

NAME:		ROLL NO:		TIME:	50: MIN
SUB:	Physics	Date:		CLASS:	1 st Year
SYLLABUS	Chp. 2 (Force and Motion)	T. MARKS	30	OBT. M	

Q. 1 Choose the Correct Answer. Cutting, Erasing, Double Selection is Strictly Prohibited. (1x10=10)

- Two forces act together on an object the magnitude of their resultant is minimum when the angle between the forces is:
 - 0°
 - 180°
 - 90°
 - 270°
- If $\vec{A}$ and $\vec{B}$ point along x-axis then the vector $\vec{A}$ and $\vec{B}$ must be in:
 - XY-plane
 - ZY-plane
 - XZ-plane
 - All of these
- The magnitude of vector product of two non-zero vectors $\vec{A}$ and $\vec{B}$:
 - $AB \cos \theta$
 - $AB \sin \theta$
 - $AB \sin \theta$
 - $AB \sin \theta \cos \theta$
- If vector $\vec{A}$ is directed along x-axis then the magnitude of its y-component will be:
 - 4m
 - 16m
 - 1m
 - Zero
- Dot product of two anti-parallel vector $\vec{A}$ and $\vec{B}$:
 - $AB \cos \theta$
 - AB
 - 0
 - AB
- The horizontal component of the velocity of projectile:
 - Remain constant
 - Increases
 - Decreases
 - None
- The range of a projectile is directly proportional to:
 - $\sin^2 \theta$
 - $\sin^3 \theta$
 - $\sin \theta$
 - $2 \sin \theta$
- At maximum height, the speed of the projectile is:
 - Maximum
 - Minimum
 - Zero
 - None of these
- If the body of mass 2 kg moving with 15 ms^{-1} collides with stationary body of same mass, then after elastic collision the 2nd body will move with the velocity of _____:
 - 15 ms^{-1}
 - 30 ms^{-1}
 - Zero ms^{-1}
 - None of these
- The distance covered by free falling in 4s in:
 - 19.6 m
 - 39.2 m
 - 78.4 m
 - 4.9 m

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PART-I

Q. 2 Write Short Answers of the Following Questions

(2x6=12)

- Under what circumstances would a vector has components that are equal in magnitude?
- Show that vector product of two vectors is not commutative.
- Write down the summary of addition of two vectors by their rectangular components.
- Explain the circumstances in which the velocity 'v' and acceleration 'a' of a car are; Anti-parallel
- Perpendicular to one another.
- Define impulse and show that how it is related to linear momentum?

PART-II

Write Answers of the Following Questions in Detail.

- Q. 3 (a) State and explain the Scalar product of two vectors, write down its four characteristics. 4
- (b) A ball is kicked by footballer. The average force on the ball is 240N, and the impact lasts for a time interval of 0.25s. Calculate: 4
- Change in momentum
 - State direction of change in momentum (the direction of change in momentum as the same as the direction of applied force, which is the direction, the football kicked the ball).

Answer Key

1	B	2	B	3	C	4	D
5	D	6	A	7	A	8	B
9	A	10	C				