Enrollment No: _____ Exam Seat No:_____

C.U.SHAH UNIVERSITY

Winter Examination-2018

Subject Name: Physics - II

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

Semester: 2 Date: 25/10/2018 Time: 02:30 To 05:30 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) State Bragg's law.
b) Differentiate between scalars and vectors.
c) What are N type semiconductors?
d) Give the full form of LED.
e) What is the function of rectifiers?
f) Draw the planes in cubic crystal having Miller Indices : (1 1 1)
g) Define specific heat.
h) Define a unit cell with the help of a figure.
i) Name the different types of filter circuits.
j) What is a transistor?
k) Give the difference between LED and photodiode.
l) Define Ripple factor.
m) What do you mean by forward bias condition?
n) Define Mechanical waves.

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

Q-2 Attempt all questions (14)

a) Explain the principle, construction and working of the apparatus used for the production of X-Rays. **(09)**

b) Derive the Bragg's law of Diffraction **(05)**

Q-3 Attempt all questions (14)

a) Distinguish between crystalline solids and amorphous solids. **(04)**

b) Explain the procedure to obtain Miller indices. **(05)**

c) Write a note on NaCl crystal structure. **(05)**

Q-4 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 its characteristics. **(07)**

Q-5 Attempt all questions (14)

a) What is a P-N junction diode? Discuss the Forward and Reverse biasing of a **(07)**

		diode with circuit diagrams and explain its characteristics.	
	b)	Discuss Melde's experiment for longitudinal and transverse modes of vibration.	**(05)**
	c)	Define: i) Lattice and ii) Coordination number.	**(02)**
Q-6		**Attempt all questions**	**(14)**
	a)	What is a rectifier? Explain a full wave rectifier in detail with the help of a circuit diagram giving its construction, working.	**(07)**
	b)	Discuss Stoke's law and derive its formula. Discuss the measurement of viscosity by Stoke's method.	**(07)**
Q-7		**Attempt all questions**	**(14)**
	a)	Explain the construction and working of a PNP transistor.	**(05)**
	b)	Explain briefly the Common emitter configuration. Also establish the relation between α and β.	**(09)**
Q-8		**Attempt all questions**	**(14)**
	a)	Give the difference between continuous and line spectra.	**(05)**
	b)	Explain the simple cube, body centered cube and face centered cubic structure with the help of proper diagrams.	**(09)**