

2021
M. Tech. (Micro-Electronics)
Third Semester
MIC-303: NanoScale Devices and System

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.

x-x-x

- I. Attempt the following:-
 - a) Define Nanoscale devices.
 - b) Define Ballistic transport.
 - c) Differentiate between Quantum wires and Quantum dots.
 - d) Discuss phase interference.
 - e) What are Nano powders? (5x2)

UNIT – I

- II. Discuss in detail electrical, magnetic, optical and thermal properties of nanostructured materials. (10)
- III. What information is available about unique release and exposure patterns of Nanomaterials? (10)
- IV. How does the ability of a nanostructure to accept carriers affect its properties? (10)

UNIT – II

- V. How does the shape of the nanostructure affect its properties? Explain briefly. (10)
- VI. Discuss Bottom up approach for synthesis of Nanomaterials. (10)
- VII. Write short notes on following:-
 - a) Self Assembly
 - b) Contact imprinting (2x5)

x-x-x