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**PRESIDENCY UNIVERSITY
BENGALURU**

Department of Research & Development

Mid - Term Examinations - AUGUST 2024

Odd Semester: Ph.D. Course Work

Course Code: CHE814

Course Name: NANOTECHNOLOGY

Department: CHEMISTRY

Date: 12-08-2024

Time: 09.30am to 11.00am

Max Marks: 50

Weightage: 25%

Instructions:

- (i) Read the all questions carefully and answer accordingly.
(ii) Do not write any matter on the question paper other than roll number.
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Part A

Answer **ALL** the Questions. **Each** question carries **5** marks. (4Q x 5M = 20M)

1. What are the effects of nano-dimensions on the electrical properties of nanomaterials?
2. Write any 4-examples of semiconducting materials.
3. What is Metal nanocrystal? Explain with examples.
4. Explain the top-down approach for synthesis of nanomaterials.

Part B

Answer **ALL** Questions. **Each** question carries **15** marks. (2Q x 15M = 30M)

5. What are carbon nanotubes? Mention the applications of carbon nanotubes in current research.
6. What do you understand by quantum well, quantum dot and quantum wire? Explain their major characteristics.