

C.U.SHAH UNIVERSITY

Winter Examination-2018

Subject Name : Physics-II

Subject Code :4SC02PHC1

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)	Draw the symbols of P.N.P. and N.P.N.transistors.	01
b)	What is the full form of L.E.D.?	01
c)	Draw the symbol of L.E.D. and Photo Diode.	01
d)	Define X-rays.	01
e)	What do you know about the mass of α -particle, β -particle and γ -rays ?	01
f)	What do you know about the charge of α , β and γ radiations?	01
g)	Define the unit cell.	01
h)	What is the threshold intensity of the sound?	01
i)	For a radioactive element, write the relation between the decay constant λ and the half-life time τ .	01
j)	What is the function of a rectifier?	01
k)	What is the difference between a half wave rectifier and a full wave rectifier?	01
l)	Which type of diode is used in the voltage regulating stabilizers?	01
m)	State the working principle of a photo diode.	01
n)	Write the formula of the average life time for a radioactive element. Identify each term of it.	01

Attempt Any Four questions from Q-2 to Q-8

Q-2	Attempt all questions	(14)
(A)	State Bragg's Law. Prove it deriving necessary formula and figure.	06
(B)	Define:Dispersion, Reflection, Refraction, Interference and Diffraction of light.	05
(C)	Distinguish between Constructive interference and Destructive interference.	03
Q-3	Attempt all questions	(14)
(A)	Distinguish between Crystalline Solids and Non-Crystalline-Amorphous Solids.	04



	(B)	Explain “ The 7 Crystal Systems & 14 Bravais Lattices” with figure diagram.	07
	(C)	What are the Bravais lattice and Non-Bravais lattices? Give figures.	03
Q-4		Attempt all questions	(14)
	(A)	Discuss: Properties, characteristics and applications of X-rays.	07
	(B)	Discuss: Applications of X-rays.	07
Q-5		Attempt all questions	(14)
	(A)	With a neat diagram, narrate the production of X-rays using Coolidge Tube.	07
	(B)	What is a P-N junction diode? Discuss Forward and Reverse biasing of a diode with circuit diagram and explain the characteristics.	07
Q-6		Attempt all questions	(14)
	(A)	What is a rectifier? Explain a full wave rectifier in detail giving circuit diagram, construction, working and mathematical analysis.	07
	(B)	Name different types of transistor configurations. Discuss in detail any one of them.	07
Q-7		Attempt all questions	(14)
	(A)	Compare the properties of α , β and γ radiations.	07
	(B)	What are Miller Indices? Illustrate the steps to find out Miller indices of a Crystal plane with necessary diagram.	07
Q-8		Attempt all questions	(14)
	(A)	Explain the working of a transistor.	07
	(B)	Write a short note on Principle and working of Zener Diode as a voltage regulator.	07

