Question Paper

Exam Date & Time: 11-Jan-2021 (09:30 AM - 12:30 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

Pharmaceutical Organic Chemistry II [PCH-BP301T - S2]

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

I Multiple Choice Questions (MCQs)

Answer all the questions. Section Duration: 30 mins

1) In the Dow's process phenol is prepared from (1)

- phenylacetic acid
- chlorobenzene
- Diphenyl methane
- triphenyl methane

2) In Electrophilic aromatic sustitution, ...is located in the valley region of the energy diagram (1)

- reactant
- transition state
- arenium ion
- product

3) one of the following is a neutral electrophile (1)

- nitronium ion
- sulphur trioxide
- bromonium ion
- hydroxyl ion

4) m-chlorophenol can be easily synthesized from (1)

- phenol
- benzene
- chlorobenzene
- benzenediazonium chloride

5) chlorine is a gas whereas bromine is a liquid due to (1)

- dipolar interactions present in the same group
- Van der Waals interactions
- hydrogen bonding

6) one of the following is a hydrogenated fat (1)

- elaidic acid
- oleic acid
- stearic acid
- linoleic acid

7) Which of the following oil or fat does not undergo saponification? (1)

- olive oil
- coconut oil
- mineral oil
- butter fat

8) One of the following statements is wrong on unsaturated fatty acids (1)

presently mainly in oils
have lower melting points
fatty acid chains have kinks
not good for health

9) Chlorination of biphenyl gives one of the following as major product (1)

4-chlorobiphenyl
2-chlorobiphenyl
4:2-dichlorobiphenyl
4:4'-dichlorobiphenyl

10) One of the following compounds has greater stability than the remaining three (1)

benzene
naphthalene
anthracene
phenanthrene

11) One of the following statements is incorrect on intermolecular forces: (1)

attractive forces between molecules
do not make new compounds
makes the molecules "sticky"
stronger than true "bonds"

12) cyclohexane has greater stability although it has deviation from the normal bond angle in a planar structure (1)

a) due to its puckered nature
b) itself it is stable
c) it is stable in planar structure
d) because of six membered nature

13) Melting point of fat is _____and melting point of oil is _____ (1)

higher, higher
lower, lower
higher, lower
lower, lower

14) Which one of the following is an example for fats? (1)

a) glyceryl trioleate
b) vegetable ghee
c) coconut oil
d) groundnut oil

15) Huckel's Rule is a set of algorithms that combine the number of..... and the physical structure of the ring system (1)

sigma bonds
protons
nucleophile
π electrons

16) Basicity (Kb) is defined by the equilibrium constant for abstracting a (1)

neutron
electron
proton

negative charge

17) Anilinium ion has a pKa= (1)

4.63
6.43
14.3
13.4

18) Nitriles undergo hydrolysis to form (1)

amines
amides
aldehydes
ethers

19) The K_b of p-methoxyaniline is (1)

$2X10^{-9}$
$4X10^{-9}$
$7x10^{-9}$
$5x10^{-9}$

20) Cumene is obtained by the reaction between .... (1)

phenol and propane
benzene and propene
phenol and ethane
acetone and propene

II Long Answers

Answer all the questions.

1) Explain nitration, sulphonation, halogenation, and friedel craft 's reactions of Benzene with mechanism (10)

2) What are the differences between oils and fats? (2)

a)

b) What is hydrogenation of oils? Write a note on trans fats. (3)

c) Discuss the Haworth synthesis of naphthalene. Give its substitution reactions. (5)

III Short Answers

Answer all the questions.

1) Discuss the acidity of phenols (5)

2) Discuss the effect of substituents on the basicity of aromatic amines (5)

3) Explain the important reactions of benzoic acid (5)

4) Explain the orbital picture of Benzene with a neat diagram (5)

5) What is heat of combustion? Mention its importance (2)

a)

b) What types of strains are present in cyclopropane? Justify your answer (3)

6) Discuss the mechanism of rancidity of oils. Why saturated fats are solids whereas oils are liquids? (5)

7) Compare the reactivity between benzene, naphthalene and anthracene. (2)

a)

b) Give the substitution reactions of phenanthrene with examples. (3)

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