

B.E./B.TECH. Degree Examination, December 2020

First Semester

CY16151 – Engineering Chemistry I

(Regulation 2016)

Time: Three hours

Maximum : 80 Marks

Answer **ALL** questions

PART A - (8 X 2 = 16 marks)

- In addition polymer monomer used is
 - Saturated compounds
 - Unsaturated compounds
 - Bifunctional saturated compounds
 - Trifunctional saturated compounds
- Which of the following compound absorb only in far UV region (below 200 ppm)?
 - $\text{CH}_2=\text{CH}_2$
 - $\text{C}_6\text{H}_5\text{COOH}$
 - $\text{CH}_2=\text{CH}-\text{CH}=\text{CH}_2$
 - $(\text{CH}_3)_3\text{N}$
- Which of the following statements are true about the Eutectic point on a two component (compounds A and B) phase diagram?
 - Both the compounds are solid
 - The melting point of the mixture is lower than the melting points of either of the individual compounds
 - One compound is in liquid phase while the other is in the solid phase
 - It always occurs when the ratio of compound A to compound B is 50 : 50
- The prefix “nano” come from a
 - French word meaning billion
 - Greek word meaning dwarf
 - Spanish word meaning particle
 - Latin word meaning invisible
- How would you differentiate extensive and intensive properties?
- What is your opinion of photochemical reaction?
- List the importance of alloying.
- How would you explain nanochemistry?

PART B - (4 X16 = 64 marks)

09. (a) (i) Differentiate thermoplastics and thermosetting plastics. (8)
(ii) Elaborate the free radical polymerization with an example. (8)
(OR)
- (b) State Clapeyron equation for phase transition from solid to liquid and liquid to vapour. (16)
10. (a) (i) Confer the mechanism of fluorescence and phosphorescence using Jablonski diagram. (8)
(ii) How would you present photosensitization with neat diagram? (8)
(OR)
- (b) (i) Elucidate the principle, instrumentation and block diagram of UV spectrum. (8)
(ii) Discuss the applications of IR spectroscopy. (8)
11. (a) (i) Explain one component – water system with its phase diagram. (8)
(ii) State phase rule and illustrate the terms in it. (8)
(OR)
- (b) (i) Explain heat treatment of stainless steel. (8)
(ii) Mention the composition, properties and uses of nichrome. (8)
12. (a) Confer any four methods of preparation of nanoparticles. (16)
(OR)
- (b) Elaborate briefly any four important applications of nanomaterials. (16)