TNPSC
Jr Analyst

Previous Year Paper
(Pharmaceutical Chemistry)
18 Feb, 2018

Sl. No. : [redacted]

JAPC/18

Register Number | | | | | | | | | |

2018

PHARMACEUTICAL CHEMISTRY
(Degree Standard)

Time Allowed : 3 Hours] **[Maximum Marks : 300**

Read the following instructions carefully before you begin to answer the questions.

IMPORTANT INSTRUCTIONS

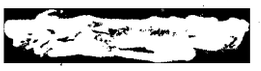
1. The applicant will be supplied with Question Booklet 15 minutes before commencement of the examination.
2. This Question Booklet contains **200** questions. Prior to attempting to answer the candidates are requested to check whether all the questions are there in series and ensure there are no blank pages in the question booklet. **In case any defect in the Question Paper is noticed it shall be reported to the Invigilator within first 10 minutes and get it replaced with a complete Question Booklet. If any defect is noticed in the Question Booklet after the commencement of examination it will not be replaced.**
3. Answer **all** questions. **All** questions carry equal marks.
4. You must write your Register Number in the space provided on the top right side of this page. Do not write anything else on the Question Booklet.
5. An answer sheet will be supplied to you, separately by the Room Invigilator to mark the answers.
6. You will also encode your Question Booklet Number with Blue or Black ink Ball point pen in the space provided on the side 2 of the Answer Sheet. If you do not encode properly or fail to encode the above information, action will be taken as per commission's notification.
7. Each question comprises *four* responses (A), (B), (C) and (D). You are to select ONLY ONE correct response and mark in your Answer Sheet. In case you feel that there are more than one correct response, mark the response which you consider the best. In any case, choose ONLY ONE response for each question. Your total marks will depend on the number of correct responses marked by you in the Answer Sheet.
8. In the Answer Sheet there are **four** circles Ⓐ, Ⓑ, Ⓒ and Ⓓ against each question. To answer the questions you are to mark with Blue or Black ink Ball point pen ONLY ONE circle of your choice for each question. Select one response for each question in the Question Booklet and mark in the Answer Sheet. If you mark more than one answer for one question, the answer will be treated as wrong. *e.g.* If for any item, Ⓑ is the correct answer, you have to mark as follows :

   Ⓐ ● Ⓒ Ⓓ

9. You should not remove or tear off any sheet from this Question Booklet. You are not allowed to take this Question Booklet and the Answer Sheet out of the Examination Hall during the time of examination. After the examination is concluded, you must hand over your Answer Sheet to the Invigilator. You are allowed to take the Question Booklet with you only after the Examination is over.
10. The sheet before the last page of the Question Booklet can be used for Rough Work.
11. Do not tick-mark or mark the answers in the Question Booklet.
12. Applicants have to write and shade the total number of answer fields left blank on the boxes provided at side 2 of OMR Answer Sheet. An extra time of 5 minutes will be given to specify the number of answer fields left blank.
13. Failure to comply with any of the above instructions will render you liable to such action or penalty as the Commission may decide at their discretion.

SEAL

SPACE FOR ROUGH WORK



1. Silver nitrate is assayed by

(A) Precipitation method

(B) Complexometric method

(C) Acidimetry

(D) Gravimetry method

2. _____ is prepared by dissolving aluminium hydroxide in sulphuric acid .

(A) Aluminium sulphate

(B) Aluminium chloride

(C) Aluminium oxide

(D) Aluminium sulphite

3. _____ is prepared by neutralization of sodium carbonate with hydrogen fluoride.

(A) Sodium formamide

(B) Sodium fluoride

(C) Sodium bicarbonate

(D) Hydro fluoric acid

4. The number of protons in an elements is equal to its

(A) Atomic number

(B) Neutron nunber

(C) Ionic number

(D) Mass number

5. The nuclides that have same atomic number and different mass numbers are called

(A) isobars

(B) isotopes

(C) isotones

(D) nuclides

6. _____ is added to make alkaline which in turn stabilizes the complex in the limit test for Iron.

(A) NaOH

(B) $NaHCO_3$

(C) Ammonia

(D) Ammonium chloride

7. ———— is used in the preparation of poultices.

(A) Bentonite
(B) Heavy Kaolin
(C) Charcoal
(D) Light Kaolin

8. In complexometric titration, to set a sharp endpoint, a known amount of ———— is added.

(A) Magnesium oxide
(B) Magnesium carbonate
(C) Magnesium sulphate
(D) Magnesium sulphite

9. ———— is used for sterilizing surgical instruments.

(A) Cesium – 137
(B) Cobalt – 60
(C) Calcium – 110
(D) Mercury – 203

10. ———— theory is used to explain the nature of bonding in coordination compounds.

(A) Lewis Theory
(B) Gibb's Theory
(C) Werner's Theory
(D) Hess Theory

11. The phenomenon of maintenance of body fluids and the concentration of different electrolytes in extracellular and intracellular fluids is known as

(A) Osmotic equilibrium
(B) Blood volume
(C) Homeostasis
(D) Acid-base balance

12. Which of the following acids is used for the preparation of ceric ammonium sulphate I.P?

(A) Hydrochloric acid
(B) Sulphuric acid
(C) Nitric acid
(D) Perchloric acid

13. Ammonium carbonate is used as

(A) Antacid

(B) Respiratory stimulant

(C) Antidote

(D) Hematinic

14. Calcium folinate is assayed by

(A) Spectro photometry

(B) HPLC

(C) HPTLC

(D) Spectro fluorimetry

15. Aluminium chloride is assayed by

(A) Precipitation titration

(B) Non-aqueous titration

(C) Gravimetric method

(D) Complexometric titration

16. Potassium in oral rehydration salts is determined by

(A) Polarimetry

(B) UV-Spectrometry

(C) HPLC

(D) Flame photometry

17. Sodium citrate is assayed by

(A) Precipitation titration

(B) Gravimetry method

(C) Complexometric method

(D) Non-aqueous titration

18. Ferrous succinate is assayed by

(A) Redox titration

(B) Precipitation titration

(C) Non-aqueous titration

(D) Gravimetry method

19. Penicillamine is assayed by

(A) Precipitation titration

(B) Non-aqueous titration

(C) Gravimetry method

(D) Redox titration

20. Which one of the following statements in not true about iodine value in the analysis of oils?

(A) It can be used to detect adultration in oils

(B) It is directly proportional to the drying power of the oil

(C) It is the measure of saturated acid present in the oil

(D) It is the measure of unsaturated acid present in the oil

21. The distinction between waxes and fats is based entirely on

(A) Chemical composition

(B) Melting point

(C) Density

(D) Refractive index

22. Waxes are similar to fats, but they are more difficult to

(A) Solidity

(B) Saponify

(C) Dissolve in non-polar solvents

(D) Melt by heat

23. If sesame oil is adultrated, it is tested by the _____ reaction.

(A) Baudonin

(B) Kolbe's

(C) Reimer-tiemann

(D) Sand meyer

24. Iodine value gives an indication of the proportion of _____ in the substance.

(A) Mineral acid

(B) Carboxylic acid

(C) Saturated acid

(D) Unsaturated acid

25. Acid value is the number of milligram of Potassium hydroxide required to neutralise the free acid in 1 g. of the

(A) Carbohydrate

(B) Proteins

(C) Vitamins

(D) Fats

26. In the determination of magnesium sulphate by complexometric method, which of the following buffer is used?

(A) Acetate buffer pH 4.0

(B) Acetate buffer pH 5.0

(C) Ammonia buffer pH 10.0

(D) Phosphate buffer pH 8.0

27. The molecular weight "M" of the solute can be calculated from osmatic pressure by using the formula

(A) $M = wRT/\pi V^2$ (B) $M = wRT^2/\pi V$

(C) $M = wRT/\pi V$ (D) $M = wRT/\pi^2 V^2$

28. Match the following :

(a)	Isotonic solution	(i)	Lower osmatic pressure than the other
(b)	Hypertonic solution	(ii)	Different osmatic pressure
(c)	Hypotonic solution	(iii)	Higher osmatic pressure than the other
		(iv)	Same osmatic pressure

	(a)	(b)	(c)
(A)	(ii)	(iv)	(iii)
(B)	(iv)	(iii)	(i)
(C)	(iii)	(i)	(iv)
(D)	(i)	(iii)	(ii)

29. The preparation of an optical active chiral compound form Achiral molecule under the Influence of optical active substance is known as

(A) Achiral synthesis (B) Asymmetric synthesis

(C) Retro synthesis (D) Combinatorial synthesis

30. Sodium lactate is assayed by

(A) Non-aqueous titration (B) Acid base titration

(C) Precipitation titration (D) Gravimetric method

31. When one of the products of a reaction itself act as a catalyst for that reaction the phenomenon is called as

(A) Poison catalyst (B) Auto catalysis

(C) Negative catalyst (D) Positive catalyst

32. Absolute configuration is based on

(A) Cahn-Ingold-Prelog Rule
(B) Van't hoff theory
(C) Label's theory
(D) Both (B) and (C)

33. How many stereo isomers are possible for a compound which has three chiral carbon atom?

(A) 6
(B) 8
(C) 10
(D) 12

34. The ratio of the velocity of light in vaccum or air to that in the substance is called as

(A) Optical rotation
(B) Refractive index
(C) Polarisation
(D) Viscosity

35. Liquid mixture which distil with a change in composition are called as

(A) Phase rule
(B) Azerotropic solution
(C) Zerotropic mixture
(D) Fractional distillation

36. A substance which alters the rate of a chemical reaction and itself remaining chemically unchanged at the end of the reaction is called as

(A) Catalyst
(B) Phase rule
(C) Osmatic pressure
(D) Polarisation

37. The change in enthalpy when one mole of a substance is dissolved in a specified quantity of solvent at a given temperature is defined as

(A) Heat of formation
(B) Heat of solution
(C) Heat of combustion
(D) Heat of neutralisation

38. Vitamin E prevents rancidity by virtue of its ———— property.

(A) Anti oxidant
(B) Oxidant
(C) Sulfuration
(D) Hydrogenation

39. Which of the following is a fat soluble vitamin?

(A) Folic acid
(B) B
(C) C
(D) A

40. Which one of the following is temporary effect in the presence of an attacking reagent?

(A) Mesomeric effect
(B) Inductive effect
(C) Electromeric effect
(D) Isomeric effect

41. Which of the following order of Electronegativity is correct?

(A) O > N > Cl > F > Br
(B) Br > F > Cl > N > O
(C) C,H > Br > Cl, N > O > F
(D) F > O > Cl, N > Br > C, H

42. The C — H bond length decreases in the order given below

(A) $C_{Sp^3} - H > C_{Sp^2} - H > C_{Sp} - H$
(B) $C_{Sp} - H > C_{Sp^2} - H > C_{Sp^3} - H$
(C) $C_{Sp^2} - H > C_{Sp^3} - H > C_{Sp} - H$
(D) $C_{Sp^3} - H < C_{Sp^2} - H < C_{Sp} - H$

43. Which of the following is Aceto acetic ester?

(A) $CH_3\,CO\,CH_2\,COO\,C_2H_5$
(B) $C_2H_5\,COO\,CH_2\,COO\,C_2H_5$
(C) $C_2H_5\,CO\,CH_2\,COO\,C_2H_5$
(D) $C_2H_5\,CO\,CH_2\,CH_2\,COO\,C_2H_5$

44. Cardiac glycosides are composed of

(A) Sugar portion only

(B) Non sugar portion only

(C) – COOH and – OH

(D) Glycone and Aglycone

45. ———— is responsible for cardiotonic activity of cardiac glycosides.

(A) Glycone

(B) Aglycone

(C) Terpenes

(D) Flarones

46. In cyclo pentano perhydro phenanthrene ring of cardiac glycosides ring A/B and C/D are

(A) Cis – fused

(B) Trans – fused

(C) Cis – trans fused

(D) R – S fused

47. In ethylene C = C, one bond is ———— and other bond is ————.

(A) Pi and Pi

(B) Sigma and Sigma

(C) Sigma and Pi

(D) Delta and Delta

48. Whenever carbon is bonded to four other atoms or groups it is through

(A) Sp^2 hybrid orbitals

(B) Sp hybrid orbitals

(C) Sp^3 hybrid orbitals

(D) Sp^4 hybrid orbitals

49. The bonds formed by transfer of Valence electrons from one atom to another is called

(A) Co-ordinate bonds

(B) Co-valent bonds

(C) n bonds

(D) Ionic bond (or) electrovalent bond

50. _____ is the spiroimidazo – piperidyl derivative of rifamycin B.

(A) Ethionamide
(B) Capreomycin
(C) Rifabutin
(D) Cycloserine

51. Which one of the following compound is first generation quinolone derivative?

(A) Isoniazid
(B) Chloroquine
(C) Chloramphenicol
(D) Nalidixic acid

52. Fill in the Elimination reaction.

$CH_3CH_2 - OH \xrightarrow{H_2SO_4} \_\_\_\_\_ + H_2O$

(A) $CH_3 - OH$
(B) $CH_3 - CH_2 - COOH$
(C) $CH_2 = CH_2$
(D) CH_4

53. The basis of antibacterial action of β –lactams is that these drugs become bound to what portion of the cell wall?

(A) Penta glycine
(B) Transpeptidase (PBP)
(C) Mycolic acid
(D) D – alanine – D – alanine

54. Which one of the following is classified as antifungal antibiotics?

(A) Flucytosine
(B) Sordarin
(C) Amphotericin B
(D) Resorcinol

55. The echino candins are effective systemic antifungal agents by virtue of their ability to

(A) Block cell membrane synthesis at ergosterol level
(B) Damage the cell membrane leading to 'leakage' of membrane
(C) Block cell membrane synthesis at β –glucan level
(D) Interfere with zymosterol synthesis

56. _____ is a measure of how readily a compound is able to attack an electron deficient atom.

(A) Electrophilicity
(B) Nucleophilicity
(C) Basicity
(D) Acidity

57. An electrophile is

(A) Positive charged species
(B) Negative charged species
(C) Neutral charged species
(D) Have zero charge

58. The aromaticity of an organic compound is governed by

(A) Martownikoff's rule
(B) Crum Brown and Gibson's rule
(C) Huckel's $4n+2$ rule
(D) Hund's rule

59. Sulphonamide contain _____ functional group

(A) $NH_2 - CO - NH_2$
(B) $-SO_3H$
(C) $-SO_2NH_2$
(D) $N \equiv N$

60. Molecule is called as laughing gas

(A) Nitric oxide
(B) Nitrous oxide
(C) Anaesthetic ether
(D) Cyclo propane

61. Phenobarbital is _____ acting barbiturates

(A) Ultra short
(B) Short
(C) Intermediate
(D) Long

62. In chloroquine C_3 or C_8 alkyl group ———— the action.

(A) Increases
(B) Decreases
(C) No change
(D) Loss of action

63. Identify the one major opioid receptor given below

(A) α - alpha
(B) β – Beta
(C) γ – gamma
(D) δ – Delta

64. Phenobarbital requires dose adjustments when co-administered with

(A) Pentobarbital
(B) Flurazepam
(C) Phenytoin
(D) Estazolam

65. Which one of the following is an Intravenous general anesthetics

(A) Halothane
(B) Isoflurane
(C) Desflurane
(D) Ketamine

66. Codeine is produces ———— pharmacological effect

(A) Anesthetic
(B) Antipyretic
(C) Antibacterial
(D) Analgesic and Antitussive

67. (+) Isoflurane is ———— more potent than (–) Isoflurane

(A) 25%
(B) 50%
(C) 75%
(D) 100%

68. Which one of the following is a Morphine analogue?

(A) Levarphanol
(B) Dextro methorphan
(C) Codeine
(D) Butorphanol

69. _____ is an optically active compound which occur in wool fat along with its derivative dihydrolanosterol

(A) Ergosterol
(B) Lanosterol
(C) Stigmasterol
(D) Cholesterol

70. Which of the following steroids has an aromatic Ring A?

(A) Testosterone
(B) Oestrone
(C) Progesterone
(D) Aldosterone

71. The bile acids are first converted into _____ acid which are degraded upto aetiobiliaric acid.

(A) Isolithobiliaric
(B) Choleric
(C) Lithobiliaric
(D) Lithocholic

72. _____ may be defined as 'the critical and typical monomer units of the peptides and proteins

(A) Oxytoxcin
(B) Amino acids
(C) Carbohydration
(D) Lipid

73. Which one of the following possesses Antimalarial activity?

(A) Ephedrine
(B) Caffeine
(C) Berberine
(D) Cinchonine

74. _____ method helps to identify and determine the number of methyl moiety directly attached to N-atom.

(A) Kuhn-Roth method
(B) Hoffmann exhaustive method
(C) Herzig method
(D) Gibbs method

75. The starting material for Strecker's synthesis of α – amino acids is

(A) A Ketone

(B) Carboxylic acid

(C) Ethyl malonate

(D) An alkyl aldehyde

76. An example of keto-hexoses is

(A) Lactose

(B) Fructose

(C) Glucose

(D) Mannose

77. Sucrose on treatment with the enzyme invertase gives equimolar mixture of

(A) D(+) Galactose & D(–) Fructose

(B) D(–) Glucose & D(–) Fructose

(C) D Mannose & D(–) Fructose

(D) D Glucose & D Galactose

78. Atropine is the ester of

(A) Tropine and Mandelic acid

(B) Tropine and Tropic acid

(C) Topic acid and Salicylic acid

(D) Tropine and Salicylic acid

79. The double bond present in progesterone is in the ———— position.

(A) 18 – 19

(B) 5 – 6

(C) 4 – 5

(D) 11 – 12

80. Polymers like agarose and polyacrylamides, in which the macromolecules are cross linked to give a porous ———— structure.

(A) One dimensional

(B) Two dimensional

(C) Three – dimensional

(D) Four dimensional

81. The most commonly used cells in UV are made of

(A) Glass

(B) Quartz or fused silica

(C) Graphite

(D) Sodium chloride

82. The UV – Visible region of electro magnetic lies between

(A) 200 nm – 800 nm

(B) 800 nm – 1000 nm

(C) 1 nm – 100 nm

(D) 100 nm – 200 nm

83. Highly fluorescent substances have quantum yield of fluorescence (ϕ) values near

(A) 0

(B) 0.5

(C) 1

(D) 0.2

84. In spectrofluorometric estimation, wide slit (width) setting introduce problem due to

(A) Thermal decomposition

(B) Chemical decomposition

(C) Photochemical decomposition

(D) Physical decomposition

85. Quenching means

(A) Reduction of viscosity

(B) Reduction of Adsorption

(C) Reduction of excitation

(D) Reduction of fluorescence intensity

86. _____ is the time it takes for an unretained species to pass through a chromatographic column.

(A) Retention time

(B) Void time

(C) Flow time

(D) Run time

87. The grades of silica gel 60 (or) 140 (or) 150 indicates

(A) Particle size

(B) Mean pore size

(C) Particle shape

(D) Price based on grades

88. HPLC colums are made up of

(A) Glass

(B) Stainless steel (highly polished surface)

(C) High quality fiber

(D) Aluminium

89. Which one of the following detector is employed in HPLC?

(A) Flame ionisation detector

(B) Electron capture detector

(C) Refractive index detector

(D) Thermal conductivity detector

90. The vibrational frequencies in infrared spectrophotometry is calculated by

(A) Beer law

(B) Hooke's law

(C) Absorption law

(D) Lambert's law

91. The most commonly used mulling agent is

(A) Crystalline sodium chloride

(B) Sodium chloride

(C) Nujol

(D) Primary amines

92. Tetra methyl silane is employed as a reference compound for

(A) IR

(B) NMR

(C) Mass

(D) UV

93. In NMR spectroscopy, the radiation used for nuclear excitation is

(A) Radio wave

(B) Micro wave

(C) UV

(D) IR

94. Measurement of conductance obtained in the region of the equivalence point are due to _____ of the reaction product.

(A) Oxidation

(B) Reduction

(C) Hydrolysis

(D) Association

95. _____ is a separation method based on the differential rates of migration of charged species in an applied dc electric field.

(A) Ion exchange

(B) Gel filtration

(C) HPLC

(D) Electrophoresis

96. For a precipitation titration, the following technique is best for detecting end point

(A) Amperometry

(B) Diaro method

(C) Conductometry

(D) Solochrome black indicator

97. The reciprocal of resistance $\frac{1}{R}$ for a electrolytic solution is

(A) Electrolyte solution

(B) Ion selectivity

(C) Liquid liquid electrodes

(D) Conductance

98. Potassium also has an isotope ———— which has a long life and occurs naturally mixed with stable isotope ^{39}K .

(A) ^{38}K

(B) ^{40}K

(C) ^{37}K

(D) ^{36}K

99. Gold $\left(^{198}AU\right)$ injection is used for

(A) Diagnosis of RBC count

(B) Diagnosis of Blood circulation in liver

(C) Diagnosis of Thyroid function

(D) Treatment of Thyroid disorder

100. Which one of the following compounds is used for diagnosis of renal function

(A) Sodium rose Bengal injection

(B) Sodium phosphate injection

(C) Sodium Iodide injection

(D) Sodium Iodotrippurate ^{13}I injection

101. The time required for one half of a given number of atoms to decay is called

(A) Half life

(B) Radio activity

(C) AUC

(D) Elimination rate constant

102. Titanium dioxide is assayed by

(A) Precipitation titration

(B) Acidimetry

(C) Complexometric titration

(D) Gravimetry method

103. Zinc. undecylenate is assayed by

(A) Acidimetry – Alkalimetry method

(B) Complexometric method

(C) Non aqeous titration

(D) Precipitation titration

104. ———— is used to dissolve other impurity in the limit test for chloride.

(A) Dilute Nitric acid

(B) Dilute Sulphuric acid

(C) Dilute Acetic acid

(D) Dilute Silver nitrate

105. Zinc chloride is assayed by

(A) Complexometry titration

(B) Alkalimetry

(C) Acidimetry

(D) Non-aqeous titration

106. Radio activity can be detected by the use of

(A) Flame photometer

(B) Geiger Muller counter

(C) Nephelo-Turbidometer

(D) Spectrophotometer

107. Sodium meta phosphate is used as

(A) Desensitizing agent

(B) Antacid

(C) Dentifrice

(D) Antidote

108. Strontium chloride is used in treatment of

(A) Conjunctivities

(B) Gastric acidity

(C) Constipation

(D) Dental hypersensitivity

109. ———— can be obtained by neutralization of hydrochloric acid with lime.

(A) Calcium carbonate
(B) Calcium oxide
(C) Calcium chloride
(D) Calcium gluconate

110. ———— is prepared by sublimation of ammonium chloride with calcium carbonate.

(A) Ammonium oxalate
(B) Ammonium carbonate
(C) Alum
(D) Aluminium hydroxide

111. Which of the following drug is used as diuretic?

(A) Sodium citrate
(B) Potassium citrate
(C) Ammonium chloride
(D) Sodium acetate

112. Disodium Edetate is used as

(A) Expectorant
(B) Emetic
(C) Respiratory stimulant
(D) Anti dote for metal Poisoning

113. Dimercaprol is used as

(A) Antidote for heavy metal poisoning
(B) Antacid
(C) Acidifier
(D) Laxative

114. Ferrous gluconate is used as

(A) Antacid
(B) Haematinic agent
(C) Systemic acidifier
(D) Antidote

115. Which one of the following is used in the treatment of Wilson's disease?

(A) Dimercaprol
(B) D-Penicillamine
(C) Calcium folinate
(D) EDTA

116. Ferrous fumarate is assayed by

(A) Acidimetry
(B) Non-aqueous titration
(C) Cerimetry
(D) Precipitation titration

117. Sodium acetate is assayed by

(A) Precipitation titration
(B) Non-aqueous titration
(C) Gravimetry method
(D) Redox titration

118. Ringer's solution contains sodium chloride, potassium chloride and

(A) Magnesium chloride
(B) Calcium chloride
(C) Ferric chloride
(D) Zinc chloride

119. Ostwald's dilution law holds good only for _____.

(A) weak electrolytes
(B) all electrolytes
(C) strong electrolytes
(D) strong acids and strong bases

120. The Van't Hoff equation for n moles of solute dissolve in V litres of solution is

(A) $\pi = nRT$
(B) $\pi V = nRT$
(C) $\pi P = nRT$
(D) $\pi P = nRT/V$

121. Insects can walk on the surface of water due to

(A) Viscosity
(B) Refractivity
(C) Surface tension
(D) Optical activity

122. The external shape of the crystal is called

(A) amorphous
(B) habit
(C) plane of symmetry
(D) lattice

123. _____ reacts with water in perchloric acid and acetic acid, which makes the mixture anhydrous.

(A) Acetic anhydride
(B) Chloroform
(C) Acetone
(D) Petroleum ether

124. According to Lowry Bronsted theory, acid is a

(A) Proton donar
(B) Proton acceptor
(C) Electro pain donar
(D) Hydroxyl ion donar

125. Pfeffer's method is used to determine the

(A) Surface tension
(B) Density
(C) Vapour pressure
(D) Osmotic pressure

126. Which of the following is Amphiprotic solvent used in Non-Aqueous titrations?

(A) Pyridine
(B) Perchloric acid
(C) Acetic acid
(D) Toluene

127. Which of the following is a pM indicator?

(A) Mordant black II
(B) Crystal violet
(C) Starch iodide paper
(D) Methyl orange

128. Which one of the following is the correct expression of Ostwald's dilution Law?

(A) $K_C = \frac{\alpha^2}{(1-\alpha)V}$
(B) $K_C = \frac{\alpha^2 V}{1-\alpha}$
(C) $K_C = \frac{(1-\alpha)V}{\alpha^2}$
(D) $K_C = \frac{(1-\alpha)}{\alpha^2}$

129. Which one of the following is a mathematical expression of Raoult's law?

(A) $\frac{P}{P-P_S} = \frac{n}{n+N}$
(B) $\frac{P-P_S}{P} = \frac{n}{n+N}$
(C) $(P-P_S)P = \frac{n}{n+N}$
(D) $\frac{P_S-P}{P} = \frac{n+N}{n}$

130. Optical activity is measured with the help of an instrument known as

(A) Refractometer
(B) Viscometer
(C) Polarimeter
(D) Conductometer

131. Which one of the following compounds will be optically active?

(A) Succinic acid
(B) Meso tartaric acid
(C) Lactic acid
(D) Chloro acetic acid

132. How many optical isomers are possible for Lactic acid?

(A) 2
(B) 4
(C) 6
(D) 8

133. Geometrical isomerism is shown by

(A) Lactic acid
(B) Maleic acid
(C) 1-Butene
(D) 1-1-Dichloro ethylene

134. Relative configuration of a chiral molecule is based on

(A) Structure of D-Glucose
(B) Structure of D-Glycerol
(C) Structure of D-Glyceraldehyde
(D) Structure of D-Fructose

135. Alkenes show geometrical isomerism due to

(A) Asymmetry
(B) Resonance
(C) Rotation around single bond
(D) Restricted rotation around a double bond

136. Geometrical isomers differ in ———— their physical and in ———— of their chemical properties.

(A) all and many
(B) all and all
(C) many and many
(D) many and all

137. The solution which do not obey Raoults Law are called

(A) Ideal solution
(B) Non ideal solution
(C) Buffer solution
(D) Non buffer solution

138. The compounds which have positive enthalpies of formation are called as

(A) Enthalpy of formation
(B) Exothermic compound
(C) Endothermic compound
(D) Standard enthalpy of formation

139. Reaction which are accompanied by the absorption of heat are called

(A) Exothermic reaction
(B) Endothermic reaction
(C) Heat constant.
(D) Constant volume

140. The Equation which indicates the amount of heat (enthalpy) changes in the reaction or process is called as.

(A) Thermochemical equation
(B) Kirchoff equation
(C) Gibb's equation
(D) Hess equation

141. Co-factor for transamination is

(A) Thymine
(B) Riboflavin
(C) Pyridoxine
(D) Niacin

142. Provitamin D_2 is known as

(A) Ergosterol

(B) 7 – dehydro cholesterol

(C) Ergo calciferol

(D) Chole calciferol

143. In Knorr synthesis of pyrrole, ———— is used as a reactant.

(A) Ethyl Aceto acetate

(B) Diethyl malonate

(C) Diethyl amine

(D) Triethyl malonate

144. Aldehydes (Or) Ketones React with ———— to give Alcohols.

(A) EAA (Ethyl Aceto Acetate)

(B) DEM (Diethyl Malonate)

(C) GR (Grignard Reagent)

(D) TEA (Triethyl Amine)

145. Ortho and para – nitro toluenes are best synthesised and separated as a pure product by use of

(A) Grignard reagent

(B) Diazonium salts

(C) Aceto acetic esters

(D) Volhard reagents

146. Which of the following is a Grignard reagent?

(A) Hydrogen bromide

(B) Calcium bromide

(C) Methyl magnesium bromide

(D) Magnesium bromide

147. The energies of the orbitals increases in the following order

(A) $1s < 2s < 3s < 3p < 4s < 3d < 4p$

(B) $1s < 2s < 3s < 3p < 3d < 4s < 4p$

(C) $4p < 4s < 3d < 3p < 3s < 2s < 1s$

(D) $4p < 3d < 4s < 3p < 3s < 2s < 1s$

148. Mass number is equal to

(A) Number of protons + Number of electrons

(B) Number of protons + Number of neutrons

(C) Number of protons

(D) Number of electrons

149. In S_N^1 reaction the rate of the reaction dependends on

(A) Substrate only

(B) Nucleophile only

(C) Substrate and nucleophile

(D) Directly on catalyst

150. In an E2 reaction involving an alkyl halide and a base, the rate of the E2 reaction

(A) depends linearly on the concentration of both reactants

(B) is independent of the concentration of both

(C) depends linearly on the concentration of the alkyl halide only

(D) is independent of the concentration of the alkyl halide

151. An E2 reaction occurs in _____ step(s).

(A) Two

(B) Single

(C) Three

(D) Four

152. All negatively charged species are

(A) Electrophiles

(B) Lipophiles

(C) Nucleophiles

(D) Hydrophiles

153. Of all the alkylhalides, which one is the most reactive in an E1 reaction

(A) alkyl fluorides
(B) alkyl iodides
(C) alkyl bromides
(D) alkyl chlorides

154. The topical antifungal (terbinafine) is active by virtue of their ability to

(A) Block squalene epoxide synthesis leading to defective cell membrane
(B) Inhibit synthesis of 1, 3, β – glucan
(C) Inhibit cell mitosis
(D) Bind to fungal cell membrane to cell hemolysis

155. Ethionamide is a derivative of

(A) Iso nicotinic hydrazide
(B) Iso nicotin amide
(C) Iso ethambutol
(D) Iso quinol

156. Benzimidazole anthelmentics binds selectively to ———— of nematodes, cestodes and fluke worms.

(A) α – tubulin
(B) γ – tubulin
(C) β – tubulin
(D) δ – tubulin

157. Levamisole contains which basic nucleus in it?

(A) Imidazole only
(B) Thiazole only
(C) Indole only
(D) Imidazo thiazole

158. Which of the following is used in treatment of filariasis (Wuchereria Bancrofti)?

(A) Di ethyl carbamazine citrate
(B) Albendazole
(C) Thiabenzole
(D) Prazi quantel

159. The drugs that act against parasites in humans are called as

(A) Anti fungals
(B) Anti bacterials
(C) Anti emetics
(D) Anthelmintics

160. The drug Diptonhydramine hydrochloride is

(A) Imidazoline derivatives

(B) Thiophene derivatives

(C) Ethylene diamines derivative

(D) Aminoalkyl ethers derivative

161. Membrane stabilizing agents otherwise called as

(A) Calcium channel blockers

(B) Depolarization prolongators

(C) β – adrenergic blockers

(D) Sodium channel blockers

162. Which of the following drugs is an antimalarial?

(A) 9-aminoacridine

(B) Tolazamide

(C) Glibenclamide

(D) Acetohexamide

163. Which one is second generation non sedating Antihistamines

(A) Phenindamine tastrate

(B) Terfinadine

(C) Triprolidine hydrochloride

(D) Chlorpheniramine maleate

164. IUPAC Name for Histamine

(A) 2 – Dimethylamino ethyl Imidazole

(B) α - methyl benzyl Imidazole

(C) 4 – (2-aminoethyl) Imidazole

(D) 4 – (2-aminomethyl) Imidazole

165. Amlodopine a calcium channel blocker belongs to

(A) 1, 4 Dihydro pyridines

(B) 2, 4 Dihydro pyridines

(C) 3, 5 Dihydro pyridines

(D) 4, 6 Dihydro pyridines

166. Which of the following Antimalarial drug belong to 9-amino acridines?

(A) Mepacrine

(B) Quinine

(C) Primaquine

(D) Amodia quine

167. Metoprolol, a selective β_1 - Adrenergic Blocker belong to ———— Anti hypertensives.

(A) 1st generation

(B) 2nd generation

(C) 3rd generation

(D) 4th generation

168. Which of these compounds are unsaturated seven membered rings containing one nitrogen atom?

(A) Azepine

(B) Pyridine

(C) Lanthine

(D) Furan

169. Most of the antimalarials possess ———— nucleus

(A) Quinoline

(B) Thiazine

(C) Pyridine

(D) Piperazine

170. When Estrone is distilled with Zn dust, it forms

(A) Chrysene

(B) Estrodiol

(C) Octa hydrocortisene

(D) Progesterone

171. A solution of cholesterol in chloroform, when treated with concentrated sulphuric acid develops a ———— colour in the chloroform layer

(A) Blue

(B) Green

(C) Red

(D) Violet

172. _____ refers to the critical formation and storage of glycogen from glucose in the liver and muscle.

(A) Glyconeogenesis
(B) Glycogenesis
(C) Glycolysis
(D) TCA cycle

173. Which one of the following is a female sex hormone?

(A) Androstenediol
(B) Androstenolone
(C) Oestrogen
(D) Androgens

174. Pregnanediol on oxidation followed by reaction with Bromine and dehydrogbromination yields

(A) Pregnane
(B) Progesterone
(C) Ethisterone
(D) Androgen

175. Which of the following is a biologically active peptide?

(A) Collagen
(B) Keratins
(C) Bradykinin
(D) Elastin

176. Which one of the following is a pyridine alkaloid?

(A) Connine
(B) Hygrine
(C) Reserpine
(D) Quinine

177. Ephedrine undergoes oxidation with strong oxidising agents to give

(A) Salicylic acid
(B) Acetyl Salicylic acid
(C) Benzoic acid
(D) Cinnauric acid

178. Fructose on treatment with phenylhydrazine and sodium acetate yields

(A) Oza zone Sorbic acid
(B) Sucrose
(C) Fructosazone
(D) Fructo acetate

179. In spectro fluorimetry, absorption of emitted radiation by other analyte molecules called

(A) Quenching

(B) Inner – filter effect

(C) Tyndall effect

(D) Raman scatter

180. Development time is shorter in

(A) Paper chromatography

(B) Thin – layer chromatography

(C) High performance thin layer chromatography

(D) Two dimensional paper chromatography

181. In electromagnetic radiation, coulorimetric (visible) range is from _____ to _____ nm.

(A) 190 to 360

(B) 800 to 1200

(C) 370 to 750

(D) 2000 to 2400

182. In UV spectrophotometry, first derivative spectrum is a plot of the rate of change of absorbance with wave length against

(A) Absorptivity

(B) Concentration

(C) Wave length

(D) Absorbance

183. During chemical derivatisation of amine, it is first diazotised with an aqueous solution of

(A) Nitric acid

(B) Nitrous acid

(C) Nitrous oxide

(D) Sodium nitrite

184. A shift of λ_{max} to longer wavelength is called as

(A) Blue or hypsochromic shift

(B) Red or Bathochromic shift

(C) Hyper chromic shift

(D) Hypo chromic shift

185. The solvent kept in the tank moves up the thin layer of the solid adsorbunt on the plali due to

(A) Absorbtion

(B) Gravity

(C) Capillary action

(D) Reverse phase

186. Proteins and nucleotides can be separated by using cross linked

(A) Cellulose

(B) Dextran gels

(C) Calcium silicate

(D) Polyamide

187. In column chromatography, the individual components of a mixture are separated by eluting the column with fresh solvent is

(A) Elution analysis

(B) Frontal analysis

(C) Displacement analysis

(D) Reversible analysis

188. Photometric detector used in HPLC is

(A) Diode – array detector

(B) Refractive index detector

(C) Electrochemical detector

(D) Fluorescence detector

189. In IR, $C=O$ stretching absorbs at

(A) 1000 cm^{-1}

(B) 1700 cm^{-1}

(C) 1200 cm^{-1}

(D) 1100 cm^{-1}

190. In IR, $C=C$ and $C\equiv N$ stretching vibration are located in the range of

(A) 1500 – 1000 cm^{-1}

(B) 1000 – 900 cm^{-1}

(C) 1690 – 1600 cm^{-1}

(D) 1500 – 700 cm^{-1}

191. The IR spectra is due to

(A) Vibrational transitions

(B) Electronic transitions

(C) Rotational transitions

(D) Spin reversal of Nuclei

192. In the titration of strong acids and strong bases by conductometric method, there is always an initial ———— in conductance

(A) Increase

(B) Decrease

(C) Constant

(D) Non-linear

193. While performing radio immuno assay, the lowest concentration of a compound which can be detected in undiluted body fluid is called

(A) Quantitation limit

(B) Cut-off level

(C) Spin-off level

(D) Titre

194. The most vital equipments essentially required for Radioimmuno Assay (RIA) are

(A) Emulsifier and radioactive counters

(B) Centrifuge and separator

(C) Centrifuge and ball mill

(D) Centrifuge and radioactive counters

195. The electron bombardment in mass spectroscopy with energy 10 – 15 eV usually removes ———— electron(s) from the molecule

(A) Three

(B) One

(C) Four

(D) Five

196. Chemical shift is expressed in one of the following units of

(A) PPM
(B) Ml
(C) RPM
(D) cm^{-1}

197. ^{12}C nucleus in NMR spectroscopy is

(A) Active
(B) Magnetically active
(C) Not active
(D) Not magnetically active

198. Faraday cup collector is employed in

(A) IR
(B) NMR
(C) Mass
(D) UV

199. Using nitrogen rule, predict whether a molecule having mass number of 45 has

(A) 4 Nitrogen
(B) 2 Nitrogen
(C) 1 Nitrogen
(D) No Nitrogen

200. The number of unsaturated centres in the molecule is calculated by

(A) Double focussing
(B) Index of hydrogen deficiency
(C) Inductive effect
(D) Simple cleavage

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