

Code :R7420304

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IV B.Tech II Semester(R07) Regular Examinations, April 2011
NANO TECHNOLOGY
(Mechanical Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE questions
All questions carry equal marks

1. Discuss the optical phenomena bonding in solids. Describe anisotropic behavior.
2. Discuss various aspects of electron microscopy.
3. Describe the desirable properties of Nanocrystalline silicon carbide.
4. Discuss the electrical properties with special reference to electronic conduction of nanomaterials.
5. What are various important nano materials which are based on electro deposition?
6. Describe scanning electron microscope and related techniques.
7. Write short notes on:
 - (a) Nanoprobes for analysis
 - (b) Nanosensors.
8. Write brief notes on:
 - (a) Molecular nanomechanics
 - (b) Nanoscalar tribiology

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Answer any FIVE questions
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1. Discuss the Quantum behavior of Nanometric World.
2. Describe sintering of Silicon Carbide.
3. Describe the preparation of nanocrystalline silicon carbide for strength measurements.
4. Discuss the electrical properties with emphasis on switching glasses of nanoparticles.
5. What is sputtering ? Discuss electrodeposition of Nanomaterials.
6. Describe the working principle of transmission electron microscope.
7. Write short notes on:
 - (a) Applications of Nanobiology
 - (b) Current status of Nanobiotechnology.
8. Write short notes on:
 - (a) Nanodrug administration protocols.
 - (b) Development of Nanomedicines.

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1. Define terms, "Nanoscience" and 'Nanotechnology'. Enumerate various applications of Nanotechnology.
2. Describe various techniques involved in preparation of Nano materials.
3. Discuss the magnetic properties of Nanocrystalline silicon carbide.
4. Discuss electrical properties of Nanomaterials.
5. Describe the technique of electrodeposition.
6. Describe the working of High resolution electron microscope.
7. Write short notes on:
 - (a) Future of Nanobiology
 - (b) Nanoprobes for analytical applications.
8. Write short notes on:
 - (a) Diagnostics with Nanotechnology.
 - (b) Molecular Nanomechanics.

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1. Discuss the various phenomena that dominate at Nanoscale and examples of their applications.
2. What are the applications of silicon carbide?
3. Discuss the mechanical properties of Nanocrystalline silicon carbide.
4. Discuss the characteristics of switching glasses with nanomaterials.
5. Describe the process of synthesis of nanopowders.
6. Describe desirable optical microscopies for nano science.
7. Write short notes on:
 - (a) Synthesis of hybrid nano-bioassemblies.
 - (b) Nano sensors.
8. Write short notes on:
 - (a) Applications of Nanotribology
 - (b) Molecular Nanomechanics.
