

Subject Code: G0404/R13

M. Tech –I Semester Regular/ Supply Examinations, February, 2016

NANO TECHNOLOGY

(Common to CAD/CAM and TS&ES)

Time: 3 Hours

Max Marks: 60

Answer any FIVE questions

All questions carry EQUAL marks

1. (a) Explain what you mean by nanoelectromechanical systems. (6)
(b) Discuss nanoscale elements in conventional technologies. (6)
2. (a) What are challenges being faced by Nanotechnology? Explain. (6)
(b) Discuss the enhancement of mechanical properties with decreasing size. (6)
3. Explain briefly the following:
(a) Ion implantation (6)
(b) Electron beam lithography (6)
4. (a) Discuss the top down and bottom up nanofabrication methods with their merits and demerits. (6)
(b) Write a short note on sol-gel method. Explain its principle. (6)
5. (a) What is the basic principle in Scanning Electron Microscope? How is it different from optical microscopy? Explain. (6)
(b) Discuss ultra-sensitive imaging for nanoparticles. (6)
6. (a) Explain the optical and electronic properties of metal nanoparticles. (6)
(b) Describe the synthesis of semiconductor nanoparticles. (6)
7. (a) How can Carbon Nanotubes enable brighter TV screens? Explain. (6)
(b) Explain the Electronic and Vibrational properties of carbon Nanotubes. (6)
8. Discuss the applications of Nanowire transistors and sensors. (12)

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