

**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034****B.Sc. DEGREE EXAMINATION – CHEMISTRY****THIRD SEMESTER – APRIL 2023****PH 3202 – PHYSICS FOR CHEMISTRY - II**

Date: 12-05-2023

Dept. No. 

Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

**PART – A****(10 x 2 = 20 Marks)**

<b>Q. No.</b>	<b>Answer ALL questions</b>
1	Convert $(2AF)_{16}$ into a decimal number.
2	What is a flip flop?
3	Write any two applications of X-rays.
4	State Pauli's exclusion principle.
5	Define Binding energy.
6	What are elementary particles?
7	Mention any two factors that affect the acoustics of a building.
8	What are ultrasonic waves?
9	State Heisenberg's uncertainty principle.
10	What are matter waves?

**PART – B****(4 x 7.5 = 30 Marks)**

11	Describe Millikan's experiment to verify the Einstein's photo electric equation.
12	With a neat diagram and truth table, explain the working of a full adder.
13	Describe the liquid drop model of the nucleus.
14	With a neat circuit diagram explain the production of ultrasonic waves by piezoelectric effect.
15	Derive Schrodinger wave equation from the plane wave equation.
16	Explain the working of a clocked RS flip flop using NAND gates.

**PART – C****(4 x 12.5 = 50 Marks)****Answer any FOUR questions**

17	With a neat diagram and truth table, explain the working of a JK flip flop.
18	State the postulates of Bohr atom model. Obtain the expressions for the radius and electron energy of the nth orbit.
19	Study the variation of binding energy with atomic mass. Explain how this graph can be used to

	identify two mechanisms of nuclear energy.
20	State the laws of photoelectric emission. Obtain Einstein's photoelectric equation.
21	With a neat schematic explain how the wave nature of a moving electron was established through Davisson – Germer experiment.
22	Derive the Sabine's formula for reverberation time.

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