B.Sc. DEGREE EXAMINATION,NOVEMBER 2019
I Year I Semester
Allied Physics - II

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

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

Answer any **TEN** questions

1. What is meant by Interference?
2. What do you mean by Dispersion in a prism?
3. Give the two concepts of vector atom model.
4. State Pauli's exclusion principle.
5. Define the term Binding energy of the nucleus
6. Define half-life period of a radioactive element
7. What is Joule-Kelvin effect?
8. Mention any two applications of low temperature.
9. Give the truth table, Boolean expression and symbol of an OR gate.
10. State De Morgan's Theorem.
11. Draw the circuit symbol and give the truth table of NOR gate
12. What is natural Radioactivity?

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

Answer any **FIVE** questions

13. Show how two narrow angled prisms can be combined to produce dispersion without deviation and also calculate the angle of dispersion.
14. Explain the coupling schemes associated with the Vector Atom Model
15. Explain Mean-life period of a radioactive element and derive an expression for it.
16. Describe Linde's method of liquefaction of air.
17. Write an account of OR and NOT gates
18. State and prove De Morgan's Theorems. Give the necessary truth-tables.
19. Describe the porous plug experiment. Discuss the significance of the experiment in tthe liquefaction of gases.

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

Answer any **THREE** questions

20. With necessary theory explain air wedge method for determining the thickness of a thin wire
21. Describe the vector atom model of the atom and explain various quantum numbers associated with the vector atom model.
22. Describe in detail the properties of α, β and γ – rays.
23. Describe Joule- Kelvin effect and give its theory.
24. Explain how NAND gate can be converted into OR, NOT and AND gates.

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