	Enrollmo	ent No:	Exam Seat No:			
			I UNIVERSI'	ГҮ		
	<b>Summer Examination-2017</b>					
	Subject Name:Physics-1					
	Subject (	Code: 4SC01PHY1	Branch:B.Sc. (All)			
	Semester	: 1 Date:28/03/2017	Time: 10:30 To 1:30	Marks: 70		
	(2) I (3) I	ns:  Jse of Programmable calculator &  nstructions written on main answe  Draw neat diagrams and figures (if  Assume suitable data if needed.	er book are strictly to be obe	-		
Q-1		Attempt the following question	as:		(14)	
	a) b) c) d) e) f) g) h) i) j) k) n)	Define vectors.  Vectors obey	oducts.  ss. reference? a. related to the moment of iner  vity; the speed of light			
Atte	mpt any f	our questions from Q-2 to Q-8	,			
Q-2	a) b)	Attempt all questions Derive the expression for the cro State Newton's law of gravitatio		and B.	(14) (05) (03)	
	c)	Define the Gravitational Potentia Derive the expression for the gra	<u> </u>	nt outside the sphere	(06)	
Q-3	a)	Attempt all questions State Kepler's laws.			(14) (06)	



Give the principle behind the motion of satellites. Define Escape velocity and derive its formula.

b)

(05)

	c)	Explain the basic idea behind the global positioning system.			
Q-4		Attempt all questions			
	a)	State Newton's laws of motion.	(06)		
		Explain conservative and non conservative forces with the help of examples.			
	<b>b</b> )	State the work energy theorem and give its proof.			
	c)	Explain the concept of conservation of linear momentum.			
Q-5		Attempt all questions			
	a)	Explain the concept of rocket propulsion based on the system of variable masses and hence determine the final velocity of a rocket.			
	<b>b</b> )	Explain briefly the angular momentum of a rigid body and hence explain the law			
	ŕ	of conservation of angular momentum.			
Q-6		Attempt all questions			
	a)	Explain briefly the various modulus of rigidity.			
	<b>b</b> )	Explain the Torsional pendulum.			
Q-7	ŕ	Attempt all questions			
	a)	State the postulates of special theory of relativity.			
	<b>b</b> )	Define self and mutual inductance.			
		Derive the relation $M=\sqrt{(L_1L_2)}$			
	c)	Explain the concept of length contraction.			
<b>Q-8</b>		Attempt all questions			
-	a)	Based on the mesh current method; determine the currents $I_1$ and $I_2$ for the circu			
		given below.			
		R1 R3 W 4 ohm 1 ohm 1 ohm B2 R2 7V B2			

Explain the working of a transformer and explain its different types. Explain the concept of centre of mass and derive its formula for a two body system having equal masses.

b)

**C**)



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