C.U.SHAH UNIVERSITY **Summer Examination-2018**

Subject Name : Physics - II

	Subject	Code: 4SC02PHY1	Branch: B.Sc. (All)	
	Semester	r:2 Date:27/04/2018	8 Time : 10:30 To 01:30	Marks: 70
	Instructio	ons:		
	(1) U	Use of Programmable calculate	or & any other electronic instrument	is prohibited.
	(2) I	nstructions written on main an	nswer book are strictly to be obeyed.	
	(3) I	Draw neat diagrams and figure	es (if necessary) at right places.	
	(4)	Assume suitable data if needed	1.	
Q-1		Attempt the following ques	stions:	(14)
	a)	Differentiate between scalars	s and vectors.	
	b)	Name any two vector quantit	ties.	
	c)	What do you mean by volum	ne integration?	
	d)	Define unit cell.		
	e)	Define crystals.		
	f)	How many types of solids ex	cist?	
	g)	State the divergence theorem	1.	
	n) i)	What are A dhasiya forece?		
	1) i)	Define surface tension		
	J) k)	Define specific heat		
	l)	What are N type semiconduc	ctors?	
	-) m)	Define a diode.		
	n)	What is a transistor?		
Atte	mpt any f	four questions from Q-2 to Q	2-8	
0-2		Attempt all questions		(14)
τ-	(a)	State and prove the Stokes th	neorem considering the example of a	vector field (07)
		given by $\vec{A} = \hat{K} \cdot \frac{1}{2} \cos \theta$.		× /
	(b)	Differentiate Crystalline and	amorphous solids.	(07)
		Explain with suitable figures	what primitive cells are?	
Q-3	i	Attempt all questions		(14)

- Explain the procedure to obtain Miller indices. Write a note on NaCl crystal structure. **(a)** (05) **(b)** (05) (04)
- Explain Body centered Bravais lattice with proper diagram. (c)



Q-4		Attempt all questions	(14)
	(a)	Explain the principle, construction and working of the apparatus used for the production of X-Rays	(09)
	(b)	State and derive the Bragg's law of Diffraction	(05)
Q-5		Attempt all questions	(14)
	(a)	Write a note on PN junction diodes.	(07)
	(b)	Define the following	(03)
		i) Lattice, ii) Basis and iii) coordination number	
	(c)	Give the difference between continuous and line spectra.	(04)
Q-6		Attempt all questions	(14)
-	(a)	What are synclastic and anticlastic surfaces?	(07)
	(b)	Explain how viscosities of fluids vary with temperature?	(07)
Q-7		Attempt all questions	(14)
-	(a)	Explain the construction and working of light emitting diode.	(07)
	(b)	Explain the working of a photodiode and also describe the characteristics of a photodiode.	(07)
Q-8		Attempt all questions	(14)
-	(a)	Explain the working principle of NPN transistor.	(04)
	(b)	What is Common emitter configuration? Establish the relation between α and β .	(10)

