Question Paper

Exam Date & Time: 22-Nov-2018 (02:00 PM - 05:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

INTERNATIONAL CENTRE FOR APPLIED SCIENCES
III SEMESTER B.Sc. APPLED SCIENCES END SEMESTER EXAMINATION-NOVEMBER 2018
ORGANIC CHEMISTRY-I [ICH 231 - S2]

Marks: 100 **Duration: 180 mins.**

Answer 5 out of 8 questions.

1)	A)	Explain the Biuret test, Ninhydrin test, Millon's test and Hopkin-Cole tests shown by proteins.	(8)
	B)	Explain the mechanism of mutarotation. How does it account for the ring structure of monosaccharide?	(8)
	C)	Write a note on: i) Significance of isoelectric point ii) Essential and nonessential amino acids	(4)
2)	A)	What are dyes? How are dyes classified on the basis of applications?	(8)
	B)	How are the following conversions made? i) Isopentane to n-pentane ii) Isobutene to isooctane. iii) Propylene to acetic acid. iv) Propene to 1-propanol	(8)
	C)	Justify the following: i) Glucose and fructose form the same osazone ii)Fluoro acetic acid is stronger than 3- flouro propionic acid.	(4)
3)	A)	Discuss the following theories of colour and constitution. i) Chromophore-auxochrome theory ii) Modern theory of colour	(8)
	B)	Why alkyl halides undergo nucleophilic substitution reactions? Explain the mechanism of Unimolecular and Bimolecular substitution reactions of Alkyl halides.	(8)
	C)	Define the term enzyme. Explain the specificity of enzyme	(4)

action.

4) A) Give the synthetic routes of following dyes: (8)
i) Congo red
ii) Malachite Green

B) Illustrate the following: (8)
i)Wolf-Kishner reduction
ii) Carbylamine reaction
iii) Cannizzaro reaction
iv) Friedel-Crafts acylation

C) Give reason: (4)
i) Pyridine is more basic than pyrrole
ii) Mordant dye cannot be applied directly on fabrics

5) A) Discuss the following with appropriate examples: (8)
i) Derivatives of cellulose
ii) Fluorescent brightening agents

B) Give an account of the following: (8)
i) Peroxide effect
ii) Markovinkoff's addition
iii) Williamson synthesis
iv) Wurtz reaction

C) Write a note on Huckel's theory of aromaticity. (4)

6) A) Explain the following: (8)
i) Lock and key model of enzymes.
ii) Conversion of Aldopentoses to aldohexoses.

B) Explain the manufacture of ethyl alcohol from starch. (8)

C) Give reasons for the following: (4)
i) Ethyl alcohol but not methyl alcohol gives iodoform test.
ii) Aldehydes but not ketones give positive test with Tollen's reagent.

7) A) Write the chemical reaction of Acetic acid with the following: (8)
i) Thionyl chloride
ii) Ammonia
iii) Ethyl alcohol
iv) Sodium carbonate

B) Explain the following: (8)

i) Structure of Acetylene
ii) Corey-House alkane synthesis
iii) Kolbe's synthesis
iv) Killiani-Fisher synthesis

C) Give an account of Isomerism in alkenes (4)

8) Explain the preparation of primary amines by the following methods: (8)

A)
i) Hofmann's degradation of amides.
ii) Gabriel Phthalimide method.
iii) Reduction of amides.
iv) Reduction of oximes.

B) How are carboxylic acids prepared from the following? (8)
i) Esters
ii) Alkenes
iii) Grignard reagent
iv) Alcohols

C) Give an account of the following with suitable examples. (4)
i) Acetals and hemiacetals
ii) D-sugars and L-sugars

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