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**GIET UNIVERSITY, GUNUPUR - 765022**  
M. Sc. (Third Semester) Examinations, December - 2023  
**22CHCBOE307 - Chemistry of Materials**  
**(Chemistry)**

Time: 3 hrs

Maximum: 70 Marks

(The figures in the right hand margin indicate marks.)

**PART – A****(2 x 10 = 20 Marks)**

| Q.1. Answer <i>ALL</i> questions               | CO # | Blooms<br>Level |
|--|------|-----------------|
| a. Discuss types of ceramics.                  | C02  | K2              |
| b. Define Advance ceramic and their types.     | C01  | K1              |
| c. What is composite and how it is formed?     | C02  | K1              |
| d. Classify different phases.                  | C03  | K2              |
| e. Define dispersion strengthened with example | C03  | K1              |
| f. Define Schottky Defect                      | C04  | K2              |
| g. What is ionic conductor?                    | C02  | K2              |
| h. Explain LB method?                          | C04  | K2              |
| i. Define organic metals.                      | C04  | K1              |
| j. Describe Molecular rectifiers?              | C03  | K1              |

**PART – B****(10 x 5=50 Marks)**

| <u>Answer <i>ANY FIVE</i> questions</u>  | Marks | CO # | Blooms<br>Level |
|--|-------|------|-----------------|
| 2. a. What is ceramic? Classification of ceramics.                                 | 5     | C01  | K1              |
| b. Write notes on Glassy State and their composition.                              | 5     | C02  | K2              |
| 3.a. Explain top-down and bottom-up approach with its diagrammatic representation. | 10    | C04  | K2              |
| 4. a. Write short note on CMC.   | 5     | C02  | K1              |
| b. Explain ball milling process and its instrumentation.                           | 5     | C04  | K2              |
| 5.a. Discuss sputtering method.  | 6     | C03  | K2              |
| b. Discuss property change during superconductor transformation.                   | 4     | C03  | K1              |
| 6. a. Derive mechanism for Frenkel Defect.   | 10    | C04  | K1              |
| 7.a. Discuss Artificial Photosynthesis and its stage.                              | 5     | C04  | K2              |
| b. Explain details about the fullerenes and fullerides?                            | 5     | C04  | K1              |

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|-------|---|---|-----|----|
| 8. a. | What are composite materials, explain its types and applications. | 8 | C03 | K2 |
| b.    | Write down advantages of using composite materials.               | 2 | C03 | K1 |