



Total No. of Questions: 4/18

Total No. of Pages: 2

**SECOND YEAR B.Sc.**  
**COURSE CODE: CHE24205**  
**COURSE NAME: Chemistry of Nanomaterials**  
**(Semester IV)**

**Program: B.Sc.**  
**Program Specific: B.Sc.Chemistry**  
**Course Type: Minor**  
**Paper: CHE24205**

**Credits: 2**  
**Time: 2 Hours**  
**Max. Marks: 30**  
**SET: A**

**Instructions to the candidate:**

- 1) All questions are compulsory.
- 2) Figures to the right indicate full marks.
- 3) Draw a well labelled diagram wherever necessary.

**Q1) Answer the following**

**[5 X 1= 5]**

- a) Describe the characteristics of nanoparticles.
- b) Enlist three different methods used in the laboratory for preparing nanoparticles.
- c) Define nanoparticles.
- d) Who discovered the concept of nanoparticles and when?
- e) What is nanotechnology?

**Q2) Answer the following (Attempt any 5/7)**

**[5 X 2 =10]**

- a) Explain the application of nanoparticles in surface activity.
- b) What are the different types of nanomaterials?
- c) What is sol-gel processing?
- d) Draw a diagram showing the ball milling process.
- e) Name three nanoparticles used in various fields.
- f) Write two methods to identify the formation of nanoparticles.
- g) Write two applications of carbon nanotubes.

**Q3) Answer the following (Attempt any 2/4)**

**[2 X 5 = 10]**

- a) Draw and explain the UV-Visible Spectroscopy techniques for qualitative nanoparticles.
- b) Discuss in detail about coprecipitation and their advantages.
- c) Explain Nanoparticles in water purification.
- d) Write the principle of Infrared spectroscopy for identification of nanoparticles.

**Q4) Answer the following (Attempt any 1/2)**

**[5 X 1 = 5]**

- a) Explain the top-down approach and Bottom-up approach for synthesis of nanoparticles with the help of diagrams.
- b) Write the applications of any one metal nanoparticle prepared using a biological Method.

\*\*\*\*\*