Enrollment No: _____ Exam Seat No:_____

C.U.SHAH UNIVERSITY

Summer Examination-2018

Subject Name : Physics - II

Subject Code : 4SC02PHY1 Branch: B.Sc. (All)

Semester : 2 Date :27/04/2018 Time : 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 Attempt the following questions: (14)

a) Differentiate between scalars and vectors.
b) Name any two vector quantities.
c) What do you mean by volume integration?
d) Define unit cell.
e) Define crystals.
f) How many types of solids exist?
g) State the divergence theorem.
h) Define Viscosity.
i) What are Adhesive forces?
j) Define surface tension.
k) Define specific heat.
l) What are N type semiconductors?
m) Define a diode.
n) What is a transistor?

Attempt any four questions from Q-2 to Q-8

Q-2 Attempt all questions (14)

(a) State and prove the Stokes theorem considering the example of a vector field given by $\vec{A} = \hat{K}.\frac{1}{r}\cos\theta$. **(07)**

(b) Differentiate Crystalline and amorphous solids. Explain with suitable figures what primitive cells are? **(07)**

Q-3 Attempt all questions (14)

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

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 i) Lattice, ii) Basis and iii) coordination number	**(03)**
	(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)**