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**Presidency University**

**Bengaluru**

**Ph.D. Course Work End Term Examinations –JAN-FEB 2025**

**Date**: 30-01-2025

**Time**: 9:30 am - 12:30 pm

**Max Marks**: 100

**Weightage**: 50%

**Semester**:

**Course Code**: CHE 814

**Course Name**: Nano technology

**School:** SOE

**Instructions:**

1. *Read the question properly and answer accordingly*
2. *Question paper consists of 2 parts*
3. *Scientific and non-programmable calculators are permitted*

**Part A**

**Answer ALL the Questions. Each question carries 10 marks. (6Q x 10M = 60M)**

1. What are the effects of sizes on the optical and thermal properties of nanomaterials?
2. Write a note on metal base and metal oxide based nano materials.
3. Write the main differences between Top-down and Bottom-up approaches.
4. Discuss the synthesis of nano materials by hydrothermal method
5. Write any five merits and demerits of nanomaterials.
6. Explain the Chemical precipitation and co-precipitation method of synthesis of nanomaterials

**Part B**

**Answer ALL Questions. Each question carries 20 marks. (2Q x 20M = 40M)**

1. Write the types and synthesis of carbon nanotubes? Mention the applications of carbon nanotubes.
2. With a neat labelled diagram, explain the Sol-gel method of synthesis of nanomaterials in detail.