

**I/IV B. Tech. DEGREE EXAMINATIONS, DECEMBER - 2016****Second Semester****BT / CSE / ECE / EEE****ENGINEERING CHEMISTRY - II**Time : **Three Hours**Maximum Marks : **60****Answer Question No. 1 Compulsory.****12x1=12 M****Answer ONE question from each Unit.****4x12=48 M**

1. Answer the following :

- a) What is nanochemistry ?
- b) Fullerenes.
- c) Applications of C-nanotubes.
- d) Principle of NMR.
- e) Beer-Lamber't law.
- f) Mobile & Stationary phase.
- g) Semi conductor.
- h) Doping.
- i) Examples of semi conductor devices.
- j) Principle of solar cells.
- k) Photoelectro chemical reactions.
- l) Photo corrosion.

**UNIT - I**

2. Explain few methods of preparation of nanomaterials and give applications of nanomaterials.

(OR)

3. a) What are carbon nanotubes ?
- b) What are the engineering applications of fullerenes.

**UNIT - II**

4. Explain the instrumentation and applications of UV-visible spectrophotometer.

**P.T.O.**

(OR)

5. Explain the principle and instrumentation of HPLC.

**UNIT - III**

6. What are the types of semiconductors ? Explain with examples.

(OR)

7. What are the various techniques employed for the preparation of semiconductors ? Explain.

**UNIT - IV**

8. Explain the following :

- a) Protective coatings.
- b) Regenerative photoelectric chemical cells.

(OR)

9. Give a note on the following.

- a) Photocorrosion & protection of semiconductor electrodes.
- b) Electrodes with chemically modified surfaces.



**I/IV B. Tech. DEGREE EXAMINATIONS, APRIL / MAY - 2016****SECOND SEMESTER****BT / CSE / ECE / EEE****ENGINEERING CHEMISTRY - II**

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**Time : Three Hours****Maximum Marks : 60****Answer Question No. 1 Compulsory.****12x1=12 M****Answer ONE question from each Unit.****4x12=48 M**

1. Answer the following.

- a) Applications of nanochemistry.
- b) Fullerenes.
- c) Common methods of preparation of nanomaterials.
- d) Beer's law.
- e) Advantages of HPLC over GC.
- f) Single beam UV-VIS spectrophotometer.
- g) P-doping.
- h) Intrinsic semiconductors.
- i) Stoichiometric detects.
- j) Principle of photo voltaic cell.
- k) Regenerative photo electro chemical cells.
- l) Photo corrosion.

**UNIT - I**

2. Explain the following :

- a) Top-down & Bottom-up approaches.
- b) Significance of nanochemistry in Modern days.

(OR)

3. Explain the following :

- a) Carbon nanotubes.
- b) Fullerenes & their applications.

**UNIT - II**

4. a) Explain the basic principle of NMR Spectroscopy.  
b) What are the applications of NMR.

(OR)

5. a) Describe the instrumentation of HPLC.  
b) What are the applications of HPLC.

**UNIT - III**

6. a) Discuss Band theory of Solids.  
b) How do you classify solids basing on the conductance by Band theory of solids.

(OR)

7. Explain the following :  
a) Intrinsic & Extrinsic semi conductors.  
b) Zone refining.

**UNIT - IV**

8. Give a note on the following :  
a) Photovoltaic & Photogalvonic cells.  
b) Electrodes with chemically modified surfaces.

(OR)

9. Explain the following :  
a) Regenerative photoelectro chemical cells.  
b) Protection of semiconductor electrodes.

