B.Sc. DEGREE EXAMINATION,APRIL 2019
II Year IV Semester
Allied Physics-II

Time : 3 Hours **Max.marks :60**

Section A $(10 \times 1 = 10)$ Marks

Answer any **TEN** questions

1. Define Dispersive power.
2. What is Interference?
3. Give the two concepts of vector atom model.
4. State and explain Paulis exclusion principle
5. What do you understand by mass defect of a nucleus?
6. Define half life period of a Radioactive substance.
7. What is Joule-Thompson effect?
8. Mention any two applications of low temperature.
9. Draw the circuit symbol and give the truth-table of NOR gate.
10. What are the operations used in Boolean algebra.
11. Mention the coupling schemes in vector atom model.
12. What is AND gate?

Section B $(5 \times 4 = 20)$ Marks

Answer any **FIVE** questions

13. Describe the air wedge method of determining the thickness of a wire.
14. Apply Paulis exclusion principle to deduce maximum number of electrons in K, L, M and N shells of an atom.
15. Give the properties of alpha rays.
16. Give the Lindes process of liquification of air.
17. State and prove Demorgans theorems. Give necessary truth tables.
18. Describe the liquid drop model of the nucleus.
19. Give the theory of Joule-Kelvin effect.

Section C $(3 \times 10 = 30)$ Marks

Answer any **THREE** questions

20. Describe how two narrow angled prisms can be combined to produce dispersion without deviation. Derive an expression for the resultant dispersion produced.
21. Describe vector model of the atom and explain the different quantum numbers associated with it.
22. Explain Mean life of a radioactive substance and derive an expression for it.
23. Describe the porous plug experiment. Discuss its significance in liquefaction of gases.
24. Explain how NAND gate can be used as OR,AND and NOT gates Why NAND gate is called as universal building block? Explain.

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