



Reg. No. :

Name :

Fourth Semester B.Sc. Degree Examination, June 2015
First Degree Programme under CBCSS
CHEMISTRY
Core Course – III
CH 1441 : Organic Chemistry – I

Time : 3 Hours

Max. Weight : 30

SECTION – A

Answer **all** questions. Answer in **one** word/sentence.

(Weightage 1)

- I. 1) The shape of the molecule formed by the Sp hybridisation of the central atom is _____.
- 2) CH_3 group has _____ inductive effect.
- 3) Markownikoff's rule is valid only in the absence of _____.
- 4) Usually activating groups are _____ directors during aromatic electrophilic substitution reactions.
- II. 5) The electrophile formed in nitration reaction is _____.
- 6) Elimination-addition mechanism is also called _____.
- 7) Which isomer of BHC is used as an insecticide having no odour ?
- 8) What is pyrene ?
- III. 9) What is the expansion of PCC ?
- 10) What is the structure of acrolein ?
- 11) What is Borsche's reagent chemically ?
- 12) Reduction of a Carbonyl compound using hydrazine and KOH is known as _____.



- IV. 13) 4-methyl pent -3-en-2-one is commonly known as _____.
- 14) Chloroform is oxidised in presence of air and sunlight to form _____.
- 15) Naphthalene $\xrightarrow[500^\circ\text{C}]{\text{V}_2\text{O}_5/\text{O}_2}$?
- 16) The reaction $\text{C}_6\text{H}_6 + \text{CH}_3\text{Cl} \xrightarrow{\text{AlCl}_3} \text{C}_6\text{H}_5 - \text{CH}_3 + \text{HCl}$ is called _____.
- (4×1=4 Weights)**

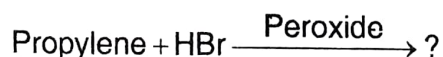
SECTION – B

(Short answer type)

Answer **any 8** questions.

(Weightage 1)

- 17) Which is more acidic-acetylene or ethene ? Why ?
- 18) Draw the resonance structures of 1,3-butadiene.
- 19) Explain why the bond lengths in C–O bond of carboxylate ion are equal.
- 20) What is hydroboration ?
- 21) State and explain Markownikoff's rule.
- 22) What is (4n+2) rule ?
- 23) What is the orienting effect of –NO₂ group towards aromatic electrophilic substitution ?
- 24) What is power alcohol ? What is its main use ?
- 25) How a secondary alcohol can be prepared from a ketone ?
- 26) What are the industrial importance of glycerol ?
- 27) Explain Clemmenson reduction citing an example.
- 28) Predict the product of the reaction with explanation.



(8×1=8 Weights)



SECTION – C
(Short essay type)

Answer **any 5** questions.

(Weightage 2)

- 29) What is the order of stability of carbocations ? Explain with suitable examples.
- 30) p-nitrophenol is much more acidic than phenol. Why ?
- 31) Explain benzyne mechanism with example.
- 32) Explain the mechanism of nitration of benzene.
- 33) Why is the hydrolysis of aryl chloride slow compared to that of ethyl chloride ?
- 34) How is picric acid prepared from phenol ?
- 35) Explain Wolf-Kishner reduction with example.
- 36) Citing an example, explain Meerwein-Ponndorf-Verley reduction. (5×2=10 Weights)

SECTION – D
(Long essay type)

Answer **any 2** questions.

(Weightage 4)

- 37) a) Explain why apparently neutral molecules like toluene and propene show dipole moment of 0.4 D each.
b) Halogens are deactivating, yet O,P- directing in aromatic electrophilic substitution reactions. Explain.
 - 38) Explain SN¹ mechanism with special reference to kinetics and stereochemistry.
 - 39) Explain the different methods of determination of reaction mechanism. (2×4=8 Weights)
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