1. Which of the following properties of a particle significantly affects the physical, chemical & biological properties of the drug ?

(A) Density

(B) Sedimentation

(C) Size

(D) Surface area

2. When coulter-counter apparatus is employed for powder analysis , the following criterion is important :

(A) Dispersion medium should be coloured

(B) Dispersion medium should be conducting

(C) Suspended particles should be charged

(D) Suspended particle should be spherical

3. The type of particle diameter that is obtained by microscope method of evaluation is :

(A) Projected

(B) Stokes

(C) Volume

(D) Volume-surface

4. Parenteral drug products undergo what type of testing to ensure that all microorganisms have been destroyed or removed ?

(A) Clarity testing

(B) Pyrogen testing

(C) Leaker testing

(D) Sterility testing

5. Pharmacopieal tests for ensuring the quality of drug products in tablet form include all of the following EXCEPT

(A) Disintegration

(B) Dissolution

(C) Hardness & friability

(D) Content uniformity

6. When non polar substances dissolved in polar solvent using surfactants, the process is called

(A) HLB

(B) Solubilization

(C) Emulsification

(D) Gelatination

7. Tablets can be coated with various polymeric agents, which dosage form is formulated to dissolve in the intestine rather than the stomach ?

(A) Sublingual

(B) Transdermal

(C) Enteric-coated

(D) Buccal

8. A substance that is often used to subcoat tablet is

(A) Sugar

(B) Carnauba wax

(C) Shellac

(D) Sodium stearate

9. Rat-holing phenomena relates with

(A) Poor flow of granules

(B) Filling of capsules

(C) Maintaining the flow of granules

(D) Increase the flow of granules

10. Z-value, a term used in sterilization, indicates

(A) Temperature co-efficient of microbial destruction

(B) Rate of microbial destruction

(C) The number of microbes surviving in the loads

(D) Time to increase to achieve 100% sterility

11. Which compound is a natural emulsifying agent ?

(A) Acacia

(B) Lactose

(C) Polysorbate-20

(D) Sorbitan monopalmitate

12. Rectal suppositories intended for adult use usually weigh approximately

(A) 1g

(B) 2g

(C) 3g

(D) 4g

13. A satisfactory suppository base must meet all of the following EXCEPT

(A) It should have narrow melting range

(B) It should be nonirritating and nonsensitizing

(C) It should be inert

(D) It should melt below 30 °C

14. Dose dumping is a problem in the formulation of

(A) Compressed tablets

(B) Modified-release drug products

(C) Soft gelatin capsules

(D) Suppositories

15. What equation describes the rate of drug dissolution from tablets ?

(A) Fick's law

(B) Noyes Whitney equation

(C) Law of mass action

(D) Michaelis-Menten equation

16. The loading dose (D_L) of a drug is usually based on the

(A) Total body clearance(Cl_T) of the drug

(B) Percentage of drug bound to plasma proteins

(C) Apparent volume of distribution(V_D) & desired drug concentration of plasma

(D) Area under the plasma drug concentration versus time curve(AUC)

17. The principle of superposition in designing multiple-dose regimens assumes that

(A) Each dose affects the next subsequent dose, causing nonlinear elimination

(B) Early doses of drug do not affect subsequent doses

(C) The fraction of drug absorbed is equal to the fraction of drug eliminated

(D) Each dose of drug eliminated by zero-order elimination

18. A type of flow in which viscosity increases when the substance is agitated in

(A) Plastic

(B) Pseudoplastic

(C) Dilatant

(D) Thixotropic

19. As per GMP permitted limit of solid content in water for injection is

(A) 100 ppm

(B) 1 ppm

(C) 10 ppm

(D) 0.1 ppm

20. Which of the following radionuclides is most commonly used in nuclear pharmacy practice ?

(A) ^{67}Ga

(B) ^{99m}Tc

(C) ^{133}Xe

(D) ^{123}I

21. Example of a bioprecursor prodrug is

(A) Cyclophosphamide

(B) Pivampicillin

(C) Progabide

(D) Becampicillin

22. Sedative action of C_5 disubstituted barbiturates is due to

(A) High lipophilicity of groups at C_5 position

(B) Electronic withdrawing effect

(C) Steric effect

(D) Metal chelation

23. Immunosuppressants are also useful in the treatment of autoimmune diseases like

(A) Meningitis

(B) Osteoporosis

(C) Myasthenia gravis

(D) Dermatitis

24. The three acidity constants of tetracyclines are

(A) pKa = 2.8 to 3.4, pKa = 7.2 to 7.8, pKa = 9.1 to 9.7

(B) pKa = 5.8 to 6.4, pKa = 8.2 to 8.8, pKa = 10.1 to 10.7

(C) pKa = 0.8 to 1.4, pKa = 3.2 to 3.8, pKa = 5.1 to 5.7

(D) pKa = 4.8 to 5.4, pKa = 6.2 to 8.8, pKa = 11.1 to 11.7

25. In the SAR of directly acting sympathomimetics optimal activity is seen only if the amino group is separated from the aromatic ring by

(A) 1-carbon

(B) 2-carbon

(C) 3-carbon

(D) 4-carbon

26. When N – methyl group of morphine is replaced with an allyl group, the compound formed is

(A) Naloxone – morphine antagonist

(B) Naltrexone – morphine antagonist

(C) Nalorphine – morphine antagonist

(D) Nalbuphine – morphine agonist / antagonist

27. The "Hemiacetal" form of aldosterone is between

(A) C – 11, β – hydroxyl and C – 20 carbonyl

(B) C – 11, β – hydroxyl and C – 21 hydroxyl

(C) C – 11, β – hydroxyl and C – 18 carbonyl

(D) C – 21, hydroxyl and C – 20 carbonyl

28. Benzathine penicillin is

(A) an equimolecular composition of Amoxicillin + N, N dibenzyl ethylene diamine

(B) a molecular complexation of Benzyl penicillin + N, N dibenzyl ethylene diamine

(C) a molecular complexation of Cloxacillin + ethylene diamine

(D) an equimolecular proportion of Amoxicillin + ethylene diamine

29. Absolute stereochemistry of penicillin is designated as

(A) 3S:5R:6R

(B) 3R:5S:6S

(C) 3R:5R:6R

(D) 3S:5S:6R

30. Biological activity of chloramphenicol is exclusively present in

(A) Threo isomer

(B) L-threo isomer

(C) L-erythro isomer

(D) D-erythro isomer

31. Which of the following strategies will increase the polarity and water solubility of a drug ?

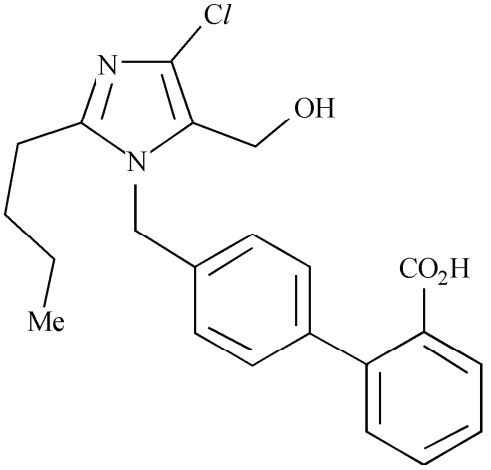
(A) Removing polar functional groups

(B) Adding extra alkyl groups

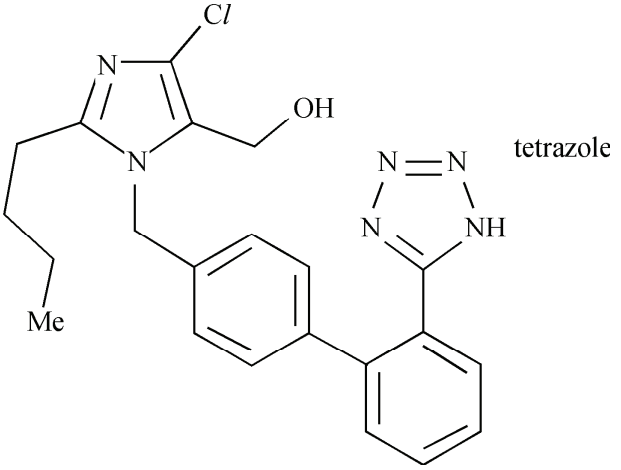
(C) Replacing an aromatic ring with a nitrogen containing heterocyclic ring

(D) Replacing an alkyl group with a larger alkyl group

32. Losartin was developed from structure (I) as an antihypertensive agent by replacing a carboxylic acid group with a tetrazole ring. Which of the following statements is incorrect ?



(I)



Losartan

(A) The tetrazole ring represents a bio-isostere.

(B) The tetrazole ring mimics a carboxylic acid in being planar.

(C) The tetrazole ring mimics a carboxylic acid in being acidic

(D) The tetrazole ring is more polar than a carboxylic acid.

33. Which of the following major aims in drug design is not related to the pharmacodynamics of a drug ?

(A) The reduction of side effects

(B) The maximisation of activity

(C) The reduction of toxicity

(D) The maximisation of oral bioavailability

34. GABA interaction with receptor results in

(A) Influx of Cl^-

(B) Influx of Ca^{++}

(C) Influx of Na^+

(D) Influx of K^+

35. Which of the following is the general mechanism of action for erythromycin ?

(A) Inhibition of a metabolic enzyme

(B) Inhibition of cell wall synthesis

(C) Disruption of protein synthesis

(D) Inhibition of nucleic acid transcription and replication

36. Which of the following is the general mechanism of action for fluoroquinolones ?

(A) Inhibition of a metabolic enzyme

(B) Inhibition of cell wall synthesis

(C) Disruption of protein synthesis

(D) Inhibition of nucleic acid transcription and replication

37. Which of the following antidepressant drug is also a prodrug for an anti TB agent ?

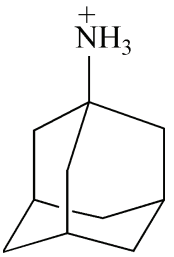
(A) Phenelzine

(B) Tranylcypromine

(C) Iproniazid

(D) Imipramine

38. Name the antiviral drugs used clinically against the influenza virus whose structure is given below ?



(A) Adamantane

(B) Amantadine

(C) Rimantadine

(D) Memantine

39. What are the two main targets currently used in anti-HIV therapy ?

(A) Reverse transcriptase and protease

(B) Reverse transcriptase and integrase

(C) Protease and integrase

(D) The viral glycoproteins gp120 and gp41

40. Which isomer of diethylstilbestrol is more active ?

(A) Cis

(B) Trans

(C) Erythro

(D) Threo

41. Which of the following drugs is most likely to impart an orange colour to urine, sweat and tears ?

(A) carbamazepine

(B) isoniazid

(C) phenytoin

(D) rifampin

42. Which of the following drug(s) is indicated for controlling hyperuricemia ?

(A) allopurinol

(B) colchicine

(C) lactulose

(D) prednisolone

43. Which of the following drugs will significantly increase the clearance of theophylline from the body ?

(A) cimetidine

(B) allopurinol

(C) phenytoin

(D) propranolol

44. Pulmonary fibrosis is caused by all the following except

(A) Busulphan

(B) Bleomycin

(C) Methotrexate

(D) Nitrofurantoin

45. Drug of choice in myoclonic seizure is

(A) Phenobarbitone

(B) Valporate

(C) Clonazepam

(D) Phenytoin

46. The azole antifungal used topically is

(A) Itraconazole

(B) Ketoconazole

(C) Miconazole

(D) Fluconazole

47. All the following are given orally except

(A) Sodium chromoglycate

(B) Amoxycillin

(C) Fluconazole

(D) Ribavirin

48. The insulin receptor is

(A) Tyrosine protein kinase receptor

(B) G protein coupled receptor

(C) Ion channel regulating receptor

(D) None of the above

49. Neostigmine reverse all the actions of tubocurarine except

(A) Motor weakness

(B) Respiratory palsy

(C) Ganglion blockade

(D) Histamine release

50. The first drug of choice in acute left ventricular failure is

(A) Oxygen

(B) Frusemide

(C) Norphine

(D) Sorbitrate

51. Omeprazole inhibits

(A) Histamine H_2

(B) Muscarinic receptors

(C) H^+K^+ ATPase

(D) $Na^+ K^+$ ATPase

52. Glucagon is used in overdose due to

(A) MAO inhibitors

(B) Betablockers

(C) Calcium channel blockers

(D) Hydralazine

53. Prolactin secretion is increased with

(A) Methyldopa

(B) Metoclopramide

(C) Chlorpromzine

(D) All of the above

54. Leucovorin rescue is employed with high dose

(A) Adriamycin

(B) Bleomycin

(C) Methotrexate

(D) None of the above

55. The cephalexin highly active against B fragilis is

(A) Cefotaxime

(B) Cefoxitin

(C) Cefuroxime

(D) Cefadroxil

56. Opioid overdose is diagnosed from

(A) Miosis

(B) Bradypnoea

(C) Normal supine BP

(D) All of the above

57. Which of the following phenothiazine neuroleptic is a piperidine derivative ?

(A) Thioridazine

(B) Trifluperazine

(C) Perphenazine

(D) Promazine

58. Neuroleptics mediated parkinsonism is alleviated by

(A) Antimuscarinics

(B) Amantadine

(C) Levodopa

(D) Selgiline

59. Which of the following drugs is both α and β blocker ?

(A) Phentolamine

(B) Phenoxybenzamine

(C) Labetalol

(D) Indoramin

60. Digitalis toxicity is aggravated by

(A) Hypokalemia

(B) Hyponatremia

(C) Hypocalcemia

(D) Hypomagnesimia

61. Preferred antihypertensive drug during pregnancy is

(A) Propranolol

(B) Hydralazine

(C) Hydrochlorthiazide

(D) Sodium nitropruside

62. All of the following are first line antitubercular drugs except

(A) Isoniazid (INH)

(B) Rifampicin

(C) Kanamycin

(D) Ethambutol

63. Combination of drug which is effective in the treatment of angina-pectoris is

(A) Atenolol, Isoproterenol, diltiazem

(B) Isosorbide, nifedipine, propranolol

(C) Nitroglycerin, Isosorbide, atenolol

(D) None of the above

64. Isoxuprine is used to treat

(A) Asthma

(B) Severe Hypotension

(C) Nasal congestion

(D) Premature labor

65. A young woman complains of severe abdominal pain at the time of menstruation. Careful evaluation indicates the presence of significant endometrial deposits on the pelvic peritonium.

The most rational therapy for this patient would be

(A) Flutamide

(B) Danazol

(C) Mestranol

(D) Estradiol

66. The primary standard used to standardize acetous perchloric acid is

(A) Benzoic acid

(B) Potassium hydrogen phthalate

(C) Oxalic acid

(D) Sodium carbonate

67. Which of the following is used to damask zinc from the zinc-cyanide complex ?

(A) Tiron

(B) Potassium iodide

(C) Chloral hydrate

(D) Triethanolamine

68. The IR detector which consists of a small metal cylinder closed by a blackened metal plate on one end and a flexible metalized diaphragm on the other is

(A) Bolometer

(B) Thermistor

(C) Golay cell

(D) Pyroelectric detectors

69. The Henderson's equation states that

(A) $pH = pK_a + \log [[salt] / [acid]]$

(B) $pH = pK_a - \log [salt] / [acid]$

(C) $pH = pK_a - \log [acid] / [salt]$

(D) $pH = pK_a + \log [[acid] / [salt]]$

70. The standard redox potential of MnO_4^- / Mn^{+2} systems is

(A) + 1.52 V

(B) – 0.51 V

(C) + 0.77 V

(D) – 0.06 V

71. Which of the following is not true for Eddy diffusion in chromatography ?

(A) It is related to particle size, geometry and tightness of packing of the stationary phase.

(B) It results in the broadening of the eluted band.

(C) It is independent of flow rate.

(D) It results from the tendency of the molecules to migrate from the concentrated centre part of the band towards more dilute regions on either side.

72. Which of the following transitions require the lowest energy for excitation in the UV region ?

(A) $\pi \rightarrow \pi^*$

(B) $\sigma \rightarrow \sigma^*$

(C) $n \rightarrow \pi^*$

(D) $n \rightarrow \sigma^*$

73. For the measurement of higher conductivity the cell consists of

(A) Small electrodes separated by long distance

(B) Small electrodes separated by short distance

(C) Large electrode separated by long distance

(D) Large electrode separated by short distance

74. The precipitating agent used to precipitate calcium as calcium oxalate in gravimetry is

(A) Oxalic acid

(B) Sodium oxalate

(C) Ammonium oxalate

(D) Cupferron

75. Assay of Sulphamethoxazole is done by

(A) Acid base titration

(B) Non-aqueous titration

(C) Redox titration

(D) Diazotisation titration

76. The reagent gas used for chemical ionization in mass spectrometry is

(A) Methane

(B) Ethane

(C) Propane

(D) Hexane

77. The indicator electrode used in polarography is

(A) Glass electrode

(B) Rotating platinum electrode

(C) Dropping mercury electrode

(D) Antimony-Antimony oxide electrode

78. The reduction of fluorescence intensity due to the complex formation of riboflavin by Caffeine is an example of

(A) Physical quenching

(B) Static quenching

(C) Colloidal quenching

(D) Chemical quenching

79. In a double focusing mass spectrometer

(A) Two beams are used separately

(B) Two samples can be analyzed

(C) Sample and reference beams are present

(D) Electrostatic and magnetic analyzers are present

80. The sample cells used in IR spectroscopy are made up of

(A) Glass

(B) Quartz

(C) Alkyl halides

(D) Any material

81. Fischer's 'lock & key' model of the enzyme action implies that

(A) The active site is complementary in shape to that of the substance only after interaction.

(B) The active site is complementary in shape to that of the substance.

(C) Substrates change confirmation prior to active site interaction.

(D) The active site is flexible & adjusts to substrate.

82. In the citric acid cycle, citric acid is formed by a combination of acetate & a molecule of

(A) Oxaloacetate

(B) Glucose

(C) Pyruvic acid

(D) Lactic acid

83. The enzymes required for the β-oxidation are present in

(A) Mitochondria

(B) Nucleus

(C) Endoplasmic reticulum

(D) Cytoplasm

84. The process which contributes to purine nucleotide biosynthesis is

(A) ribosylation of purine synthesis from basic intermediates

(B) synthesis from basic intermediates

(C) synthesis from amphibolic intermediates

(D) synthesis from acidic intermediates

85. In the Eukaryotic cells, transcription complex contains

(A) Template strand of DNA

(B) RNA-polymerase

(C) Sigma factors

(D) All of the above

86. Transcription bubble contains

(A) RNA polymerase

(B) DNA

(C) Nascent-RNA

(D) All of the above

87. The Central Pharmacy Council comprises the following members :

(A) Six members from the teachers of pharmacy, the director-general of health services & the ex-officio, Drugs Controller, India.

(B) Two members from the teachers of pharmacy, one member elected by the Medical Council of India & the Director of Central Drug Laboratory.

(C) Two members from practicing pharmacists, six members elected by the Medical Council of India & five representatives from the AICTE.

(D) Six members to represent each State Council who shall be a registered pharmacist, the Deputy Director CDL & one member elected by the Medical Council of India.

88. A drug shall be deemed to be adulterated if

(A) it is manufactured and stored under hygienic conditions

(B) it does not contain harmful or toxic substances

(C) it has not been mixed with any substance to reduce its quality

(D) it bears a colour other than one which is prescribed

89. Schedule T of Drugs & Cosmetics rules, 1945 deals with

(A) GMP for Ayurveda, Siddha & Unani medicines

(B) Standards for Cosmetics

(C) Requirements of factory premises for manufacture of medical devices

(D) Biological & Special products

90. Form 28 is

(A) Application for grant/renewal of license to manufacture blood products for sale or distribution

(B) Application for grant/renewal of a loan license to manufacture for sale or for distribution of drugs specified in schedules C1 & C2

(C) Certificate of renewal of license for manufacture of blood products

(D) For obtaining license to manufacture for sale or for distribution of drugs specified in Schedules C & C1

91. Insulin injection comes under Schedule

(A) S

(B) P

(C) G

(D) A

92. Gram positive bacteria

(A) Retain crystal violet & hence appear deep violet in colour

(B) Lose crystal violet & hence appear transparent

(C) Lose crystal violet & are counterstained by safranin & hence appear red in colour

(D) Lose crystal violet & are counterstained by safranin & hence appear green in colour

93. Fractional sterilization method involves

(A) Heating the material at 121 °C & 15 lb/in^2 pressure

(B) Heating the material at 160 °C for 2 hours

(C) Heating the material to 100 °C on 3 consecutive days with incubation periods in between

(D) Heating the material to 105 °C for 1 hour

94. In the microbiological assay of Bacitracin IP, the test organism used is

(A) Staphylococcus aures

(B) Staphylococcus epidermis

(C) Micrococcus luteus

(D) Bacillus pumilus

95. Hybridoma is

(A) The fusion of a cancer cell & an antibody making cell

(B) The fusion of a cancer cell & an antigen

(C) The fusion of a non-cancerous cell & an antibody making cell

(D) The fusion of a non-cancerous cell & an antigen

96. The oral Sabin vaccine contains

(A) Killed poliomyelitis virus

(B) Live virus

(C) Killed cells of Salmonella typhi

(D) Chemically treated Corynebacterium diphtheria

97. Log P value is a measure of

(A) Ionization potential of a molecule

(B) Solubility characteristics of the entire molecule

(C) Acid/base properties of a molecule

(D) Binding interactions

98. Donepezil is

(A) a centrally acting reversible, non-competitive Acetylcholine esterase inhibitor

(B) is an imidazoline α- antagonist

(C) is a 5 HT_{1A} antagonist

(D) a selective α_1-adrenergic blocker

99. During conjunction the genetic material will be transferred through

(A) Cell wall

(B) Medium

(C) Pili

(D) Capsule

100. Primary mediators in anaphylaxis

(A) Histamine

(B) Seratonin

(C) Heparin

(D) All of the above

101. Papain and opium can be grouped as

(A) Dried juice

(B) Dried latex

(C) Resins

(D) Dried extract

102. Which of the following auxin occurs naturally in plants ?

(A) Indole acetic acid

(B) Napthyl acetic acid

(C) Indole butyric acid

(D) Indole-3-acetonitrile

103. Leaf spot disease is due to

(A) *Ascochyta atropa*

(B) *Cercospora atropa*

(C) *Fusarium solanii*

(D) *Phytophthora nicotiana*

104. Alkaloidal extraction process was developed by

(A) Ardy-Gallows

(B) Stass-otto

(C) Verma-Kaushik

(D) Bentham-Hooker

105. Salicin is obtained from

(A) *Stropanthus gratus*

(B) *Strychnus nux-vomica*

(C) *Withania somnifera*

(D) *Salix sepulcralis*

106. *Astragalus gummifer* is the main source of

(A) Agar

(B) Gelatin

(C) Tragacanth

(D) Starch

107. Melting point of coca butter is

(A) 20 ºC

(B) 25 ºC

(C) 35 ºC

(D) 50 ºC

108. Asafoetida obtained from the species of

(A) Ferula

(B) Styrax

(C) Andrographis

(D) Myroxylon

109. Caffeine is identified by

(A) Klung's test

(B) Millons test

(C) Murexide test

(D) Wagners test

110. French chalk is the synonym of

(A) Chalk

(B) Talc

(C) Fueller's earth

(D) Bentonite

111. A high ratio of auxin to cytokinin in the culture medium induces

(A) Shoots

(B) Precipitation

(C) Roots

(D) Clumping

112. The analytical constant of a bark is

(A) Total ash value

(B) Fibre length

(C) Stomatal index

(D) Iodine value

113. The plant constituents having an astringent taste are

(A) Volatile oil

(B) Carbohydrates

(C) Tannins

(D) Alkaloids

114. The drug possessing an acrid taste is

(A) Gentian

(B) Ginger

(C) Linseed

(D) Podophyllum

115. A novel diterpenoid isolated from the bark of *Taxus brevifolia*

(A) Demecolcine

(B) Vinblastin

(C) Brevifolicin

(D) Paclitaxal

116. Citrus flavonoids are rich in

(A) Fraxin

(B) Scopoletin

(C) Hesperidin

(D) Aesculetin

117. WHO guidelines for the herbal drugs contaminants include

(A) Amino acids

(B) Pentoses

(C) Pesticidal residues, arsenic heavy metals, microbial load

(D) Purines and pyrimidine bases

118. An essential ingredient in the general preparation of plant tissue culture media is

(A) Auxin

(B) Glucose or sucrose

(C) Pyriddoxine HC*l*

(D) Gibberlin G1/G2

119. In Pharmacognosy, the crude drugs may be classified according to the following except

(A) Alphabetically

(B) Morphologically

(C) Taxonomically

(D) Geographical distribution

120. Saponin containing drugs are used as

(A) Laxative.

(B) Bitter tonic.

(C) Expectorant.

(D) Emetic.

Space For Rough Work