

Question bank solution based on MCQs 2021-22

(Subject Code: BP 301 T)

Class: S Y B Pharmacy SEM III

Name of Subject: Pharmaceutical Organic chemistry II

& Paper Code: BP 301 T

- 1) _____ is the number which expresses in milligrams the amount of potassium hydroxide necessary to neutralise the free acids present in 1 g of the substance. A
- A. Acid value B. Rancidification value
C. Diazotization D. Saponification value
- 2) Predict the name of the product when benzene reacts with (HNO₃/H₂SO₄) C
- A. Nitro benzoic acid B. 3-nitrobenzoic acid
C. Nitrobenzene D. Ortho Para dinitrobenzene
- 3) Complete hydrolysis of triglycerides yield _____ molecule(s) of glycerol and _____ molecule(s) of fatty acids. C
- A. three and one B. one and two
C. one and three D. three and two
- 4) Which one of the following is an unsaturated fatty acid? B
- A. Lauric acid B. Linoleic acid
C. Palmitic acid D. Stearic acid
- 5) The amount of free fatty acids present in an oil or fat is indicated by its- D
- A. saponification value B. iodine value
C. RM value D. acid value
- 6) Which one of the following constant is mainly used for the analysis of butter? C
- A. Acid value B. saponification value
C. RM value D. iodine value
- 7) Which of the following esters produces butyric acid and phenol on hydrolysis? C
- A. Butyl benzoate B. Phenyl propionate
C. Phenyl butyrate D. Benzyl propionate
- 8) The liberation of CO₂ in form of bubbles on treatment with NaHCO₃ indicates presence of _____ functional group in given compound B
- A. amines B. carboxylic acids C. aldehyde D. esters

- 9) Which of the following is of special value in testing the (adulteration or) purity of butter and desi-ghee? D
- A. Acid number B. Iodine number
C. Saponification number D. Richert-Meissel number
- 10) The number of OH groups in fats can be expressed as _____ D
- A. Reichert-Meissil number B. Iodine number
C. Polenske number D. Acetyl number
- 11) Saponification is hydrolysis _____ C
- A. In digestive tracts of human beings B. By acids
C. By alkalis D. By salts
- 12) Rancidity of lipids or fat rich food is due to A
- A. oxidation of fatty acids B. hydrogenation of unsaturated fatty acids
C. reduction of fatty acids D. dehydrogenation of saturated fatty acids
- 13) Partial Hydrogenation of vegetable oils in presence of Ni catalyst at 200°C gives A
- A. Vanaspati ghee B. Margarine C. both a and b D. None of these
- 14) Sodium benzoate on heating with soda lime (CaO/NaOH) results in formation of C
- A. sodium phenoxide B. benzaldehyde C. benzene D. benzophenone
- 15) lipid oils can be converted to solid fats by _____ B
- A. hydrolysis B. hydrogenation
C. oxidation of double bonds D. decarboxylation
- 16) Which of the statements is not true about acid value C
- A. used to measure the degree of hydrolytic rancidity
B. gives indication about edibility of the lipid
C. acid value of edible oil should be <1%
D. pharmaceutical oil must not have acidity
- 17) Which of the molecular formula given below corresponds to that of an unsaturated fatty acid? C
- A. C₁₆H₃₃COOH B. C₁₉H₃₉COOH C. C₁₈H₃₅COOH D.

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C₁₇H₃₅COOH

- 18) Fats in presence of moisture, warm temperature or bacterias are converted into glycerols and fatty acids, this is called _____ B
- A. oxidative rancidity B. hydrolytic rancidity
C. catalytic rancidity D. None of the above
- 19) Which of the following is TRUE about saponification number? A
- A. The shorter the chain length of fatty acids; the higher is the saponification number
B. The shorter the chain length of fatty acids; the lower will be the saponification number
C. The higher the chain saturation of fatty acids; the lower will be the saponification number
The lower the chain saturation of fatty acids; the higher will be the saponification number
- 20) Richert-Meissel number is defined as the volume of 0.1M KOH solution required for the neutralisation of _____ gram/grams of fat or oil. B
- A. 1 B. 5 C. 100 D. 1000
- 21) The process of hydrogenation of tryglycerides of unsaturated fatty acids into saturated glycerides is called C
- A. drying B. rancidification C. hardening D. saponification
- 22) With respect to the electrophilic aromatic substitution of benzene which of the following is not true? B
- A. A non-aromatic intermediate is formed
B. Benzene acts as an electrophile
C. A proton is lost in the final step
D. Resonance forms are important
- 23) Which of the following statements is incorrect about aromatic compounds? B
- A. Are planar B. Have $4n$ π -electrons
C. Are cyclic D. Are generally less reactive than similarly substituted alkenes
- 24) When considering electrophilic aromatic substitution reactions electron withdrawing substituents (e.g. nitro) are described as- D

- A. Ortho/Para directing and activating
 B. Ortho/Para directing and deactivating
 C. Meta directing and activating
 D. Meta directing and deactivating
- 25) Distilling phenol over zinc dust results in the formation of? A
 A. Benzene B. bromophenol C. nitrophenol D. bromobenzene
- 26) When considering electrophilic aromatic substitution reactions the halides are described as- B
 A. Ortho/Para directing and activating
 B. Ortho/Para directing and deactivating
 C. Meta directing and activating
 D. Meta directing and deactivating
- 27) Which of the following is an example of fats? B
 A. Glyceryl trioleate B. Vegetable ghee C. Coconut oil D. Groundnut oil
- 28) C-C bonds formed in benzene by: C
 A. Sp-S overlapping B. Sp²-Sp overlapping
 C. Sp²-Sp² overlapping D. S-Sp² overlapping
- 29) For reactions of ethyl benzene; ethyl group is considered as: B
 A. Ortho director B. Ortho Para director
 C. Ortho meta director D. meta director
- 30) Catalyst used in nitration reaction of benzene is? D
 A. Catalyst AlCl₃ B. Catalyst FeCl₃ C. UV Light D. Conc. H₂SO₄
- 31) Benzene reacts with acetyl chloride in presence of AlCl₃ to give C
 A. Chlorobenzene B. Toluene C. Acetophenone D. Acetanilide
- 32) In chlorination of benzene; AlCl₃ is used to generate; B
 A. Cl (-) B. Cl (+) C. Cl₂ D. HCl
- 33) Which of the following is used as Sweetener? C

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- A. DDT B. BHC C. Saccharin D. Chloramine
- 34) The melting points of even-numbered-carbon fatty acids _____ with chain length and _____ according to unsaturation. D
A. decrease; decrease B. decrease; increase
C. increase; increase D. increase; decrease
- 35) The esterification of a Carboxylic acid (fatty acids) by heating it with an alcohol in the presence of a strong acid as the catalyst and the reaction type is B
A. Electrophilic Aromatic Substitution B. Nucleophilic Acyl Substitution
C. radical substitution D. Electrophilic Aliphatic Substitution
- 36) which of the following can not be used as antioxidant to preserve fats and oils D
A. butylated hydroxyanisole B. propyl gallate
C. butylated hydroxytoluene D. sodium amalgam
- 37) Oils with an iodine number _____ are considered non-drying. C
A. equal to its molecular weight B. 115 to 130
C. less than 115 D. more than 130
- 38) An increase in Iodine Value indicates high susceptibility of lipid to oxidative rancidity due to C
A. stability B. reactivity
C. high degree of unsaturation D. formation of stereoisomers
- 39) The high acidic strength of para nitro benzoic acid is due to; D
A. - I (inductive effect) B. + I (inductive effect)
C. -R (resonance effect) D. - I (inductive effect) and -R (resonance effect)
- 40) Attachment of -Cl (chloro) group at para position in benzoic acid will; A
A. increase acidity B. decrease acidity
C. not effect on acidity D. can't say
- 41) Benzoic acid on reaction with thionyl chloride will form? B
A. Benzyl chloride B. Benzoyl chloride
C. Benzylic chloride D. Benzene chloride
- 42) N-Methylbenzamide can be synthesized from benzoic acid and? B

- A. Ammonia B. Methyl amine
 C. Dimethyl amine D. Ethyl amine
- 43) Predict the name of the product when benzoic acid reacts with (HNO₃/H₂SO₄)? C
 A. nitro benzoic acid B. 1,2- dinitrobenzoic acid
 C. 3-nitrobenzoic acid D. 1,4- dinitrobenzoic acid
- 44) For the synthesis of naphthalene which two reagents are required? D
 A. toluene and succinic acid B. toluene and succinic anhydride
 C. Benzene and succinic acid D. Benzene and succinic anhydride
- 45) How many resonance structures are there for Phenanthrene? B
 A. 6 B. 5 C. 4 D. 3
- 46) Naphthalene undergoes oxidation with Na₂Cr₂O₇/H₂SO₄ to form B
 A. Benzoic acid B. Phthalic Acid
 C. Tetralin D. Phenylacetic acid
- 47) Which of the following is NOT the use of triphenyl methane C
 A. used in synthesis of dyes
 B. inhibits 3-methylcholanthrene induced neoplastic transformation of loti cells
 C. used as industrial strength adhesive
 D. its red color trityl anion is used as indicator
- 48) In naphthalene, bond length between C1 and C2 (1.36A) has _____ C
 whereas; bond length between C2 and C3 (1.42A) has _____
 A. more σ character; more π character
 B. less π character; less σ character
 C. more π character; more σ character
 D. less σ character; less π character
- 49) Aspirin is produced by heating salicylic acid with _____ A
 A. Acetic anhydride in presence of phosphoric acid
 B. benzoic anhydride in presence of phosphoric acid
 C. methyl alcohol in presence of sulphuric acid
 D. phenol in presence of sulphuric acid

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- 50) Anthracene undergoes sulfonation with concentrated sulfuric acid to yield a mixture of 1- and 2- anthracene sulfuric acid. In this reaction formation of major product is _____ D
- A. independent of external factors
B. kinetically controlled
C. controlled by catalyst
D. thermodynamically controlled
- 51) Friedel crafts condensation between 1 mol benzyl chloride and 1 mol benzene gives B
- A. naphthalene
B. diphenyl methane
C. triphenyl methane
D. benzophenone
- 52) Methyl benzoate on hydrolysis will form _____ B
- A. acetic acid B. benzoic acid C. picric acid D, phenylacetic acid
- 53) Phenanthrene can be prepared from D
- A. Coal tar
B. Haworth Method
C. Posher Synthesis
D. all of the above
- 54) Addition reaction in phenanthrene preferentially takes place at _____ A
- A. 9,10 position B. 3,4 position C. 7,8 position D. 1,2 position
- 55) What is the product when anthracene is treated with sodium dichromate and sulfuric acid? B
- A. 9-Nitroanthracene B. 9,10-Anthraquinone
C. 9,10-dihydroanthracene D. 2-anthraquinone sulfonic acid
- 56) The carboxylic group of benzoic acid is C
- A. electron withdrawing and ortho para directing
B. electron releasing and meta directing

- C. electron withdrawing and meta directing.
D. electron releasing and ring deactivating
- 57) Sodium phenoxide reacts with CO_2 at 120-140°C under 5 bar pressure, reaction is called: D
A. Perkin reaction B. Wurtz reaction
C. Riemer Tiemann reaction D. Kolbe reaction
- 58) Number of milligrams of KOH required to neutralize fatty acid present in 1 gm of fat is called- B
A. Potassium number B. Acid value
C. saponification value D. Iodine value
- 59) Use of phenol is in- C
A. alcoholic beverages B. an anaesthetic
C. antiseptic D. insect repellent
- 60) Electrophilic substitution on naphthalene occurs preferentially at? B
A. 2 carbon B. 1 carbon
C. 9 carbon D. 10 carbon
- 61) Treatment of phenol with chloroform in aqueous sodium hydroxide solution followed by acid hydrolysis to form salicylaldehyde is known as- D
[A]Kolbe Reaction [B]Gatterman Reaction
[C]Fries rearrangement [D]Reimer-Tiemann Reaction
- 62) Almost all the chemical reactions of phenanthrene occur across- B
[A] 3,4- bond [B] 9,10-bond [C] 5,6-bond [D] 7,8-bond
- 63) Which of the following substituent is meta director? B
[A] NH_2 [B] NO_2 [C] OH [D] Cl
- 64) The angle strain is maximum in case of- D
[A]Cycloheptane [B]Cyclopentane [C]Cyclohexane [D]Cyclopropane
- 65) The phenomenon in which two or more structures can be written for a substance which involve identical position of atom is called as- B
[A]Isomerism [B]Resonance [C]Epimerization [D]Tautomerism

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- 66) Electron releasing alkyl substituent that is para or meta to the carboxyl group increases the acidity of benzoic acid. B
[A] TRUE [B] FALSE
- 67) Which of the following statement is false? C
[A] Oils and fats are colorless, odorless & tasteless
[B] Oils and fats have lower specific gravity than water
[C] Oils and fats are soluble in water and insoluble in organic solvents
[D] Alkaline hydrolysis of fats and oils is known as saponification
- 68) Oxidation of naphthalene in presence of KMnO_4 gives- A
[A] Phthalic acid [B] Naphthaquinone [C] Phthalaldehyde [D] Phthalic anhydride
- 69) Anomalous behavior is the property of – D
[A] Actinides [B] Lanthanides [C] Nobel gases [D] Halogens
- 70) The bond angle between carbon atom in cyclohexane is- C
[A] 60° [B] 90° [C] $109^\circ 28'$ [D] 120°
- 71) Which of the following is simplest polynuclear hydrocarbon? D
[A] Benzene [B] Anthracene [C] Azulene [D] Naphthalene
- 72) Which of the following is used as a food preservative? A
[A] Sodium Benzoate [B] Benzyl alcohol [C] Ethyl benzoate
[D] Benzotrichloride
- 73) Hoffman –martius Rearrangement is given by- C
[A] Aromatic acids [B] Benzene [C] Aromatic amines [D] Phenols
- 74) Synthesis of cycloalkanes from ester of dicarboxylic acids is also known B
as-
[A] Friedal Craft Method [B] Dieckmann method
[B] Simmons- Smith method [D] Hoffman-martius method
- 75) Benzene reacts with alkyl halides in presence of aluminium chloride to D
form alkylbenzenes is known as-
[A] Ozonolysis [B] Friedel-crafts Acylation
[C] Halogenation [D] Friedel-crafts Alkylation

- 76) Which of the following is used as a fragrance in perfumes, soaps and shampoos? C
 [A]Naphthalene [B]Anthracene [C]Diphenylmethane
 [D]Triphenylmethane
- 77) Benzoic acid reacts with alcohols in the presence of concentrated sulfuric acid to form- D
 [A]Amide [B]Acid [C]Ether [D]Ester
- 78) Acylation of aromatic amines with acid halides or anhydrides results in the formation of- B
 [A]Imines [B]n-arylamides [C]Primary amines [D]Diazonium salts
- 79) Hardening of oils refers to- A
 [A]Hydrogenation [B]Hydrolysis [C]Hydrogenolysis
 [D]Rancidification
- 80) Cyclobutane can be represented by- A
 [A] Square [B]Triangle [C]Hexagon [D]Pentagon
- 81) Which of the following is angular polynuclear hydrocarbon? C
 [A]Anthracene [B]Naphthalene [C]Phenanthrene
 [D]Diphenylmethane
- 82) Acid hydrolysis of phenyl cyanide gives- A
 [A]Benzoic acid [B]Benzoyl chloride [C]Ethylbenzene [D]Ethyl benzoate
- 83) Compound containing –OH group attached directly to an aromatic ring are known as- B
 [A]Alcohols [B]Phenols [C]Aromatic Alcohols [D]Carboxylic acids
- 84) Which of the following is not one of the methods of preparation of aromatic amines? D
 [A]Reduction of azo compounds [B]Amonolysis of aryl chlorides
 [C]Reduction of nitro compounds [D]Oxidation of alkylbenzene
- 85) Cycloalkanes are also called as- C
 [A]Alicyclic compounds [B]Acyclic compounds
 [C]Cycloparaffins [D]Aromatic alkanes

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- 86) The uncharged, lipophilic molecules made up of fused multiple aromatic rings containing carbon and hydrogen atoms only are called- A
[A]Polynuclear Hydrocarbons [B]Heterocyclic compound
[C]Benzocyclic compounds [D]Mononuclear hydrocarbons
- 87) Which of the following compound obeys huckel rule? A
[A]Benzene [B]Cycloheptatriene [C]Cyclooctatriene [D]None of these
- 88) What is the common name of o-aminobenzoic acid? D
[A]Phthalic acid [B]Toluic acid [C]Salicylic acid [D]Anthranilic acid
- 89) Aromatic amines are less basic than aliphatic amines. A
[A]TRUE [B]FALSE
- 90) Which of the following statement is wrong? B
[A]Aromatic amines are colourless liquids or solids
[B]Aromatic amines have relatively low boiling points
[C]Aromatic amines are sparingly soluble in water
[D]Aromatic amines are highly toxic substances
- 91) The process of chopping of animal tissue containing fat are chopped off and heated dry or with water until fat melts is called as- D
[A]Pressing [B]Solvent Extraction [C]Melting [D]Rendering
- 92) Toluidine is more basic than aniline. A
[A]TRUE [B]FALSE
- 93) Primary aromatic amines reacts with ethanolic potassium hydroxide and chloroform to form- D
[A]Imines [B]Salt [C]Nitrosoamine [D]Carbylamines
- 94) Benzoic acid is colourless solid soluble in hot water. A
[A]TRUE [B] FALSE
- 95) Which of the following is the effect of electron withdrawing substituent on acidity of phenol? C
[A]Acid weakening [B]Neutral [C]Acid strengthening [D]Meta directing
- 96) All ortho substituents increase acidity of benzoic acid. A
[A]TRUE [B]FALSE

- 97) Behaviour of aromatic compounds containing alternate single and double bond resembling to benzene is called as- A
[A]Aromaticity [B]Resonance [C]Hybridization [D]Isomerism
- 98) Benzoic acid reacts with phosphorous pentachloride or thionyl chloride to form- C
[A]Ethyl benzoate [B]Sodium benzoate
[C]Benzoyl chloride [D]Benzyl alcohol
- 99) Alkaline hydrolysis of fats and oils is also known as- B
[A]Hardening [B]Saponification [C]Rendering [D]Pressing
- 100) Cyclopropane can be represented simply as- D
[A]Hexagon [B]Square [C]Circle [D]Triangle
- 101) Melting and boiling points of cycloalkanes shows gradual increase with decrease in molecular weight. B
[A]TRUE [B] FALSE
- 102) Which of the following is also known as Dow process? D
[A]Preparation of phenol from Cumene
[B]Preparation of Phenol from Sodium Benzenesulfonate
[C]Preparation of phenol from Benzenediazonium salt
[D]Preparation of phenol from Chlorobenzene
- 103) Which of the following polynuclear hydrocarbon is non benzenoid? B
[A]Biphenyl [B]Azulene [C]Naphthalene [D]Anthracene
- 104) The substituent which activates the aromatic ring to further substitution is called as- A
[A]Ring activator [B]Ring deactivator [C]Ring director [D]Ring substitutor
- 105) Which of the following polynuclear hydrocarbon can be used as adhesive and sealant? D
[A]Naphthalene [B]Anthracene [C]Triphenylmethane
[D]Phenanthrene

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- 106) Which of the following statement is wrong about benzene? B
[A]Benzene is colourless liquid.
[B]Benzene is soluble in water
[C]Vapours of benzene are highly toxic
[D]Benzene burns with sooty flame
- 107) Fats are composed of solid triesters of glycerol, while oils are composed A
of liquid triesters of glycerols at room temperature.
[A]TRUE [B]FALSE
- 108) The reaction of phenol with benzoyl chloride is known as- B
[A]Dows process [B]Schotten-Baumann reaction
[C]Gatterman Reaction [D] Friedel-crafts Alkylation
- 109) Which of the following is not a source of fats or oils? D
[A]Cotton seeds [B]Castor beans [C]Coconuts [D]Grains
- 110) Phenol reacts with bromine water to give precipitate of- A
[A]2,4,6-tribromophenol [B]1,3,5-tribromophenol
[C]bromobenzene [D]2,4-dibromophenol
- 111) Vapour phase oxidation of benzene in the presence of Vanadium C
pentoxide forms-
[A]Benzene hexachloride [B]Cyclohexane
[C]Maleic anhydride [D] Acetic anhydride
- 112) Phenols are much more acidic than Carboxylic acids but are less acidic B
than alcohols.
[A]TRUE [B]FALSE
- 113) Hydrogenation of glyceryl trioleate forms- A
[A]Glyceryl tristearate [B]Glyceryl trilaurate
[C]Glyceryl tripalmitate [D]Glycerol
- 114) Benzene cannot be prepared from- D
[A]Acetylene [B]Sodium Benzoate [C]Chlorobenzene [D]Sodium
acetate

- 115) When phenol is treated with conc. Sulphuric acid at 100°C _____ is C
the main product.
[A]m-Phenolsulfonic acid [B] o-Phenolsulfonic acid
[C] p-Phenolsulfonic acid [D]None of the above
- 116) Number of miligrams of KOH required to saponify one gram of fat or oil B
is called as-
[A]Iodine number [B]RM value
[C]Saponification number [D]None of the above
- 117) Which of the following substituent acts as a ring activator for D
monosubstituted benzene?
[A]-NO₂ [B]-COOH [C]-Cl [D]-OH
- 118) Phenols with addition of few drops of neutral ferric chloride solution give C
which colour?
[A]Brick red [B]Yellow [C]Purple [D]White precipitate
- 119) Rancidification of fat or oil caused by which of the following reaction? D
[A]Oxidation [B]Reduction [C]Hydrolysis [D]Both A and C
- 120) Benzene has cyclic, planer and hexagonal structure having all sp² A
hybridized carbon atoms.
[A]TRUE [B] FALSE
