

Minor II

23<sup>rd</sup> March 2017

Max Marks: 20

- Que 1. What are SCF (Super critical fluids)? Why and how it is used in synthesis of metal nanoparticles? Illustrate with an example. (3)
- Que 2. Discuss the Sol gel technique to prepare monodisperse  $\text{TiO}_2$  nanoparticles and how the process parameters can be controlled to get uniform size and narrow size distribution of nanoparticles. (4)
- Que 3. Compare Micro vs Nano composites? Give an example of both from Nature and discuss how nature has designed these to get unique properties for particular application. (4)
- Que 4. What are the challenges in synthesis of Polypropylene / nanoclay nanocomposites and how do you overcome them ? Which synthesis route would you prefer for this system and why? What are the properties expected and possible application? (5)
- Que 5. Which factors decide the stability of colloidal nanosol? Which parameter can be used to measure the stability ? Explain. (4)