

M.Sc. (Phy) Semester - 3 (CBCS) Examination**DEC/JAN. - 2020****Synthesis of Materials (Elective)****Time: 1:30 Hours****Marks: 42****Instructions:**

1. Figure to the right indicate marks.
 2. There are five questions in the question paper.
 3. Answer any three of the following questions.
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| Que 1. | 14 |
| (a) What is Solid State Reaction? Explain Wagner Reaction Mechanism of Solid State Reaction in detail. | 07 |
| (b) What is the principle of Microwave Synthesis? Explain the preparation of Y-123 superconducting compound through Microwave Synthesis with typical parameters. | 07 |
| Que 2. | 14 |
| (a) Where are “Sol” and “Gel” in Sol-gel method? Explain the synthesis of Lithium Niobate through Sol-gel method. | 07 |
| (b) What is meant by “Co-precipitation as a precursor to Solid State Reaction”? List the advantages and disadvantages of Co-precipitation Method. | 07 |
| Que 3. | 14 |
| (a) Write a Short-note on “Sputtering” technique of thin film synthesis. | 07 |
| (b) Write a Short-note on Pulsed Laser Deposition (PLD). | 07 |
| Que 4. | 14 |
| (a) Discuss with necessary figure: Molten flux method of crystal growth. | 07 |
| (b) Discuss in detail: Zone melting and zone refining method of crystal growth. | 07 |
| Que 5. | 14 |
| (a) What is vapour method of crystal growth? Which three processes are used to obtain crystals by this method? Explain chemical vapour transportation and chemical vapour deposition. | 07 |
| (b) Describe with necessary figure: Hydrothermal method of crystal growth. | 07 |
