $\text{kg m}^{-2}$  (c) N s (d)  $\text{rad s}^{-1}$
6. The moment of inertia for ring or hoop is  
(a)  $mr^2$  (b)  $\frac{2}{5}mr^2$  (c)  $\frac{1}{2}mr^2$  (d)  $\frac{1}{12}mr^2$
7. If a person sitting on a rotating stool with his arm outstretched, contracts his arms, his angular speed  
(a) decreases (b) increases (c) remains constant (d) becomes zero
8. Every point of rotating rigid body has same  
(a) angular velocity (b) linear velocity (c) linear acceleration (d) linear distance
9. Angular momentum is maximum, when angle between linear momentum and moment are, is  
(a)  $30^\circ$  (b)  $45^\circ$  (c)  $60^\circ$  (d)  $90^\circ$
10. When a body is rotating with constant angular velocity, its tangential acceleration is  
(a) Zero (b) maximum (c) minimum (d) none of these
11. A diver changes his body position to conserve the  
(a) angular velocity (b) linear velocity (c) linear acceleration (d) angular momentum
12. A disc rolls down an inclined plane, it has  
(a) translational K.E (b) rotational K.E (c) Gravitational P.E (d) all of these
13. When a body is moving in upward direction with an acceleration 'a', its apparent weight  
(a) increases (b) decreases (c) equal to real weight (d) becomes zero
14. A beaker with water is placed on the rotating table. When water in the beaker is increased then its angular velocity  
(a) increases (b) decreases (c) unchanged (d) becomes zero
15. When a sphere rolls down an inclined plane, its gravitational P.E is converted into  
(a) translation K.E (b) rotational K.E (c) both a&b (d) none of these
16. One Geo Stationary satellite covers a longitude of  
(a)  $110^\circ$  (b)  $120^\circ$  (c)  $125^\circ$  (d)  $130^\circ$
17. For normal gravitational field, gravity obeys  
(a) Newton's first law (b) Newton's second law (c) Newton's third law (d) inverse square law
18. If a car moves with a uniform speed of 2 m/s in a circle of radius 0.4 m, its angular speed is  
(a) 5 rad/s (b) 4 rad/s (c) 0.8 rad/s (d) 0.2 rad/s
19. For a particle moving in a horizontal circle with constant angular velocity  
(a) linear momentum is constant but energy varies (b) energy is constant but linear momentum varies  
(c) both energy and linear momentum are constant (d) neither energy nor linear momentum are constant
20. The number of satellites which make global positioning system are  
(a) 3 (b) 8 (c) 24 (d) 48
21. When a body moves along a circular path, the angle between its linear velocity and angular velocity is  
(a) zero (b)  $30^\circ$  (c)  $90^\circ$  (d)  $180^\circ$
22. The angular momentum L is defined by the equation  
(a)  $L = mv$  (b)  $L = \mathbf{r} \times \mathbf{F}$  (c)  $L = \mathbf{p} \times \mathbf{r}$  (d)  $L = \mathbf{r} \times \mathbf{p}$
23. The angle subtended by the circumference of a circle of radius r is given by  
(a)  $2\pi$  (b)  $\pi$  (c)  $4\pi$  (d)  $\pi r$
24. The moment of inertia for a disc is given by

- (a)  $mr^2$                       (b)  $\frac{2}{5} mr^2$                       (c)  $\frac{1}{2} mr^2$                       (d)  $\frac{1}{12} mr^2$
25. When a stone is whirled in a horizontal circle with the help of a string, centripetal force is supplied by  
 (a) mass of stone                      (b) tension in string                      (c) velocity of stone                      (d) centripetal acceleration
26. The centripetal force performs  
 (a) maximum work                      (b) minimum work                      (c) negative work                      (d) no work
27. When the force is applied parallel to the axis of rotation of a body then angular momentum is  
 (a) maximum                      (b) minimum                      (c) zero                      (d) cannot be fixed
28. one geo-stationary satellite covers a longitude of  
 (a)  $270^\circ$                       (b)  $120^\circ$                       (c)  $90^\circ$                       (d)  $180^\circ$
29. A diver stretches his arms and legs in order to increases his  
 (a) angular velocity                      (b) moment of inertia                      (c) angular acceleration                      (d) angular momentum
30. The mud flies off the tyre of a moving bicycle in the direction of  
 (a) centre of wheel                      (b) tangent to the wheel                      (c) motion of the wheel                      (d) none of these
31. When a body is moving in downward direction with an acceleration 'a', it apparent weight is  
 (a)  $ma + mg$                       (b)  $ma - mg$                       (c)  $mg$                       (d) zero
32. A beaker with water is placed on the rotating table. When water in the beaker is decreased then its angular velocity will  
 (a) increase                      (b) decrease                      (c) unchanged                      (d) become zero
33. The SI units of angular momentum are  
 (a)  $kg\ m\ s^{-1}$                       (b)  $kg\ m\ s^{-2}$                       (c)  $kg\ m^2\ s^{-1}$                       (d)  $kg\ m^2\ s^{-2}$
34. Which of the following pair of physical quantities does not have same dimensions  
 (a) torque and energy                      (b) momentum and impulse  
 (c) energy and work                      (d) mass and moment of inertia
35. The value of g is maximum  
 (a) at equator                      (b) at poles                      (c) at centre of earth                      (d) between pole and equator
36. If a car moves with a uniform speed of 40 m/s in a circle of radius 0.4 m, its angular speed is  
 (a) 0.01 rad/s                      (b) 16 rad /s                      (c) 20 rad /s                      (d) 100 rad /s
37. As we go below the surface of earth, the value of g  
 (a) increases                      (b) decreases                      (c) remains constant                      (d) reduces to zero
38. The number of geo stationary satellites are  
 (a) 3                      (b) 8                      (c) 24                      (d) 30
39. When a body is moving along a circular path, then such a motion is called  
 (a) Vibratory motion                      (b) rotatory motion                      (c) linear motion                      (d) none of these
40. Angular displacement is  
 (a) Scalar quantity                      (b) vector quantity                      (c) basic quantity                      (d) none of thee
41. If the arc length of a circle equals its radius, then the angle subtended at the center will be  
 (a) 1 degree                      (b) one revolution                      (c) one radian                      (d) half revolution
42. Time rate of change of angular velocity called  
 (a) linear acceleration                      (b) angular acceleration                      (c) centripetal acceleration                      (d) vibration velocity
43. A body rotating in a circle of radius 1 m with a speed 10 m/s has the angular velocity  
 (a) 2 rad/s                      (b) 5 rad/s                      (c) 10 rad/s                      (d) 20 rad/s
45. If the body is moving anticlockwise direction, the direction of angular acceleration is  
 (a) along the axis of rotation                      (b) perpendicular to the axis of rotation  
 (c) opposite to axis of rotation                      (d) none of these
46. The moment of inertia is analogue to  
 (a) mass                      (b) torque                      (c) force                      (d) momentum
47. In case of planets, centripetal force is provided by  
 (a) Coulomb's force                      (b) electrostatic force                      (c) gravitational force                      (d) magnetic force
48. If a person sitting on a rotating stool with his arm outstretched, contracts his arms, his angular speed  
 (a) decreases                      (b) increases                      (c) remains constant                      (d) becomes zero
49. The apparent weight of a man in an ascending lift moving with acceleration 'a'  
 a. Increases                      b. decreases                      c. becomes zero                      d. remains same
50. The ratio of moment of inertia of disc and hoop is  
 a. 1/4                      b. 4/2                      c. 3/4                      d. 1/2

