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GCB-3859 Seat No._____

M. Sc. (Sem. I) Examination

November/December - 2013

Chemistry : Paper - CHN-402

(Organic Chemistry)

Time : 3 Hours] [Total Marks : 70

Instructions : (1) All questions are compulsory.
(2) The medium of answers is English only.

1 (a) Answer any two of the following : **10**

(i) Discuss Alternant and non alternant hydrocarbons.

(ii) What is Cross conjugation and Tautomerism ? Discuss their application giving suitable example.

(iii) Define Huckel's rule for determining weather a molecule is aromatic. Give at least four examples.

(b) Answer any one of the following : **4**

(i) Give a detailed account of rotaxanes.

(ii) Discuss Homo aromaticity giving examples.

2 (a) Answer any two of the following : **10**

(i) Write a note on : effect of confirmation on reactivity.

(ii) Give a brief account on Enantiotopic and Diastereotopic group and faces.

(iii) Explain methods for asymmetric synthesis with suitable examples.

(b) Answer any one of the following : 4

(i) Explain chirality due to health shape.

(ii) Explain stereochemistry of phosphorus containing compounds.

3 (a) Answer any two of the following : 10

(i) Discuss the stability and reactivity of Carbaniones.

(ii) Explain positive and negative deviation from Hemet equation.

(iii) Discuss methods of determining mechanism of organic reactions.

(b) Answer any one of the following : 4

(i) Explain the impact of steric effect on reactivity.

(ii) Derive Taft equation, which takes into account steric effect. Explain terms involved in it.

4 (a) Answer any two of the following : 10

(i) Give an account on SN^1 mechanism.

(ii) Give a brief account of Nucliophilic substitution at Allylic carbons.

(iii) Discuss effect of the leaving group on nucliophilic substitution.

(b) Answer any one of the following : 4

(i) Discuss Anchimeric assistance.

(ii) Write a note on Ambident nucleophile.

5 Answer any seven questions in 2-4 lines each : **14**

(i) What is anti Aromaticity ?

(ii) Explain Threo and Erythro isomers.

(iii) Define Stereo specific and stereo selective synthesis.

(iv) What is hyper conjugation ? Explain.

(v) Draw structures of any four Annulenes.

(vi) What is Cryptands ?

(vii) Define classical and Non classical carbocations.

(viii) Give any two application of use of NMR spectroscopy in detection of carbocation.

(ix) Give example of nucliophilic substitution at an vinilyc carbon.

(x) Giving example define region selectivity.
