



INSTRUCTIONS:

- Question No.1 is compulsory.
- It is compulsory to attempt at least two questions from each section.
- All questions carry equal marks.

Q. No. 1: Short questions.

[4 x 2 = 8]

- Explain the difference between inductive effect and resonance effect.
- Why carbon-carbon triple bond is less reactive than a carbon-carbon double bond towards electrophilic reagents?
- Explain why toluene is halogenated much more readily than benzene?
- Label each of the following as aromatic, nonaromatic or antiaromatic. Justify your answer.
 - Cyclooctatetraene
 - Cyclodecapentaene

Section I

Q. No. 2: Draw the products for the reaction of 2-pentyne with each of the following reagents.

[1 x 8 = 8]

- $H_2 / Pd / BaSO_4 /$ quinoline
- $Na /$ liquid NH_3 at $-33^\circ C$
- H_2 / Pt
- $H_2O / H_2SO_4 / HgSO_4$
- HBr
- Br_2 / CCl_4 at room temperature
- $NaNH_2 /$ liquid NH_3
- $KMnO_4 / H_2O$

Q. No. 3: Outline all steps with mechanisms involved in the synthesis of following compounds from benzene.

[4 + 4]





UNIVERSITY OF THE PUNJAB

B.A. / B.Sc. Part – II
Annual Examination – 2019

Roll No.

Subject: Chemistry-II
PAPER: A (Organic Chemistry)

MAX. TIME: 3 Hrs.
MAX. MARKS: 40

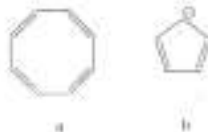
INSTRUCTIONS:

- Question No.1 is compulsory.
- It is compulsory to attempt at least two questions from each section.
- All questions carry equal marks.

Q. No. 1: Short questions.

[4 x 2 = 8]

- Why the fraction of the enol tautomer in an aqueous solution is considerably greater for a β -diketone?
- Differentiate between inductive effect and resonance effect. Give examples.
- Explain why alkylation of nitrobenzene occurs much slower than that of benzene?
- Label each of the following as aromatic, nonaromatic or antiaromatic. Justify your answer.

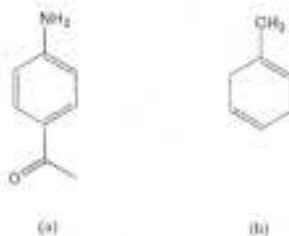


Section I

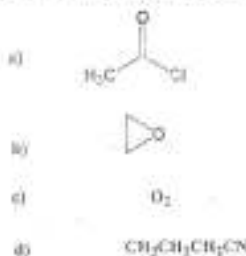
Q. No. 2: Write reaction product for the reaction of 2-butyne with each of the following reagents. [1 x 8 = 8]

- $H_2/Pd(BaSO_4)/quinoline$
- H_2/Pt
- $Na/liquid\ NH_3/-35^\circ C$
- $H_2O/H_2SO_4/HgSO_4$
- Aqueous $KMnO_4$
- $HBr/peroxide$
- $HBr/HgBr_2$
- i) B_2H_6 ii) CH_3COOH

Q. No. 3: Outline all steps with mechanisms involved in the synthesis of following compounds from benzene. [4 x 4]



Q. No. 4: Write the structure of products formed after hydrolysis when each of the following compounds is made to react with CH_3CH_2MgBr . Draw complete mechanisms. [4 x 2 = 8]



Q. No. 5:

[2 + 6]

- Describe Hofmann rule. Give one example.
- Explain how each of the following factors affects the S_N2 reactions:
 - The structure and leaving group of the alkyl halide
 - The concentration and reactivity of the nucleophile
 - The solvent

P.T.O.



UNIVERSITY OF THE PUNJAB

B.A. / B.Sc. Part – II

Annual Examination – 2019

Subject: Chemistry-II
PAPER: B (Applied Chemistry)

Roll No.

TIME ALLOWED: 3 Hrs.
MAX. MARKS: 40

Note: Attempt FIVE questions. Q. No.1 is compulsory. Attempt at least TWO questions from each section.

- Q.1 (a) What is Molecular Spectroscopy? Give Example (2)
(b) What is Distribution Law? Give its two applications. (2)
(c) Differentiate between Reducing and Non-Reducing sugars. Give one example of each. (2)
(d) Differentiate between starch and cellulose. (2)

Section-I

- Q.2 (a) Give schematic diagram of UV/Vis Spectrophotometer. Give brief description/function of Optical parts. (4)
(b) Explain Nitrogen cycle. (4)
- Q.3 (a) Explain Multiple Extraction Solvent System. (4)
(b) Differentiate between Allowed and Forbidden Transitions. (4)
- Q.4 (a) Give rules along with examples to round off the significant figures. (4)
(b) Give the Principle and working of IR spectrophotometer. (4)

P.T.O.



UNIVERSITY OF THE PUNJAB

B.A. / B.Sc. Part – II

Annual Examination – 2019

Subject: Chemistry-II

PAPER: B (Applied Chemistry)

Roll No.

TIME ALLOWED: 3 Hrs.

MAX. MARKS: 40

Note: Attempt FIVE questions. Q. No.1 is compulsory. Attempt at least TWO questions from each section.

- Q.1 (a) How Deforestation causes global warming? (2)
(b) How Temperature affects the Distribution Coefficient? (2)
(c) Sucrose is not a reducing sugar. Why? (2)
(d) What is role of Cullet in glass industry? (2)

Section-I

- Q.2 (a) What are Fundamental Vibrations and Overtones in IR spectrometry? (4)
(b) Discuss the role of CFCs and NO_x in ozone depletion (4)
- Q.3 (a) Explain Differential Extraction. Give suitable examples. (4)
(b) How soaps and detergents pollute the water bodies? Give their Toxicity. (4)
- Q.4 (a) Give rules along with examples to round off the Significant Figure. (4)
(b) Throw some light on Allowed and Forbidden Transitions. (4)
- Q.5 (a) Give the toxicity of CO as air pollutant. How it sinks in atmosphere? (4)
(b) What are Determinate and Indeterminate Errors? (4)

P.T.O.



UNIVERSITY OF THE PUNJAB

B.A. / B.Sc. Part – II (Special Re-Conduct)

Annual Examination – 2019

Roll No.

Subject: Chemistry-II

PAPER: B (Applied Chemistry)

TIME ALLOWED: 3 Hrs.

MAX. MARKS: 40

Note: Attempt FIVE questions. Q. No.1 is compulsory. Attempt at least TWO questions from each section.

- Q.1 (a) What is an Ecosystem? (2)
(b) What are Blue and Red Shifts in Absorption Spectrum? (2)
(c) What is Denaturation of Proteins? (2)
(d) What do you mean by the term 'Tempering of Steel'? (2)

Section-I

- Q.2 (a) Give Instrumentation involved in Atomic Absorption Spectrophotometer. (4)
(b) What do you mean by Ozone Hole? Give the mechanism involved in its generation. (4)
- Q.3 (a) How Distribution law helps us for Desilverization of Lead? (4)
(b) How Pesticides pollute the water bodies? Give their Toxicity. (4)
- Q.4 (a) Differentiate between Determinate and Indeterminate Errors. (4)
(b) Give four important applications of UV/Vis Spectroscopy. (4)
- Q.5 (a) Discuss Lead and Cadmium as heavy metal Pollutants. (4)
(b) Give the role of F-test and T-test in data analysis. (4)

Section-II

- Q.6 (a) Why carbonation of ammoniated brine is performed in Solvay Process? (4)
(b) Discuss the purification of Aluminum in by Electrolytic process. (4)
- Q.7 (a) Give four kind of Soaps along with their ingredients. (4)
(b) Give important chemical changes occurring in Rotary Kiln in Cement Industry (4)
- Q.8 (a) Compare the reactivity of Glucose and Fructose. (4)
(b) Discuss the detailed classification of Lipids. (4)
- Q.9 Explain detailed process of Glass manufacturing. Also give flow sheet diagram. (8)