



BRAINWARE UNIVERSITY
Term End Examination 2020 - 21

Programme – Bachelor of Pharmacy

Course Name – Pharmaceutical Organic Chemistry II

Course Code - BP301T

Semester / Year - Semester III

Time allotted : 90 Minutes

Full Marks : 75

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 75=75

1. (Answer any Seventy five)

(i) Gammexane is _____

- | | |
|--------------------------|--------|
| a) Hexachloroethane | b) DDT |
| c) Hexachlorocyclohexane | d) TNT |

(ii) Benzene undergoes Friedel-Crafts reaction with isopropyl alcohol in the presence of H₂SO₄ catalyst to give _____

- | | |
|---------------------|--------------------|
| a) n-Propylbenzene | b) Benzophenone |
| c) Isopropylbenzene | d) Nothing happens |

(iii) Benzene reacts with acetic anhydride in the presence of anhydrous aluminium chloride to form _____

- | | |
|----------------------|-------------------|
| a) Acetophenone | b) Benzophenone |
| c) Phenylacetic acid | d) Phenyl acetate |

(iv) In sulfonation of benzene the attacking species is _____

- | | |
|--------------------|----------------------------------|
| a) H ⁺ | b) SO ₂ |
| c) SO ₃ | d) HSO ₄ ⁻ |

(v) Benzene reacts with concentrated HNO₃ in presence of concentrated H₂SO₄ to give nitrobenzene. This reaction is an example of _____

- | | |
|---------------------------|--------------------------|
| a) Electrophilic addition | b) Nucleophilic addition |
|---------------------------|--------------------------|

c) Electrophilic substitution

d) Nucleophilic substitution

(vi) Cresols on distillation with zinc dust gives _____

a) o-Xylene

b) benzene

c) o-plus p-Xylene

d) Toluene

(vii) Oxidation of toluene with chromyl chloride gives benzaldehyde. This reaction is known as _____

a) Perkin reaction

b) benzoin condensation

c) Etard's reaction

d) Ozonolysis

(viii) Toluene undergoes oxidation to give _____

a) Quinone

b) Benzaldehyde

c) Benzyl alcohol

d) Benzoic acid

(ix) For reaction of ethylbenzene, the ethyl group is considered as _____

a) Ortho director

b) ortho-para director

c) meta director

d) ortho-meta director

(x) Phenol on distillation with zinc dust gives _____

a) Phenylzinc

b) Benzene

c) Cyclohexanone

d) Benzoic acid

(xi) The carbon atoms in benzene rings are _____

a) sp hybridized

b) sp³ hybridized

c) sp² hybridized

d) None of these

(xii) Which one is used as mosquito repellent

a) DDT

b) BHC

c) Phenol

d) Aniline

(xiii) Benzene having the side chain of CH₃ Known as

- a) alkyl benzene
- b) toluene
- c) methyl benzene
- d) cumene

(xiv) Isopropyl benzene is known as

- a) toluene
- b) cumene
- c) xylene
- d) None of these

(xv) Kekule proposed that benzene is a

- a) cyclic planar structure of 6carbon
- b) cyclic planar structure of 7carbon
- c) cyclic planar structure of 10carbon
- d) cyclic planar structure of 8carbon

(xvi) The resonance structure of benzene is due to delocalized

- a) pi electrons
- b) sigma electrons
- c) delta electrons
- d) None of these

(xvii) The C-H bond of Benzene is due to

- a) s-s electrons
- b) s-sp² electrons
- c) sp-sp electrons
- d) sp²-sp² electrons

(xviii) According to HUCKLE RULE of any cyclic compound electrons should be

- a) (4n+2) electron
- b) (4n+4) electron
- c) (2n+2) electron
- d) (8n+2) electron

(xix) Which of the following substituent is an ortho and para director and ring deactivating

- a) -NH₂
- b) -Cl
- c) -OCH₃
- d) -OH

(xx) Compared to benzene , nitration of toluene takes place at:

- a) Same rate
- b) Faster rate
- c) Slower rate
- d) Can not predict

(xxi) Toluene reacts with methyl chloride in presence of aluminium chloride to form a mixture of _____

- a) Ortho and Para-toluenesulphonic acid
- b) Ortho and Para-Xylene
- c) Ortho and Para-Methylacetophenone
- d) ortho and para-chlorotoluene

(xxii) Phenol is used

- a) In alcoholic beverages
- b) an anesthetic
- c) in antiseptics
- d) as moth repellent

(xxiii) Which of the following compounds is aspirin

- a) Methyl salicylate
- b) Salicylic acid
- c) Phenyl salicylate
- d) Acetylsalicylic acid

(xxiv) Sodium phenoxide reacts with CO₂ at 1250 C under 5 atm pressure to give salicylic acid. This reaction called as _____

- a) Kolbe's reaction
- b) Perkin reaction
- c) Wurtz reaction
- d) HVZ reaction

(xxv) Anisole is formed when phenol is treated with _____

- a) CH₃I/NaOH
- b) CH₃CH₂I/NaOH
- c) CHCl₃/NaOH
- d) Acetic Anhydride

(xxvi) Which groups forms the strongest H bonds to water molecules?

- a) Alcohols
- b) Ethers
- c) Phenols
- d) All equally strong

(xxvii) The compound which is most capable of hydrogen bonding is _____



(xxviii) Which of the following compound is least acidic?



(xxix) Which of the following statements is false about primary amines?

a) They can be prepared by reduction of nitriles with LiAlH_4

b) They react with ice-cold nitrous acid to form nitrogen gas

c) They do not form salts with acids.

d) They are basic and soluble in water.

(xxx) Amines are generally classified as _____

a) Weak acids

b) Strong acids

c) weak bases

d) Strong bases

(xxxi) Which of the following is most basic?

a) Methylamine

b) Trimethylamine

c) Dimethylamine

d) Ammonia

(xxxii) Alkyl halides reacts with ammonia in presence of the base to form as _____

a) Primary amines

b) Nitrated alkyl halides

c) Amides

d) Quaternary amine

(xxxiii) Aliphatic primary amine react with cold nitrous acid to form _____

a) Alcohol

b) Diazonium salts

c) Nitriles

d) Nitroalkanes

(xxxiv) Methyl amine reacts with nitrous acid to form _____

- a) CH₃CH₃
- c) CH₃NO₂

- b) CH₃OH
- d) CH₃CH₂OH

(xxxv) Hinsberg's reagents is _____

- a) Pd + BaSO₄
- c) NH₂NH₂ + KOH

- b) p-Toluenesulfonic acid
- d) Benzenesulfonic acid

(xxxvi) Phenol having the structure

- a) Benzene with CH₃ group
- c) Benzene with CH₃-CH₃ group

- b) Benzene with OH group
- d) None of these

(xxxvii) 2° amine is known as

- a) N-methyl amine
- c) N,N-tri methyl amine

- b) N,N-Di methyl amine
- d) None of these

(xxxviii) o-hydroxy benzoic acid is known as

- a) benzoic acids
- c) anthranilic acid

- b) salicylic acid
- d) phthalic acid

(xxxix) o-amino benzoic acid is known as

- a) benzoic acids
- c) anthranilic acid

- b) salicylic acid
- d) phthalic acid

(xl) Primary amine react with nitrous acid to produce _____

- a) Nitrogen gas
- c) Produce soluble nitrite salts

- b) Yellow oily layer
- d) No reaction

(xli) Lemon's Contain

- a) Citric acid
- c) Tartaric acid

- b) Lactic acid
- d) Formic acid

(xlii) Malic acid is present in

- a) Sour apple
- b) Sour mango
- c) Lemon
- d) Grapes

(xliii) Phosphatidic acid contain _____

- a) Glycerol and fatty acid
- b) Glycerol, fatty acid and phosphoric acid
- c) Phosphoric acid
- d) Glycerol, fatty acid and choline

(xliv) Rancidity of fat is due to _____

- a) Hydrolysis of ester bond
- b) Hydrogenation of unsaturated bond
- c) Addition of halogen
- d) Substitution Reaction

(xlv) Atherosclerosis is _____

- a) Accumulation of fat in liver
- b) Excretion of cholesterol in urine
- c) Increase level of glucose in blood
- d) Deposition of cholesterol ester in arteries

(xlvi) Storage form of lipid in plants and animals

- a) Triglycerol
- b) Cholesterol
- c) Cholic Acid
- d) Phospholipid

(xlvii) Hydrolysis of ester linkage of fat causes

- a) Rancidity
- b) Resinification
- c) Both of Rancidity and Resinification
- d) None of these

(xlviii) Essential fatty acid is

- a) Linoleic acid
- b) Palmitic acid
- c) Stearic acid
- d) Myristic acid

(xlix) Iodine value of Arachis oil is _____

- a) 84 to 100
- b) 65 to 70

c) 80 to 85

d) 105 to 110

(l) Wool fat is _____

a) Ester of cholesterol with other alcohol

b) Ester of cholesterol with other fatty acid

c) Both Ester of cholesterol with other alcohol and Ester of cholesterol with other fatty acid

d) None of these

(li) Soft soap is _____

a) Potassium salt

b) Sodium salt

c) Calcium salt

d) cetrimide

(lii) The lanolin is _____

a) Wool Alcohol

b) Hydrocarbon

c) Hydrous wool fat

d) Anhydrous wool fat

(liii) Antioxidant used to prevent Rencidification of fats & oil

a) BHA

b) Tocopherol

c) BHT

d) All of them

(liv) Synthetic detergents are

a) Magnesium lauryl sulfate

b) potassium lauryl sulfate

c) sodium lauryl sulfate

d) None of these

(lv) Sodium and potassium salts of fatty acids are called

a) Phospolipids

b) Proteins

c) Carbohydrates

d) Soaps

(lvi) Soap is

a) A mixture of salts of fatty acids

b) A salt of glycerol

c) A mixture of ether

d) A mixture of aromatic ether

(lvii) A wax is_____

- a) A non polar solid
- b) A long chain alcohol
- c) A triscylalcohol
- d) None of these

(lviii) Liquid oils can be converted to solid fats by_____

- a) Saponification
- b) Hydrogenation
- c) Hydrolysis
- d) Oxidation

(lix) Anthracene is a polycyclic aromatic hydrocarbon composed of three fused _____ rings

- a) Benzene
- b) Ethylene
- c) Alkane
- d) Pyridine

(lx) Anthracene undergoes electrophilic substitution reaction mainly at

- a) C-1
- b) C-2
- c) C-9
- d) C-1 and C-2

(lxi) Anthracene undergoes addition and electrophilic substitution reaction preferentially occur at-

- a) C1 and C4
- b) C9 and C10
- c) C5 and C8
- d) C4 and C5

(lxii) Derivative of naphthol is

- a) 1-naphthol
- b) 2-naphthol
- c) Both 1-naphthol and 2-naphthol
- d) None of these

(lxiii) Vinegar contains

- a) Acetic acid
- b) Lactic acid
- c) Tartaric acid
- d) Formic acid

(lxiv) Nitration of phenanthrene produces

- a) 6-nitro phenanthrene
c) 8-nitro phenanthrene
- b) 7-nitro phenanthrene
d) 9-nitro phenanthrene

(lxv) Reduction of naphthalene with sodium and alcohol forms_____

- a) 1,4-dihydronaphthalene
c) 2,4-dihydronaphthalene
- b) 1,2-dihydronaphthalene
d) 1,3-dihydronaphthalene

(lxvi) General formula of cycloalkane is

- a) C_nH_{2n}
c) C_nH_{n+1}
- b) C_nH_{2n+1}
d) C_nH_n

(lxvii) Identify the gaseous cycloalkanes at room temperature

- a) Cyclobutane
c) Cyclohexane
- b) Cyclopentane
d) All of these

(lxviii) Melting point of cycloalkanes gradually increase with increasing

- a) Bond angle
c) Molecular weight
- b) Angle strain
d) All of these

(lxix) Normal angle between any pair of bonds of a carbon is

- a) 109.5 Degree
c) 24.75 Degree
- b) 100.5 Degree
d) 60 Degree

(lxx) Which of the cycloalkanes is most reactive

- a) Cyclopropane
c) Cyclopentane
- b) cyclobutane
d) Cyclohexane

(lxxi) The most stable conformation of cyclohexane is the

- a) Chair form
c) Newman form
- b) Haworth form
d) Boat form

(lxxii) Cyclopropane has the structure of

- a) pentagon
- b) square
- c) triangle
- d) heaxgon

(lxxiii) Cyclopropane reacts with bromine to produce

- a) 2-bromopropane
- b) 1-bromopropane
- c) 3-bromopropane
- d) None of these

(lxxiv) Cyclohexane reacts with chlorine to produce

- a) chlorocyclohexane
- b) chlorocyclopentane
- c) chlorocyclobutane
- d) chlorocycloheptane

(lxxv) Cycloalkane have the same molecular formula as:

- a) Alkanes
- b) Alkenes
- c) Alkynes
- d) Cycloalkenes