

MID SEMESTER EXAMINATION

March-2016

AC-102 CHEMISTRY

Time: 1 Hour 30 Min.

Max. Marks: 30

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

- 1 Draw the structure of methyl orange, phenolphthalein, diphenylamine, EBT and discuss their solubility in water. [5]
- 2 Explain the principle involved in thermobalance. Discuss the analytical determination of mixture of metals using TGA. [5]
- 3 What is finger print region? Write its significance and discuss the IR frequencies for $-NH$ will be observed in CH_3CONH_2 and CH_3NH_2 . [5]
- 4 In an experiment to determine the concentrations of the two substances A and B in a certain solution spectrophotometrically, the following data were obtained [5]

Solution	[A] in mol dm^{-3}	[B] in mol dm^{-3}	% T at 400 nm	% T at 500 nm
1	0.001	0	10	60
2	0	0.005	80	20
3	Unknown	Unknown	40	50

Determine the concentrations of A and B in solution 3.

- 5 A mixture of $KMnO_4$ and $K_2Cr_2O_7$ weighing 0.24g on being treated with KI in acid solution liberates just sufficient I_2 to react with 60 mL of 0.1N hypo solution. Find out the % of Cr and Mn in the mixture. [At. Wt. of Cr = 52; Mn=55]. [5]
- 6 [a] Differentiate between DSC and DTA with suitable examples. [2.5]
[b] Calculate λ_{max} value for the given compound: [2.5]

