Enrollment No: _____ Exam Seat No:_____

C.U.SHAH UNIVERSITY

Summer Examination-2018

Subject Name: Physics-II

Subject Code: 4SC02PHC1 **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) Define the term Anisotropy.
b) Draw symbolically P-N-P and N-P-N transistors.
c) Give examples for Isotopes and Isotones.
d) Abbreviate LED and draw its symbol.
e) Define Musical sound.
f) Write Bragg's formula for X-ray diffraction..
g) What is threshold intensity of sound?
h) Give one point of difference between crystalline and non-crystalline solids.
i) Define Unit cell.
j) What are X-rays?
k) Give an expression connecting Half Life Time ' τ' and Decay Constant 'λ' for a radioactive element.
l) Define Bravais lattice.
m) Define Doppler effect.
n) State the working principle of a photodiode.

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

Q-2 **Attempt all questions** **(14)**

a. Differentiate between Longitudinal waves and Transversal waves? **06**
b. Discuss the properties of X-rays. **08**

Q-3 **Attempt all questions** **(14)**

a. Explain how multi-colour LEDs works? **06**
b. What is Bravais Lattice? Describe 14 Bravais lattices of 7 crystal systems with lattice parameters and diagrams. **08**

Q-4 **Attempt all questions** **(14)**

a. State and explain the Laws of Radioactivity **06**
b. Derive Newton's formula for velocity of sound in air applying Laplace's Correction to it. **08**

Q-5		**Attempt all questions**	**(14)**
	a.	Write a short note on Zener Diode.	**07**
	b.	Give mathematical analysis of a Full Wave Rectifier.	**07**
Q-6		**Attempt all questions**	**(14)**
	a.	Compare the properties of $\propto$, β and γ radiations.	**07**
	b.	Describe production of X-rays using a Coolidge Tube with necessary diagrams.	**07**
Q-7		**Attempt all questions**	**(14)**
	a.	Explain the working of a P-N-P transistor.	**07**
	b.	Describe Common Base Transistor configuration with circuit diagram. Explain it's I/P & O/P characteristic curves.	**07**
Q-8		**Attempt all questions**	**(14)**
	a.	Discuss Full wave Center Tap rectifier in detail.	**07**
	b.	What are Miller Indices? Illustrate the steps to find out Miller indices of a Crystal plane with necessary diagram.	**07**