C.U.SHAH UNIVERSITY **Summer Examination-2017**

Subject Name: Modern Physics

Subjec	t Co	de: 4SC03PHE1 E	Branch: B.Sc. (All)			
Semest	ter:	3 Date: 06/04/2017 T	ime: 10:30 To 01:30	Marks: 70		
 Instructions: (1) Use of Programmable calculator & any other electronic instrument is prohibited. (2) Instructions written on main answer book are strictly to be obeyed. (3) Draw neat diagrams and figures (if necessary) at right places. (4) Assume suitable data if needed. 						
Q-1 Attemp	b) c) d) e) f) g) h) i) j) k) l) m) n)	Attempt the following questions: Define : Cantilever Give the definition of the turbulent flow What is inertial frame? State any one postulate of the special th Draw only the graph of combine effect respect to intensity and wavelength. What is Auger effect? Define: Fluorescence Name the different types of types of sp Give the formula of X-ray diffraction b Which quantum number shows the size What is Stark effect? How is Normal Zeeman effect different Define: Microscopic state. Give the statement of Liouville's theore four questions from Q-2 to Q-8	neory of relativity. of absorption and fluorescen ectra. by Bragg's law. e as well as shape of anorbit? t fromAnomalous Zeeman eff			
Q-2	a	Attempt all questions Explain bending moment of a beam with	h neat and clean diagrams Al	so derive 7		
	а	formula for the same.	C C			
Q-3	b	Explain Michelson and Morley experim Attempt all questions	nent for special theory of rela	tivity. 7		
¥ ~	a	A metal bar 10^{-2} m ² in cross section and horizontally at one end and a weight of end.Calculate the depression produced. The value of young modulus of the mat	1.6 kg is applied at the free	d 5		



	b	Explain with diagram cantilever supported at its end and loaded in the middle	
		with necessary formula.	
	c	State and explain Stoke's law.	4
Q-4		Attempt all questions	
	a	Explain Production of X-rays with suitable diagram.	7
	b	Explain X-ray diffraction by Bragg's law.	7
Q-5		Attempt all questions	
	a	Write a note on : Absorption spectrum	5
	b	Explain about J-J coupling.	5
	c	What is Auger effect? Explain.	4
Q-6		Attempt all questions	
	a	Explain each quantum number with their physical interpretation.	7
	b	Explain about : L-S coupling	7
Q-7		Attempt all questions	
	a	Explain in detail Zeeman effect.	7
	b	Write a note on Gibb's Paradox.	7
Q-8		Attempt all questions	
	a	Explain Equal a priori probability	5
	b	Give an account on specific heat at constant volume.	5
	c	Explain micro canonical ensemble	4

