

**B. PHARM.
THIRD SEMESTER
PHARMACEUTICAL ORGANIC CHEMISTRY-II
BP301T**
(USE OMR FOR OBJECTIVE PART)

**SET
A**

Duration : 3 hrs.

Full Marks : 75

Time : 30 min.

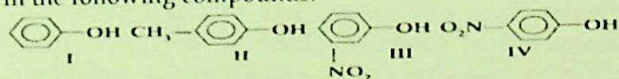
Marks : 20

1×20=20

PART-A: Objective

Choose the correct answer from the following:

- Which of the following is important in testing the purity of butter and ghee?
a. RM value
b. Acid value
c. Iodine value
d. Saponification value
- All carbon atoms in anthracene are-
a. sp hybridized
b. sp² hybridized
c. sp³ hybridized
d. None of above
- Naphthalene on oxidation with KMnO₄ in acidic medium gives
a. Phthaldehyde
b. Phthalic anhydride
c. Phthalic acid
d. Phthalonic acid
- Which is fused cyclic aromatic compound?
a. Biphenyl
b. Diphenyl methane
c. Diphenylamine
d. Naphthalene
- Hydrogenation is the conversion of unsaturated acid groups into the saturated one by a catalyst _____
a. Ni
b. Ti
c. Sn
d. Pb
- Cyclopropane on reduction with conc with Ni/H₂ at 80 °C gives
a. Ethane
b. Propane
c. Butane
d. Pentane
- Which of the following cycloalkane is most reactive?
a. Cyclohexane
b. Cyclobutane
c. Cyclopropane
d. Cyclopentane
- The dihydroxy phenol also known as:
a. Picric acid
b. Cresol
c. Quinol
d. Resorcinol
- In the following compounds:



The order of acidity is

- IV > III > I > II
- I > IV > III > II
- II > I > III > IV
- III > IV > I > II

10. When phenol reacts with bromine water, what is the result?
 - a. Brown liquid
 - b. White precipitate
 - c. Colourless gas
 - d. No reaction
11. Which of the below fatty acid is an example of unsaturated fatty acid
 - a. Myristic acid
 - b. Palmitic acid
 - c. Oleic acid
 - d. Stearic acid
12. As compare to benzene, Naphthalene is
 - a. More reactive and more aromatic
 - b. Less reactive and less aromatic
 - c. Less reactive and more aromatic
 - d. More reactive and less aromatic
13. Predict the major product when nitrobenzene reacts with methyl chloride in the presence of aluminium chloride
 - a. m-nitrotoluene
 - b. o-nitrotoluene and p-nitrotoluene
 - c. chlorobenzene
 - d. nitrobenzene
14. Which of the following represents the best reagent(s) for the electrophilic nitration of benzene?
 - a. NO_2
 - b. $\text{H}_2\text{SO}_4, \text{HNO}_3$
 - c. HNO_2
 - d. HNO_3
15. Terminal dihalides are cyclized to form cycloalkanes on reaction with sodium or zinc. This method is known as
 - a. Riemer-Tiemann reaction
 - b. Cannizzaro's reaction
 - c. Internal Wurtz reaction
 - d. Etard reaction
16. Which of the following is suitable solvents/s for oils and fats?
 - a. Benzene
 - b. CCl_4
 - c. CHCl_3
 - d. All of above
17. Which of the following statements is incorrect for aromatic compounds
 - a. Have $4n$ π -electrons
 - b. Are planar
 - c. Have $4n+2$ π -electrons
 - d. Are cyclic
18. Which of the following will not easily undergo Friedel Crafts reaction?
 - a. Xylene
 - b. Nitrobenzene
 - c. Cumene
 - d. Toluene
19. Liquid oils can be converted to solid fats by
 - a. Hydrolysis
 - b. Saponification
 - c. Hydrogenation
 - d. oxidation of double bond
20. Which of the following is starting material in Haworth's synthesis of naphthalene
 - a. Phthalic anhydride
 - b. acetic anhydride
 - c. None of the above
 - d. succinic anhydride

(PART-B: Descriptive)

Time : 2 hrs. 30 min.

Marks : 35

[Answer any seven (7) questions]

1. Define and classify poly nuclear hydrocarbons. Outline the synthesis of Napthalene by Haworth's method. 1+2+2
=5
2. Explain aromaticity of benzene. Discuss the orientation effect of
 - a. Amino group in Benzene
 - b. Nitro group in benzene.1+2+2
=5
3. Discuss the qualitative test of phenol 5
4.
 - a. Define cycloalkane give two examples
 - b. Define angle strain.
 - c. How do you calculate the angle in cyclobutane.
 - d. Why lower cycloalkanes are unstable than higher cycloalkane give reason.
 - e. Write any two ring opening reactions of cycloalkane.1+1+1
+1+1
=5
5.
 - a. Write the difference between oils and fats.
 - b. Draw the Resonance structure of Anthracene.
 - c. Write the characteristics of Aromatic compounds.
 - d. Write the IUPAC name of Glycerol.
 - e. Why C₁ and C₂ bond length in Napthalene is shorter than C₂ and C₃?1+1+1
+1+1
=5
6. What is acidity? Discuss the effect of substituent on acidity of aromatic acids. Give synthetic uses of aryl diazonium salts. 1+2+2
=5
7. Give the structure and uses of
 - a. phenol
 - b. o-cresol
 - c. resorcinol
 - d. a-napthol
 - e. β-napthol1+1+1
+1+1
=5
8. Define drying and non-drying oils with examples. Define acid value. Give the principle involved in the determination of acid value (any one method) 2+1+2
=5
9. Define aromatic acid? Give four chemical reactions of benzoic acid 1+4=5

(PART-C : Long type questions)

[Answer any two (2) questions]

1. What is Electrophillic Aromatic Substitution reaction? Classify and explain substituent Groups with examples, Explain the mechanism of Friedel-Craft's acylation and Nitration 1+3+3+3=10

2. What are oils & fats? Give the classification of oils with examples. Enlist the analytical constant of fats and oils with their significance. 1+2+7=10

3.
 - a. What are phenols? Explain acidity of phenols. 5+5=10
 - b. What are aromatic amines? Explain basicity of aromatic amines.

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