UNIVERSITY OF EDUCATION
"UExam" Semester-II, 2019

BS (Hons) Chemistry/BS Botany/BS Zoology, Session:2018-2022

Course Code: CHEM1113
Subject: Fundamentals of Organic Chemistry

No. 441

Roll No. (in fig.)_____

Roll No. (in words)_____

Candidate's Signature.

Signature of Addl. Supdt.

SECTION: I (MCQ's)

Time Allowed: 15 Minutes **Max. Marks: 12**

NOTE: Encircle the correct/ best answer in each of the followings. Each Question carries 1 mark. Use of remover carries zero mark. Cutting and Overwriting is not allowed.

Q1.

- Alkanes water.

(a) float on (b) sink in (c) readily mix with (d) none of the above

- The compound C_4H_6 has degree(s) of unsaturation.

(a) one (b) two (c) three (d) four

- The reaction of chlorine with an alkene in an inert solvent gives

(a) an alkyne (b) a dichloride (c) a chlorohydrins (d) a trans alkene

- An example of a polar aprotic solvent is

(a) H_2O (b) NH_3 (c) H_2S (d) $CH_3C(O)CH_3$.

- Each ring atom in an aromatic compound contains

(a) two hydrogen atoms (b) a p orbital (c) an sp^3 orbital (d) at least three p orbitals

- *An electrophilic nitration substitution reaction involves*

(a) NO^+ (b) NO^{+2} (c) NO^{+3} (d) NO_2

- *Benzene can be reduced by reaction with ——— in the presence of a catalyst.*

(a) hydrogen (b) oxygen (c) nitrogen (d) helium

- *The oxidation of 1-propanol with chromic acid yields*

(a) an alcohol (b) an aldehyde (c) a ketone (d) an acid

- *The strongest acid is*

(a) 2-chloroacetic acid (b) 2,2-dichloroacetic acid
(c) 3-chloroacetic acid (d) 2,3-dichloroacetic acid

- *Acetic acid reacts with propionic acid to give anhydride(s).*

(a) acetic (b) propionic (c) acetic propionic (d) all of the above

- *Ethyl acetate is hydrolyzed by water to give*

(a) a lactone (b) an ester (c) an anhydride (d) a carboxylic acid and an alcohol

- *The reaction of excess ethyl acetate with diethylamine gives an*

(a) amide (b) imide (c) anhydride (d) amino acid

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"UExam" Semester-I, 2019
BS (Hons) Chemistry/BS Botany/BS Zoology, Session:2018-2022

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Subject: Fundamentals of Organic Chemistry

Time Allowed: 75 Minutes

Max. Marks: 33

Section II (Short Answer)

Q.2- Write short answers of the following. 3x5 = 15

i. Explain why it is necessary to assume sp^3 hybridization in CH_4?
ii. Explain why a chloro group is deactivating but o,p-directing?
iii. Discuss the mechanism of Friedel-Crafts reaction. What are its limitations?
iv Why a nitro group is both deactivating and meta directing?
v. How can you distinguish between butanal and 2-butanone by a single test?

Section III (Essay Type)

Answer the following Questions 6x3 = 18

Q.3:- How do inductive and resonance effects compete with each other when we discuss the orientation and reactivity of $-OCH_3$ group present on benzene?

Q.4:- Explain the phenomenon of hyperconjugation and give its applications.

Q.5:- How do you compare S_N1 and S_N2 reactions? Give examples. The factors of steric hindrance and stability of carbocation decides these two types of mechanisms. Justify it.

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