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Anna University Exams April May 2022 – Regulation 2017
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GE8073 Fundamentals of Nano Science

PART B & PART C IMPORTANT QUESTIONS

UNIT I

1. Describe the Length scales involved and effect on properties
2. Explain the classifications of nanostructured materials.
3. Explain Quantum dots, nanowires-ultra-thin films-multilayered materials.
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Unit II

1. Explain in detail about bottom up and top down approach.
2. Give short notes about : a) Co-precipitation b) Ultrasonification
3. Write in detail about the sputtering and its types. Examine the use of sputtering.
4. Draw and explain the Schematic diagram of an MBE chamber . Why use MBE rather than some other method making a crystal ?
5. Draw and explain the Schematic diagram MOMBE growth chamber.
6. Explain the methods used to synthesis nanoparticles.
7. Discuss in detail about colloidal routes.

Unit III

1. Explain Single Wall Carbon Nanotubes (SWCNT) and Multi Wall Carbon Nanotubes (MWCNT).
2. Describe Structure-property relationships applications.
3. Describe Grapheme and carbon nanotube.
4. Explain Nanoforms of carbon.

Unit IV

1. What is meant by Atomic Force Microscope (AFM)? Explain the working principle of AFM.
2. Write short notes on transmission electron microscopy including high-resolution imaging.
3. Write a short notes in surface analysis. Discuss about the principle and characteristics of surface analysis.
4. Expand SEM and write its working principle in detail.
5. How does a Nanoindenter work? Explain.
6. Explain merits and demerits of STM and SIMS

Unit V

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1. Explain NanoInfoTech : Information storage
2. Discuss in detail about a) Micro Electro Mechanical Systems (MEMS). b) Nano Electro Mechanical Systems (NEMS)
3. Explain in detail about nano medicines.
4. Explain Nanoparticles for Sunbarrier Products