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**R-14**

**Code: 4G586**

IV B.Tech. II Semester Supplementary Examinations Nov/Dec 2018

**Nano Technology**

( Mechanical Engineering )

Max. Marks: 70

Time: 3 Hours

Answer all five units by choosing one question from each unit ( 5 x 14 = 70 Marks )

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**UNIT-I**

1. a) Classify materials on the basis of energy bands. 7M
- b) Write a note on localized particles. 7M

**OR**

2. a) Describe any one method of synthesis of nanoparticles. 7M
- b) Write few applications of nanoparticles. 7M

**UNIT-II**

3. a) Explain ESR spectroscopy. 10M
- b) What is small angle neutron scattering. Write its importance. 4M

**OR**

4. a) Explain switching glasses with nanoparticles. 7M
- b) Discuss about colored glasses. 7M

**UNIT-III**

5. Distinguish Microscopic and spectroscopic techniques for manipulating materials in nanoscale. 14M

**OR**

6. a) Working principle of electron microscope. 7M
- b) Explain X-ray diffraction. 7M

**UNIT-IV**

7. a) How nanotechnology help in getting energy and a cleaner environment. 10M
- b) Mention the applications of nano flying electronics. 4M

**OR**

8. a) What is the role of nanotechnology in existing technologies? 7M
- b) Elaborate Photonics. 7M

**UNIT-V**

9. Explain nanotechnology in Diagnostics applications. 14M

**OR**

10. Express the uses of developing of nanomedicine. 14M

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