Exam Date & Time: 29-Jan-2022 (10:00 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

Pharmaceutical Organic Chemistry II [PCH-BP301T]

Marks: 75 **Duration: 180 mins.**

I Multiple Choice Questions (MCQs)

Answer all the questions. Section Duration: 30 mins

1) Cyclobutadiene is antiaromatic and especially unstable because it contains
(1)

1)	2 π electrons		2)	4 π electrons		3)	6 π electrons		4)	8 π electrons	

2) Phenoxide ion has greater stability than phenols, as in the case of phenol charge separation takes place during
(1)

1)	bonding		2)	hydrolysis		3)	electrolysis		4)	resonance	

3) Reaction of primary arylamines with nitrous acid resulting in the formation of arenediazonium salts occurs through the intermediacy of
(1)

1)	N-nitrosoamine		2)	azodye		3)	aniline		4)	phenol	

4) Libermann's test is used in the identification of
(1)

1)	Carboxylic acid		2)	Phenols		3)	DDT		4)	saccharin	

5) Benzene reacts with ..... in presence of concentrated sulphuric acid as a catalyst, and forms nitrobenzene.
(1)

1)	nitric acid		2)	nitrous acid		3)	nitric oxide		4)	HCl	

6) Resonance forms differ only in the placement of their .....electrons
(1)

1)	bonding		2)	lone pair		3)	Pi		4)	free	

7) DDT is (1)

1)	Dichlorodiphenyltrichloromethane	2)	Dichlorodiphenyltrichloroethane	3)	Dichlorodiphenyltribromoethane	4)	Diaminodiphenyltrichlomethane

8) In Benzene a/an ..... having two lobes lies perpendicular to the plane of hybrid orbitals.

1)	unhybridised sorbital	2)	unhybridised porbital	3)	hybridised sporbital	4)	hybridised s-orbital		(1)

9) ..... is not a ring activating group.

1)	Benzaldehyde	2)	acetic acid	3)	Benzene	4)	Methane		

10) One of the following is an aliphatic hydrocarbon.

1)	-OH	2)	- NH_2	3)	- CH_3	4)	-CHO			(1)

11) Chlorine is a gas whereas Iodine is a solid due to

1)	dipolar interactions	2)	present in the same group	3)	Van der Waals interactions	4)	hydrogen bonding		(1)

12) Which of the following statement is true about saponification value of oil?

1)	The shorter the chain of fatty acid, the lower is the saponification value	2)	The higher the saturation in fatty acid, the lower is the saponification value	3)	The lower the saturation in fatty acid, the higher is the saponification value	4)	The shorter the chain of fatty acid, the higher is the saponification value		(1)

13) One of the following is not a drying oil:

1)	stearic acid	2)	poppyseed oil	3)	walnut oil	4)	linseed oil		(1)

14) The normal bond angle of cyclohexane is

1)	90°	2)	40°	3)	60°	4)	120°		

(1)

15) Which of the major product is formed when bromination of 4-nitrobiphenyl is carried out: (1)

1)	4-nitro-4'bromobiphenyl	2)	4-nitro-2'-bromobiphenyl	3)	4-nitro-2-bromobiphenyl	4)	4-nitro-3bromobiphenyl

16) One of the following compounds has low stability

1)	naphthalene	2)	benzene	3)	phenanthrene	4)	anthracene

(1)

17) According to Bayer's strain theory, one of the following is highly stable:

1)	cyclohexane	2)	cyclopentane	3)	cycloheptane	4)	cyclobutane

(1)

18) Which one of the following is the strongest among intermolecular forces?

1)	hydrogen bonding	2)	London forces	3)	dipolar interactions	4)	all the above

(1)

19) One of the parameters helps in classifying oils into drying, semidrying and non-drying:

1)	acetyl value	2)	acid number	3)	ester value	4)	iodine value

(1)

20) one of the following statements is wrong about aromaticity:

1)	a molecule should be cyclic and planar	2)	it should have a conjugated system	3)	it should have 4n+2 π electrons	4)	always have less stability than aliphatic compounds

(1)

II Long Answers

Answer all the questions.

1) Explain how benzene can be converted to nitrobenzene, benzene sulphonic acid, chlorobenzene and alkyl benzene? Explain in detail with reaction mechanism. Give the structure and uses of saccharin and chloramine. (10)

2) a) Give the principle involved in the estimation of rancidity of oils. Mention its significance. 04 marks (10)

b) Give any two methods of preparation of Naphthalene. 04 marks

c) What is Reichert Meissl value? Give its importance 02 marks

III Short Answers

Answer all the questions.

1) Discuss acidity of Phenols. Explain the effect of substituents on the acidity of Phenol. (5)

2) Explain the theory of reactivity in electrophilic aromatic substitution of monosubstituted benzene. Give its application in organic synthesis. (5)

3) Explain the methods of preparation and reactions of primary aromatic amines. Give the synthetic applications of aryl diazonium salts. (5)

4) a) Write the resonance structures of anthracene. 1 mark
b) Give the sulfonation reactions of anthracene. 2 marks (5)
c) Explain the aromaticity of azulene. 2 marks

5) Explain the types of strains in cycloalkanes with examples. (5)

6) a) Write a note on banana bond and its effect on stability of cyclopropane. 2Marks
b) Write a note on hydrogenation of oils. Mention its importance. 3Marks (5)

7) Give any two methods of preparation and the substitution reactions of biphenyl. (5)

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