Roll No. | | | | | | | | | | | | |

Total No. of Pages : 02

Total No. of Questions : 19

M.Sc (Chemistry)PIT (2015 to 2017) (Sem.-4)

FUNCTIONAL MATERIALS

Subject Code : CHL-512A

Paper ID : [74898]

Time : 3 Hrs. Max. Marks : 70

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains SIX questions carrying FIVE marks each and students have to attempt ALL questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

1. What is a liquid crystal phase and how does it differ from solid crystal and liquid amorphous phases?

2. What is a "blue phase"?

3. Give two examples of liquid crystals in electronics.

4. What is superconducting perovskite?

5. Define "Fullerene".

6. What are nanotubes?

7. Why is Graphene almost transparent?

8. Give two examples of zeolites.

9. Give two examples of photocromic materials.

10. What are thermocromic materials? Give two examples and their applications.

SECTION-B

11. Write a note on graphene production.

12. Give an account of photocromic materials.

13. Briefly describe the synthesis of zeolites.

14. Write a note on thermal properties of grapheme.

15. Explain the structure of fullernes and discuss the unique advantages they possess.

16. Write briefly about materials used in light emitting diodes.

SECTION-C

17. What are "Mesogens"? What are the requirements of mesogens? Discuss the mesophases of mesogens.

18. Classify Perovskites. Discuss their applications giving suitable examples.

19. What are Zeolites? Giving suitable examples, discuss their applications in the industry.