ECOND SEMESTER **B.Tech. (GROUP-B)**

IID SEMESTER EXAMINATION ***MARCH-2012***

AC-104 APPLIED CHEMISTRY

Time: 1 Hour 30 Minutes *Max. Marks : 20*

Note : Question No. ***ONE*** is compulsory.
Answer any ***FOUR*** questions from the remaining.
Assume suitable missing data, if any.

1 Answer the following: **1×8**

[a] Name two indicators used in precipitation titration?

[b] Define titration and draw graph for strong acid vs strong base titration?

[c] Draw thermogram for atmospheric reaction whose product is stable at higher temperature.

[d] Write two application of TGA.

[e] Write the possible electronic transition in cyclohexanone?

[f] What do you mean Figer-Print-Region in IR spectroscopy? Give its range in cm^{-1}.

[g] Draw the structure of copolymer of styrene and butadiene?

[h] Write the appropriate methods for the synthesis of LDPE & HDPE?

2[a] What are the limitations of Lambert-Beers Law? **1½**

[b] Define standard solution and explain its classification with example? **1½**

3 Explain DTA with suitable thermogram? **3**

4[a] Differentiate between Intra and Inter-molecular Hydrogen bonding with the help of Intra-Red spectroscopy. **1½**

[b] Explain various termination modes in Free-radical polymerization? **1½**

5 1 litre of sample of hard water contains 1 mg of $CaCl_2$ and 1 mg of $MgCl_2$. Find the total hardness of water in terms of $CaCO_3$ per 10^6 parts of water by weight? **3**

6[a] Determine the number of $CH_2 = CH_2$ monomeric units, n in one molecule of polyethene having molar mass 40,000g without initiator. How many carbon atoms are in this molecule? 1½

[b] Write the name and structures of any three hydrocarbon monomers? 1½