**St Joseph’s College of Engineering, Chennai -119**

**St Joseph’s Institute of Technology, Chennai -119**

**ENGINEERING CHEMISTRY I – CY6151**

**ASSIGNMENT QUESTIONS**

**PART – A**

**UNIT- III PHOTOCHEMISTRY AND SPECTROSCOPY**

1. State Lambert’s law.

2. Differentiate Photochemical reactions and Thermal reactions.

3.What are the limitations of Beer –Lambert’s law?

4.Write the statement of Grotthus -Draper law.

5. Mention any two reasons for low quantum yield.

6.Define Quantum yield.

7. Mention any two reasons for high quantum yield.

8. What are auxochromes? Give examples.

9. What are Chromophores? Give examples.

10. What do you mean by absorption spectroscopy?

11. Describe the terms bathochromic shift and hypsochromic shift.

12.What is Finger print region? Mention its important uses.

13.Give the order of energy required for electronic transitions in organic molecule.

**UNIT- IV PHASE RULE AND ALLOYS**

1.Mention the merits of phase rule.

2.State the number of degrees of freedom for the following system.

(i) PCl 5 (s) → PCl3 (g) + Cl 2 (g) at 50oc

(ii) CaCO3 (s) ↔ CaO (s) + CO2 (g)

3. State condensed phase rule.

4. What are the objectives of heat treatment of steel?

5.What is metastable equilibrium?

6.What is eutectic mixture?

7. Mention the differences among melting point, triple point and eutectic point.

8. Write the significance of eutectic mixture.

**UNIT- V NANOCHEMISTRY**

1. Define Nanochemistry.

2. Name any four methods of gas phase synthesis of nanomaterials.

3. Name any four methods of liquid phase synthesis of nanomaterials.

4. Define the terms: top-down nanofabrication and bottom-up nanofabrication.

5. List any four nano materials.

6. Name the various tools used for characterizing nanomaterials.

7. What are the unique properties of CNTs?

8. How are CNTs classified on the basis of chirality?

9.What are Singled wall carbon nanotubes and multi wall carbon nanotubes?