

Seat No: \_\_\_\_\_

Enrollment No: \_\_\_\_\_

**PARUL UNIVERSITY**  
**FACULTY OF PHARMACY**  
**B. Pharm. Summer 2021-22 Examination**

Semester: 3

Subject Code: BP301T

Subject Name: Pharmaceutical Organic Chemistry II – Theory

Date: 04/04/2022

Time: 10:00 am to 01:00 pm

Total Marks: 75

**Instructions:**

1. Figures to the right indicate maximum marks.
2. Make suitable assumptions wherever necessary.

**Q.1 Multiple Choice Questions (MCQs) (1 Mark Each)**

(20)

1. The carbon atoms in a benzene ring are:  
a) sp hybridized  
b) sp<sup>2</sup> hybridized  
c) sp<sup>3</sup> hybridized  
d) None of the above
2. Which of the following agents is used in order to make nitrobenzene from benzene with nitric acid?  
a) FeCl<sub>3</sub>  
b) NaOH  
c) conc. H<sub>2</sub>SO<sub>4</sub>  
d) Toluene
3. Methylbenzene is the IUPAC name of:  
a) Acetanilide  
b) Phenol  
c) Toluene  
d) None of the above
4. Phenol have the acidic property due to:  
a) Phenoxide  
b) Alkoxide  
c) Carboxylate  
d) None of the above
5. Resonance means Delocalisation of result in:  
a) π electron  
b) sigma electron  
c) both a & b  
d) None of the above
6. In chlorination of benzene FeCl<sub>3</sub> is used to generate:  
a) Cl<sup>-</sup>  
b) Cl<sup>+</sup>  
c) Cl<sub>2</sub>  
d) HCl
7. The reagents which are used in the Friedel-crafts alkylation to produce electrophile:  
a) AlCl<sub>3</sub>, CH<sub>3</sub>Cl  
b) AlCl<sub>3</sub>, CH<sub>3</sub>Cl<sub>2</sub>  
c) AlCl<sub>3</sub>, CH<sub>2</sub>Cl  
d) AlCl<sub>4</sub>, CH<sub>3</sub>Cl
8. Chemically fats & oils are:  
a) Triphenolic  
b) Triglycerides  
c) Trialcoholic  
d) None of the above
9. The smaller the saponification value the higher will be the:  
a) Molecular weight  
b) Saturation  
c) Rancidity  
d) Oxidation
10. Copper Chromite used as a catalyst in the following reaction:  
a) Hydrogenolysis  
b) Hydrolysis  
c) Drying  
d) Hydrogenation
11. Polyalkylation is related with the following reaction of Benzene:  
a) Nitration  
b) Sulphonation  
c) Friedel-crafts alkylation  
d) Friedel-crafts acylation
12. Naphthalene having the molecular formula of:  
a) C<sub>10</sub>H<sub>9</sub>  
b) C<sub>10</sub>H<sub>8</sub>  
c) C<sub>9</sub>H<sub>10</sub>  
d) C<sub>9</sub>H<sub>8</sub>
13. Nitrogen lone pair is the reason for basic property of:  
a) Aromatic Amines  
b) Ester  
c) Benzene  
d) Phenol
14. Naphthalene give Phthalic acid after oxidation reaction with:  
a) KMnO<sub>4</sub>  
b) HNO<sub>3</sub>  
c) H<sub>2</sub>SO<sub>4</sub>  
d) None of the above
15. Coal tar & Petroleum are the main source of:

- a) Polynuclear hydrocarbons  
c) Alcohol
- b) Amines  
d) Cycloalkanes
16. Saponification number means the number of \_\_\_\_\_ required to saponify one gram of a fat or oil:  
a) HCl  
b) KOH  
c) NaCl  
d) KCl
17. Cresol is also known as:  
a) Aminophenol  
b) Ethylphenol  
c) Methylphenol  
d) None of the above
18. Following are the examples of Polynuclear hydrocarbons EXCEPT:  
a) Naphthalene  
b) Phenanthrene  
c) Anthracene  
d) Benzene
19. Aromatic Acids have the acidic property due to :  
a) Carboxylate ion  
b) Nitrogen lone pair  
c) Benzene ring  
d) Hydrogen ion
20. When phenol is treated with neutral FeCl<sub>3</sub> solution, it develops:  
a) Violet color  
b) Yellow color  
c) Green color  
d) Nothing happens

**Q.2 Long Answers (any 2 out of 3) (10 Mark Each)**

(20)

1. Define Cycloalkanes with examples & explain Baeyer's strain theory & its limitations.
2. Define Polynuclear hydrocarbons and write the synthesis & chemical reaction of Phenanthrene.
3. Explain Aromaticity of benzene with resonance, orbital picture & with Huckle's rule.

**Q.3 Short Answers (any 7 out of 9) (5 Mark Each)**

(35)

1. Explain basicity of aromatic amines and effect of substituents on basicity.
2. Write down the structure and use of: a) BHC b) Naphthols
3. Give a short note on Rancidity & hydrolysis of oils.
4. Explain Acidity of aromatic acids and effect of substituents on acidity.
5. Write down the procedure and significance of Saponification & Iodine value.
6. Friedel-Crafts alkylation with its limitations.
7. Write down the structure & Haworth synthesis of Naphthalene.
8. Explain Sach Mohr's theory of strainless rings.
9. Write down the structure and use of: a) Chloramine b) DDT