II – SEMESTER   **B.Tech. (Group B)**

Mid SEMESTER EXAMINATION   *March-2014*

AC-104 APPLIED CHEISTRY

Time: 1:30 Hours   *Max. Marks : 20*

Note: Attempt all questions. Assume suitable missing data, if any.

1. Name and draw the structures of any three indicators.   (3)

2. A water sample is a mixture of NaOH and Na_2CO_3. 100 ml of water sample on titration with N/50 HCl required 14.5 ml of the acid to phenolphthalein end point. When few drops of methyl orange are added to the same solution and titration further continued, the yellow color of the solution just turned red after addition of another 10.5 ml of the acid solution. Find the strength of NaOH and Na_2CO_3 in the water sample.   (3)

3. Draw any three TGA curves for three different process and explain their significance.   (3)

4. Calculate the approximate frequency of the C-H stretching from the following data:
Force Constant = 500 Nm^{-1}, mass of carbon atom = 20×10^{-24} g, mass of hydrogen atom = 1.6×10^{-24} g.   (3)

5. Calculate λ_{max} for the following molecule using Woodward – Fiesher rule.   (3)
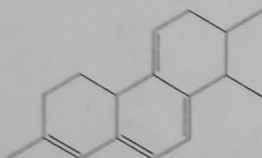
6. 20 mg of Cl_2 in 100 mL of water is …………….. ppm.   (1)

7. Which of the given molecule will be IR active, O_2, CO_2 and why?   (2)

8. Write down three conditions required for a precipitation titration to take place.   (2)