

MOCK -Classical Mechanics		Sem 6 TYBSC Physics	
1.	A central force is only function of		
	(a)	distance	
	(b)	velocity	
	(c)	acceleration	
	(d)	time	
	Answer: (b)		Difficulty Level: D
2.	Gravitational force is an example of		
	(a)	Fictitious force	
	(b)	Pseudoforce	
	(c)	Central force	
	(d)	Resistive force	
Answer: (c)		Difficulty Level: D	
3.	In case of Bounded Motion between two bodies, the distance between 2 interacting bodies _____		
	(a)	is infinite initially	
	(b)	always exceeds a finite limit	
	(c)	Never exceed a finite limit	
	(d)	Is infinite after interaction	
Answer: (c)		Difficulty Level: S	
4	In case of unbounded Motion, distance between 2 interacting bodies is		
	(a)	infinite initially and finally	
	(b)	Always finite	
	(c)	Zero	
	(d)	Infinite initially but finite after collision.	
Answer: (a)		Difficulty Level: S	
5	Angular Momentum about the origin of a particle moving under a central force is _____		
	(a)	Zero	
	(b)	Conserved	
	(c)	Varying	
	(d)	function of position.	
Answer: (b)		Difficulty Level: S	
6	Motion of a particle under central force is _____		
	(a)	3 dimensional.	
	(b)	Translational	
	(c)	Planar	
	(d)	along a line	
Answer: (c)		Difficulty Level: S	
7	In case of 1 dimensional central Force equation $f(r) + \frac{L^2}{mr^3}$, the term $\frac{L^2}{mr^3}$ represents _____ force		
	(a)	Real	
	(b)	Fictitious	

	(c)	General
	(d)	Resistive
	Answer: (b) Difficulty Level: M	
8	The type of Motion (Bounded or Unbounded) can be predicted by the plot of __V_ v/s r. Here V is	
	(a)	Kinetic Energy
	(b)	Effective Potential Energy
	(c)	Total Energy
	(d)	Potential energy
	Answer: (b) Difficulty Level: S	
9	Gravitational Force, Coulomb's Force are central forces where force is proportional to	
	(a)	R
	(b)	r^2
	(c)	$\frac{1}{r}$
	(d)	$\frac{1}{r^2}$
	Answer: (d) Difficulty Level: S	
10	For Inverse Square Law of Force, force between two bodies inversely proportional to square of _____	
	(a)	Speed of the bodies
	(b)	acceleration of the bodies
	(c)	distance between the bodies
	(d)	Energies of the bodies.
	Answer: (c) Difficulty Level: S	
11	The equation $V_{\text{eff}} = \frac{K}{r} + \frac{L^2}{2mr^2}$ is used to decide _____ of the path travelled by the particle	
	(a)	Shape
	(b)	Size
	(c)	Area
	(d)	None of above
	Answer: A Difficulty Level: M	

12	The radius vector drawn from the sun to a planet sweeps _____ in equal intervals of time	
	(a)	Equal area
	(b)	Different area
	(c)	Equal distance
	(d)	None of above
	Answer: (a) Difficulty Level: S	

13	A planet revolving around sun in an elliptical orbit has a constant	
	(a)	Kinetic energy
	(b)	Linear speed
	(c)	Angular momentum about the sun
	(d)	Potential energy

	Answer: (c)	Difficulty Level: S
14	The areal velocity of the particle in a central force field is _____	
	(a)	Zero
	(b)	Constant
	(c)	Infinity
	(d)	Not conserved
	Answer: (b)	Difficulty Level: M
15	For hyperbolic orbit the values of energy E and eccentricity ϵ are _____	
	(a)	$E=0$ and $\epsilon>1$
	(b)	$E>0$ and $\epsilon>1$
	(c)	$E>0$ and $\epsilon=1$
	(d)	$E>0$ and $\epsilon=0$
	Answer: (b)	Difficulty Level: M