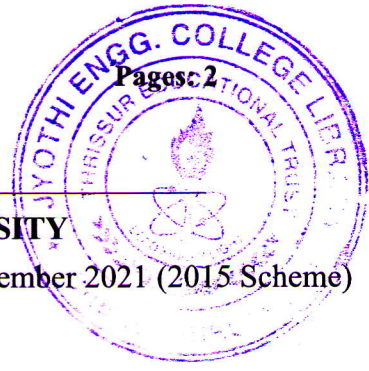


B

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Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

Seventh Semester B.Tech Degree Regular and Supplementary Examination December 2021 (2015 Scheme)

**Course Code: MR403**

**Course Name: Nanotechnology**

Max. Marks: 100

Duration: 3 Hours

**PART A**

*Answer all questions, each carries 5 marks.*

Marks

- |   |  |     |
|---|--|-----|
| 1 | List the properties and applications of carbon nanotube.     | (5) |
| 2 | Write short notes on nanolayers.                             | (5) |
| 3 | Analyze the safety issues with nanomaterial.                 | (5) |
| 4 | Synopsise bio-nanotechnology.                                | (5) |
| 5 | Enumerate biological nanostructure fabrication methods.      | (5) |
| 6 | Examine self-assembled nanomaterial.                         | (5) |
| 7 | Outline the advantage and applications of bottom-up approach | (5) |
| 8 | Define MEMS and NEMS.  | (5) |

**PART B**

*Answer any three full questions, each carries 10 marks.*

- |    |   |      |
|----|---|------|
| 9  | a) Examine the effect of surface to volume ratio with the relevant sketch?  | (3)  |
|    | b) Classify the nanomaterial based on its dimension and explain it with an example.                                 | (7)  |
| 10 | a) With the relevant sketch, explain how the silver nanoparticle is synthesized using the sol-gel synthesis method. | (10) |
| 11 | a) What is TEM?   | (2)  |
|    | b) Examine TEM with a suitable diagram.   | (8)  |
| 12 | a) Make a short note on Nanofluids.   | (5)  |
|    | b) Illustrate the function of Nanofillers   | (5)  |
| 13 | a) Explain the operation of CVD in nanofabrication.   | (3)  |
|    | b) Rewrite the preparation methods of nanocomposites.   | (4)  |
|    | c) What is a quantum dot? Explain in detail with a suitable example   | (3)  |

**PART C**

*Answer any two full questions, each carries 15 marks.*

- 14 a) Elucidate the different photoresist materials used in photolithography. (10)  
b) List the uses and applications of nanotechnology. (5)
- 15 a) Illustrate the necessity of nanomedicines. (10)  
b) Classify different micro and nanofabrication methods. (5)
- 16 a) With the neat sketch, explain the photolithography process. (8)  
b) Rewrite the nanolithography process. (7)
- 17 a) Recognize the functional process of the drug delivery system. (7)  
b) Outline the properties of applications of dendrimers. (8)

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