18. Discuss the following :

(a) The Czochralski process (5)

(b) Stockbarger method. (5)

19. Explain in detail about phosphors. (10)

20. (a) How to prepare on electrically conducting polymer (or) organic metal? (5)

(b) Write the applications of dopped polyacetylene. (5)

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S.No. 6226 **P 16 CHE 1 A**

(For candidates admitted from 2016–2021 Batch)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Chemistry —Elective

SOLID STATE CHEMISTRY

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20)

Answer ALL questions.

1. How to predict the radius ratio rule for ionic compounds and write the radius ratio value for different cordination number?

2. Draw the structure of spinel and antispinels.

3. Write the uses of metal organic frame works.

4. What is the basic necessity of MOF?

5. Define hydrothermal method by autoclave.

6. What is zone melting?

7. Write the application of magnetic bubble memory devices.

8. Define Neel temperature and Curie temperature.

9. What is molecular packing effects?

10. What is intermolecular forces in organic solid?

PART B — (5 × 5 = 25)

Answer ALL questions, choosing either (a) or (b).

11. (a) Distinguish between BCC and FCC unit cell.

Or

(b) Discuss :

(i) Supramolecular isomorphism (3)

(ii) Pseudopolymorphism. (2)

12. (a) Discuss the synthesis of metallo organic framework with appropriate example.

Or

(b) How interligand hydrogen bonds are stabilized by the metallo organic frameworks?

13. (a) Discuss the epitaxial growth of thin layer.

Or

(b) Describe the synthesis of zeolite and write its uses.

14. (a) Write a short note on permanent magnets.

Or

(b) Discuss about garnets.

15. (a) Write a note on photopolymerisations of diacetylenes.

Or

(b) Write an account on doped polyacetylene and poly pyrrole.

PART C — (3 × 10 = 30)

Answer any THREE questions.

16. Explain the following :

(a) Crystal engineering of pharmaceutical phase. (5)

(b) Polymorphism. (5)

17. Write a short note :

(a) The application of MOF (5)

(b) OLED material. (5)