Enrollment No: _____ Exam Seat No:_____

C.U.SHAH UNIVERSITY

Summer Examination-2017

Subject Name: Physics-II

Subject Code: 4SC02PHC1 Branch: B.Sc. (All)

Semester: 2 Date: 06/05/2017 Time: 02:00 To 05:00 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 Doppler effect
b) Give an expression connecting Half Life Time ' ' and Decay Constant 'λ' for a radioactive element.
c) What is the difference between Isotopes and Isotones?
d) Draw and define: Unit cell.
e) Define Musical sound
f) Write Bragg's formula for X-ray diffraction.
g) What is threshold intensity of sound? Give its value with unit.
h) Give examples for crystalline and non-crystalline solids.
i) Abbreviate LED and draw its symbol
j) Define: Ripple Factor - γ.
k) Draw symbolically P-N-P and N-P-N transistors
l) Define Bravais lattice.
m) Define Anisotropy.
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. How Longitudinal waves are different from Transversal waves? Give examples. **06**
b. List the properties of X-rays. **08**

Q-3 Attempt all questions (14)

a. Compare the properties of ∝, β and γ radiations. **07**
b. Describe production of X-rays using a Coolidge Tube with necessary diagrams. **07**

Q-4 Attempt all questions (14)

a. State and explain the Laws of Radioactivity **05**
b. Calculate sound velocity in water if its bulk modulus is 2.23×10^9 Pa. **04**
c. Derive Newton's formula for velocity of sound in air applying Laplace's Correction to it. **05**

Q-5		**Attempt all questions**	**(14)**
	a.	Discuss Full wave Center Tap rectifier in detail.	**07**
	b.	Write a short note on Zener Diode.	**07**
Q-6		**Attempt all questions**	**(14)**
	a.	Explain how do multi-colour LEDs work?	**06**
	b.	What is Bravais Lattice? Describe 14 Bravais lattices of 7 crystal systems with lattice parameters and diagrams.	**08**
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.	What are Miller Indices? Illustrate the steps to find out Miller indices of a Crystal plane with necessary diagram.	**07**
	b.	Give mathematical analysis of a Full Wave Rectifier.	**07**