Reg.No: | | | | | | | | | | | |

D. K. M. COLLEGE FOR WOMEN (AUTONOMOUS), VELLORE-1

SEMESTER EXAMINATIONS

JUNE - 2022 21CAPH2A

ALLIED: PHYSICS - II

Time: 3 Hours **Max. Marks: 75**

SECTION – A (10 x 2 = 20)

Answer ALL the questions.

1. What is an intrinsic semiconductor?
2. Classify the solids based on electrical properties?
3. What are crystalline solids? Give examples.
4. Define Unit cell and Primitive cell.
5. Distinguish Top-down and Bottom-up methods.
6. Classify nanomaterials based on dimensional constraints.
7. Write the principle of fiber optic communication.
8. Define acceptance angle in fiber optics.
9. Explain the term superconductors.
10. What is isotope effect?

SECTION – B (5 x 5 = 25)

Answer ALL the questions.

11. (a) Identify the difference between intrinsic and extrinsic semiconductors.

(Or)

(b) Describe in detail about Hall effect.

12. (a) Define Miller indices. Explain how will you find out the Miller indices of a lattice plane?

(Or)

(b) Derive the Bragg's equation. How it is useful for x-ray diffraction of crystal? Explain.

13. (a) Give the applications of thin film in PV technology for energy conversion and as anti-microbial agents.

(Or)

(b) What is carbon nanotube? Write the types and applications of it.

14. (a) Give the principle and working method of CO_2 laser.

(Or)

(b) Write a notes on step index single mode and multi-mode fiber.

15. (a) Distinguish Type I and Type II superconductors.

(Or)

(b) Explain magnetic levitation in superconductor.

SECTION – C (3 x 10 = 30)

Answer any THREE of the following questions.

16. What is extrinsic semiconductor? Explain the types of it.
17. Explain the BCS theory and give its postulates.
18. Explain in detail about the block diagram of fiber optic communication.
19. Explain in brief about imperfections in crystal.
20. Write the methodology of Sol gel technique and Ball milling technique in detail.

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