

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE- SEMESTER-V (NEW) EXAMINATION – WINTER 2020****Subject Code:3153906****Date:27/01/2021****Subject Name:Synthesis Of Nanomaterials-II****Time:10:30 AM TO 12:30 PM****Total Marks: 56****Instructions:**

1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

**MARKS**

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|------------|--|-----------|
| <b>Q.1</b> | (a) Define E-beam Lithography.   | <b>03</b> |
|            | (b) Explain Basic Concept of CVD and RF Plasma Method.   | <b>04</b> |
|            | (c) Elaborate PLD and Hence Describe its Advantages and Disadvantages.                         | <b>07</b> |
| <b>Q.2</b> | (a) Define Resist. What are its Types? Mention Briefly.  | <b>03</b> |
|            | (b) What are Advantages and disadvantages of Electron Beam Lithography?                        | <b>04</b> |
|            | (c) Define Lithography Technique and Hence Describe Applications of Electron Beam Lithography. | <b>07</b> |
| <b>Q.3</b> | (a) Define Proximity Effect.   | <b>03</b> |
|            | (b) Describe the beam focusing and alignment in E-Beam Lithography.                            | <b>04</b> |
|            | (c) Write a short note on RF Plasma Chemical Method.   | <b>07</b> |
| <b>Q.4</b> | (a) Mention Applications of RF Plasma Method   | <b>03</b> |
|            | (b) Explain Briefly Alignment of Nano elements in Hybrid Nanostructures.                       | <b>04</b> |
|            | (c) Elaborate the Basic Concept of EBL.  | <b>07</b> |
| <b>Q.5</b> | (a) Define Secondary electrons for E-Beam Lithography.   | <b>03</b> |
|            | (b) Elaborate the Basic Concept of PLD.  | <b>04</b> |
|            | (c) Mention and Explain any Three PVD Technique.   | <b>07</b> |
| <b>Q.6</b> | (a) Explain Raster Scan and Vector Scan Briefly.   | <b>03</b> |

- (b) Write a short note on Pulse Laser Deposition Technique. **04**
- (c) Mention and Explain any Three CVD Technique. **07**
- Q.7** (a) Define Ion Beam Deposition Technique. **03**
- (b) Mention and Describe Applications of PVD Techniques. **04**
- (c) Write a short Note on RF Plasma Chemical Method. **07**
- Q.8** (a) Differentiate Between Positive and Negative Resist for Lithography Technique. **03**
- (b) Explain the Basic Principle of Physical Vapour Deposition. **04**
- (c) Mention and Describe Applications of CVD Techniques. **07**

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