Total No. of Pages 02 *Roll No.* D1U/2K12/A01/0067

FIRST SEMESTER **B.Tech.(Group A)**

END SEMESTER EXAMINATION ***November-2013***

AC-104 APPLIED CHEISTRY

Time:3:00 Hours ***Max. Marks :70***

Note: Question No. 1 is compulsory
Answer any *SIX* from remaining questions.
Assume suitable missing data, if any.

1.

a) Draw TGA thermograms for multi stage decomposition and oxidative reaction.

b) What are the sources of IR and UV lights in their respective instruments?

c) The atom economy of a rearrangement reaction is higher than that of an elimination reaction. Justify this statement with the help of examples.

d) Write the phase rule equation for two component systems and explain?

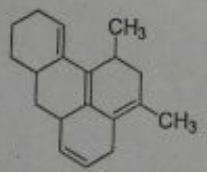
e) What is Ziegler-Natta catalyst? Explain its significance.

2x5

2.

a) How will you estimate Zn^{2+} in zinc sulfate solution by titrimetric method. Explain in detail with chemical structure of required indicator.

b) Calculate the λ_{max} of the following compound using Woodward-Fieser rules:



(10)

3.

a) What do you understand by secondary batteries? Write charging discharging reactions of Lead-acid battery.

b) Write 6 principal of green chemistry. Explain any one in detail.

(10)

4.

a) What do you understand by eutectic point? Construct a phase diagram for Pb-Ag system.

b) Classify polymer on the basis of tacticity. Explain the mechanism for the cationic polymerization of propene.

(10)

5.

a) Calculate number of components of the following systems (assume water undissociated)

i. $KCl\text{-}NaCl\text{-}H_2O$

ii. $NaBr\text{-}KCl\text{-}H_2O$

b) Explain DSC. What is its significance? (10)

6.

a) Sketch the phase diagram for sulphur system and label the diagram.

b) The aqueous solution of a substance of known concentration absorbs 10% of the incident light. What fraction of the incident light will be absorbed by the same solution in a cell five times long? Also discuss the significance and limitations of Lambert-Beers (10)

7.

a) Write down the name and structure of the monomers for the following important polymers:

i. Nylon-6,6 ii. Kevlar iii. Nomex iv. PET v. Bakelite

b) Discuss different stretching frequencies in Infra-Red spectroscopy.

(10)

8.

Write short note on any Two of the following:

i. Electroplating
ii. Green Solvents
iii. Biodegradable Polymers
iv. Phase Transfer Catalyst
v. Lithium Ion Batteries (10)