MULTIPLE CHOICE QUESTIONS (MCQs):

(1) Body thrown at some angle θ above or below the horizontal and moves freely under the action of gravity is called:
* Rocket * Bullet * Airship * Projectile

(2) The path of a projectile is called its:
* Curve * Time of action * Orbit * Trajectory

(3) The path describe by a projectile represents a:
* Hyperbola * Parabola * Straight line * Circle

(4) The time taken by a projectile to reach its maximum height is:
* $t = \frac{V_o \sin\theta}{g}$ * $t = \frac{V_o \cos\theta}{g}$ * $t = \frac{V_o \sin\theta \cos\theta}{g}$ * $t = \frac{2V_o \sin\theta}{g}$

(5) The maximum height attained by a projectile is:
* $H = \frac{V_o^2 \sin^2\theta}{g}$ * $H = \frac{V_o^2 \cos^2\theta}{2g}$ * $H = \frac{V_o^2 \sin^2\theta}{2g}$ * $H = \frac{V_o^2 \sin\theta}{2g}$

(6) The horizontal range of a projectile be found by the formulas:
* $R = \frac{V_o^2 \sin^2\theta}{2g}$ * $R = \frac{V_o^2 \sin 2\theta}{2g}$ * $R = \frac{V_o^2 \sin 2\theta}{g}$ * $R = \frac{V_o^2 \cos^2\theta}{g}$

(7) The total time taken by a projectile from starting at the surface of the earth to landing again on it is given by:
* $T = \frac{V_o \sin\theta}{2g}$ * $T = \frac{2V_o \sin\theta}{g}$ * $T = \frac{2V_o \cos\theta}{2g}$ * $T = \frac{2V_o \sin^2}{2g}$

(8) Due to presence of air resistance the total time of flight of a projectile:
* Remains the same * Decreases * Becomes zero * Increases

(9) A projectile is fired with initial velocity of 90m/s to hit a ground level target its maximum horizontal range will be:
* 9.2m * 826.5m * 413m * 81m

(10) In projectile motion a body moves with:
* Constant vertical component of velocity * Constant horizontal component of velocity
* Both Changing horizontal and vertical component of velocity
* Vertical component changing but Horizontal component of velocity constant

(11) If a projectile is launched at 45° with velocity 100m/s it hits the target. It will have double the range if its velocity is:
* 141.4m/s * 200m/s * 173.2m/s * 400m/s

(12) If a projectile is thrown at an angle of 35° it hit a centrain target. It will have the same range if it is thrown at an angle of:
* 45° * 55° * 10° * 70°

(13) Maximum height of a projectile depends on:
* Angle of projection * Velocity of projection * Both angle and velocity * None of these

(14) During the projectile motion the acceleration along the horizontal direction:
* Decreases * Is zero * Increases * None of these

(15) The projectile motion is a superposition of:
* Circular motion * One diomentional motion * SHM * None of these

(16) A projectile which is fired horizontally has its speed maximum at the moment of:
* Projection * Hitting the ground * Both of these * None of these

(17) The range of a projectile is maximum when the factor Sin 2θ is equal:
* 0 * 1 * 45 * 90

(18) An angle subtending at its centre by an arc whose length is equal to its radius is:
* 37.3° * 47.3° * 57.3° * 67.3°

(19) Two projectiles A and B are thrown up with the some speed at an angle of 60° and 30° respectively with the horizontal then:
* The range of A will be greater * The range of B will be greater
* The range of A and B will be same * The range independent of the angle

(20) In a projectile motion the velocity with remains the same is:
* Velocity * Horizontal velocity * Vertical velocity * Terminal velocity

(21) An aircraft takes off at 30° with 500km/h it vertial component of velocity with:
* 500 km/h * 433 km / h * 250 km /h * Zero

(22) A projectile must be Launched to maximum range at an angle of:
* 60° * 45° * 30° * 90°

(23) Circular motion is an example of motion in:
* One dimension * Two dimension * Three dimension * No dimension

(24) In uniform circular motion, the acceleration is always directed:
* The centre * The tangent
* Between the these tangent and the normal * None of these

(25) The number of radians in a complete circle is:
* 360 * 180 * π * 2π

(26) The relation between time period end angular velocity is:
* $\omega = 2\pi T$ * $\omega = \frac{2\pi}{T}$ * $\omega = \frac{J}{2\pi}$ * $\omega = \frac{2T}{\pi}$

(27) If 'r' is the radius of the circular path of a particle its liner and angular velocities are:
* $\vec{v} = \vec{\omega} \times \vec{r}$ * $\vec{v} = \vec{\alpha} \times \vec{\omega}$ * $\vec{\omega} = \vec{v} \times \vec{r}$ * $\vec{\omega} = \vec{r} \times \vec{v}$

(28) The centripetal acceleration of a body moving along a circle is:
* $\frac{4Tr^2}{\pi^2}$ * $\frac{4\pi^2 r}{T^2}$ * $\frac{4r^2T^2}{\pi^2}$ * $\frac{4\pi^2}{T^2 r}$

(29) A body is moving along a circle with an increasing speed it possesses:
* Tangential acceleration only (at) * Centripetal acceleration only (a_c)
* Both tangential and centripetal acceleration * No acceleration

(30) The angle between centripetal acceleration and tangential acceleration is:
* 0° * 90° * 180° * 45°

(31) One radian is equal to:
* 1° * 35.7° * 57.3° * 0.017°

(32) S.I unit of angular velocity is:
* m/see * Radian/sec * Deg/see * Rev./see

(33) When a body moves along circumference of a circle with uniform speed, change take place is its:
* Linear velocity * Tangential acceleration * Both * None of these

(34) If r is the radius of the circular path of a particle its linear acceleration ($\vec{\alpha}$) are related by:
* $\vec{a} = \vec{\alpha} \times \vec{r}$ * $\vec{a} = \vec{r} \times \vec{\alpha}$ * $\alpha = \vec{a} \times \vec{r}$ * $\vec{\alpha} = \vec{a} \times \vec{r}$

(35) The length of an arc subtending one radian at the centre of a circle of radius 0.5m is:
* 0.05m * 0.5m * 1 m * 0.15m

(36) A body moving along a circular path with an increasing speed possesses:
* Tangential acceleration only * Centripetal acceleration only
* Both tangential and centripetal acceleration * No acceleration

(37) If a body is rotating in a circle with a certain constant tangential speed it must have:
* Only centripetal acceleration * Only tangential acceleration
* Both centripetal and tangential acceleration * None of these

(38) If a body is moving is a circle of radius "γ" with the constant speed "V" the centripetal acceleration.
* $\frac{V}{\gamma}$ * $\frac{V^2}{\gamma}$ * $\frac{V}{\gamma^2}$ * $\frac{V^2}{\gamma^2}$

(39) Centripetal force is also called:
* Centrifugal force * Centre-Seeking force * Tangential force * None of these

(40) The force required to keep a body in circle motion is called:
* Orbital force * Centripetal force * Centrifugal force * Restoring force

(41) What is the centrifugal force acting on a mass of 20kg tied to one end of a sting 10m long and rotated at a speed of 1m/sec.
* 1N * 2N * 5N * 10N

(42) A cyclist cycling around a circular racing track skids because:
* The centripetal force upon him is less than the limiting friction
* The centripetal force upon him is greater than the limiting friction
* The centripetal force upon him is equal to the limiting friction * None of these

(43) When angular velocity of a disk increases angular acceleration α and angular velocity ω are.
* parallel * Not parallel * perpendicular * None

(44) If the axis of rotation of a rotating body passes through the body itself, then its motion is called:
* Linear motion * Orbital motion * Spin motion * S.H motion

ANSWER KEY

(1) Projectile	(2) Trajectory	(3) Parabola	(4) $t = \frac{V_o \sin\theta}{g}$
(5) $H = \frac{V_o^2 \sin^2\theta}{2g}$	(6) $R = \frac{V_o^2 \sin 2\theta}{g}$	(7) $T = \frac{2V_o \sin\theta}{g}$	(8) Decreases
(9) 826.5m	(10) vertical component changing but Horizontal component of velocity constant	(11) 141.4m/s	(12) 55°
(13) Both angle and velocity	(14) Is zero	(15) None of these	(16) Both of these
(17) 1	(18) 57.3°	(19) The range of A and B will be same	(20) Horizontal velocity
(21) 250 km /h	(22) 45°	(23) Two dimension	(24) The centre
(25) 2π	(26) $\omega = \frac{2\pi}{T}$	(27) $\vec{v} = \vec{w} \times \vec{r}$	(28) $\frac{4\pi^2 r}{T^2}$
(29) Both tangential and centripetal acceleration	(30) 90°	(31) 57.3°	(32) Radian/see
(33) Linear velocity	(34) $\vec{a} = \vec{\alpha} \times \vec{r}$	(35) 0.5m	(36) Both tangential and centripetal acceleration
(37) Only centripetal acceleration	(38) $\frac{V^2}{r}$	(39) Centre-Seeking Force	(40) Centripetal force
(41) 2N	(42)	(43) parallel	(44) Spin motion