

**M. TECH. (NANO TECHNOLOGY) SEM-II (CBCS – 2015
COURSE) : WINTER - 2017**
SUBJECT: NANO FABRICATION & ADVANCED SYNTHESIS TECHNOLOGY

Day: **Tuesday**
Date: **28/11/2017**

W-2017-2751

Time: **11.00 AM TO 02.00 PM**
Max. Marks: 60

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the **RIGHT** indicate full marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer books.
- 4) Assume suitable data, if **NECESSARY**.

SECTION –I

Q.1 Give a detailed classification of OD, 1D and 2D carbonaceous nano products. [10]

OR

Explain the inert gas conduction technique for nanomaterial synthesis. State the set up details and working parameters.

Q.2 Discuss the operating parameters of e-beam lithography. [10]

OR

Discuss the ball milling process for nanoparticle synthesis.

Q.3 Discuss the structures, properties and application of CNTs. Give suitable examples. [10]

OR

Explain MBE. Discuss its operation and applications.

SECTION –II

Q.4 Write short notes on: [10]
i) CVD technique for nanoparticle synthesis.
ii) L-B films.

OR

Explain the process steps of AFM based nanolithography.

Q.5 Write short notes on: [10]
i) Nanosponges
ii) Hydrothermal analysis of zeolites.

OR

State and explain how electrochemical etching of porous silicon is undertaken.

Q.6 Discuss the principle of molecular beam epitaxy [MBE] in detail. List the various nano structures that can be synthesized using MBE. [10]

OR

Give an overview of nanopolymers and their applications.

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