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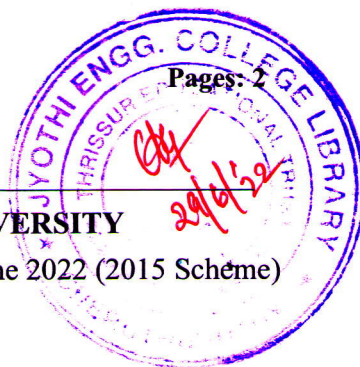
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Reg No.: _____

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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Seventh Semester B.Tech Degree Supplementary Examination June 2022 (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 Define nanomaterial. With examples explain the classification of Nano materials. (5)
- 2 With neat sketch explain Chemical vapour deposition (CVD) method for the preparation of Nano materials. (5)
- 3 Explain with block diagram different modes of operation of Atomic Force Microscopy. (5)
- 4 Write short note on Nano Fillers. (5)
- 5 Discuss each step involved in the process of photolithography with suitable diagram. (5)
- 6 "Nanoparticles are considered dangerous" Explain. (5)
- 7 List out the applications of Nano bots in medical field. (5)
- 8 Differentiate MEMS and NEMS. (5)

PART B

Answer any three full questions, each carries 10 marks.

- 9 a) Discuss the concept of Quantum Dots with its classification. "As the size of Quantum Dots varies their colour varies". What is the reason behind this colour variation? (10)
- 10 a) Write two approaches for the synthesis of Nano oxides? Analyse the reason why oxide nanoparticles exhibit unique physical and chemical properties. (10)
- 11 a) Discuss about electron Microscopy and its types. How does electron microscopy differ from optical microscopy? (10)
- 12 a) Explain in detail about Nano composites. Classify them. List out some of its advantages and disadvantages? (10)

- 13 Write short note on
- a) Quantum confinement effect (5)
 - b) Surface to volume ratio effect in Nano materials (5)

PART C

Answer any two full questions, each carries 15 marks.

- 14 a) Explain how soft lithography is used for transferring a pattern onto a surface in micro fabrication. What are various processes involved in soft lithography? (15)
- 15 a) How is nanolithography applied in fabrication of Nano materials? (15)
- 16 a) Discuss about Nano electronic devices. (8)
b) What is Bio nanotechnology? Explain its application. (7)
- 17 a) Explain about different targeting strategies in drug delivery system. (10)
b) Describe about Nano Sensors and its application. (5)
