

HARYANA DCO 2019

By Drug Inspector

1. Which one of the following families is known for presence of volatile oils in trichomes ?

- A. Lauraceae
B. Loganiaceae
C. Labiatae (Ans)
D. Leguminosae

2. Listed below are the chemical tests used to identify a group of phytoconstituents. Identify the test for the detection of the purine alkaloids:

- A. Keller-Killani Test
B. Murexide Test (Ans)
C. Shinoda Test
D. Vitali-Morin Test

3. Atropine biosynthesis involves a pair of precursors. Identify the correct pair.

- A. Ornithine and phenylalanine (Ans)
B. Tyrosine and Tryptophan
C. Tryptophan and Dopamine
D. Tyrosine and Dopamine

4. What is chemotaxis ?

- A. Toxicity of chemicals
B. Taxonomy of chemicals
C. Inhibition of inflammation
D. Movement of leukocytes in inflammation (Ans)

5. Which one of the following antihistaminic agents causes cardiac dysrhythmias ?

- A. Fexofenadine
B. Terfenadine (Ans)
C. Cetirizine
D. Loratadine

6. Which one of the following is an oral anticoagulant ?

- A. Heparin
B. Warfarin (Ans)
C. Lepirudin
D. Melgatran

7. Following is an example of the long acting bronchodilator :

- A. Salmeterol (Ans)
B. Salbutamol
C. Sotalol
D. Montelukast

8. Following is an example of anti-emetic drug acting on 5-HT₃ receptors.

- A. Nabilone
B. Ondansetron (Ans)
C. Metoclopramide
D. Domperidone

9. The combination of mifepristone and gemeprost is used for :

- A. Endometriosis
B. Endometrial carcinoma
C. Medical termination of pregnancy
D. Breast carcinoma

10. Rifampicin, an anti mycobacterial agent acts on :
- A. DNA dependent DNA polymerase
 - B. RNA dependent DNA polymerase
 - C. DNA dependent RNA polymerase (Ans)
 - D. RNA dependent RNA polymerase
11. An anti-schizophrenic agent having no extra-pyramidal side effects is :
- A. Haloperidol
 - B. Olanzapine (Ans)
 - C. Thioxanthenes
 - D. Pimozide
12. Which one of the following types of the glass containers should be used for packaging of human blood and blood components :
- A. Type I (Ans)
 - B. Type II
 - C. Type III
 - D. Type IV
13. Which one of the following is the commonly used bulking agent in the formulation of freeze dried low dose drug products ?
- A. Sodium chloride
 - B. Mannitol (Ans)
 - C. Gelatin
 - D. HPMC
14. The administration of enteric coated products in elderly patients in some cases is not recommended because :
- A. Decrease in gastric secretion has been noted in elderly patients (Ans)
 - B. Intestinal blood flow is reduced in elderly patients
 - C. Active absorption is reduced in elderly patients
 - D. Gastric emptying rate is increased in elderly patients
15. Which one of the following properties is desirable in liquid formulations ?
- A. Thixotropy (Ans)
 - B. Dilatancy
 - C. Syneresis
 - D. Tackiness
16. For accelerated stability testing of drug substances and their formulations intended to be stored in a refrigerator the stability study conditions are :
- A. $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$; $60\% \pm 5\%$ RH for 6 months (Ans)
 - B. $5^{\circ}\text{C} \pm 3^{\circ}\text{C}$ for 6 months
 - C. $-20^{\circ}\text{C} \pm 5^{\circ}\text{C}$ for 6 months
 - D. $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$; $75\% \pm 5\%$ RH for 6 months
17. Which one of the following is the ex-officio member of Pharmacy Council of India ?
- A. Drug Controller General of India
 - B. Director General of Health Services
 - C. Director of Central Drugs Laboratory
 - D. All of the above (Ans)

18. Which schedule of D&C Act 1940 regulate the manufacture of Blood collection sets ?
- A. Schedule M-III (Ans)
 - B. Schedule F
 - C. Schedule T
 - D. Schedule C-I
19. Which one of the following is a drug as per Drug and Cosmetic Act?
- A. Blood (Ans)
 - B. Iodex
 - C. Bournvita
 - D. Boroplus
20. The following are emitted from radioactive substances EXCEPT the one :
- A. Alpha particles
 - B. Beta particles
 - C. IR rays (Ans)
 - D. Gamma rays
21. Iodine value of any oil is indicative of the following characteristic of the oil:
- A. Level of free acid present in the oil
 - B. Level of reducible groups in the oil
 - C. Level of iodine present in the oil
 - D. Level of unsaturation present in the oil (Ans)
22. Chlorpheniramine maleate contents in the tablet sample can be estimated by the following assay method :
- A. Diazotisation titrimetry
 - B. Non-aqueous titrimetry (Ans)
 - C. Acid-base titrimetry
 - D. Iodometric titrations
23. Benzyl penicillin can be assayed by the following method:
- A. Iodimetry (Ans)
 - B. Iodometry
 - C. Bromometric method
 - D. Argentometry
24. The given transition is the least energy consuming transition that occurs when a compound absorbs radiations in the UV-Visible range:
- A. $n \rightarrow \pi^*$ (Ans)
 - B. $\pi \rightarrow \pi^*$
 - C. $\sigma \rightarrow \pi^*$
 - D. $\sigma \rightarrow \sigma^*$
25. When an auxochrome is attached to a chromophoric group, it causes the following change :
- A. Hypsochromic shift
 - B. Bathochromic shift (Ans)
 - C. Hypochromic shift
 - D. Chemometric shift
26. Presence of a conjugated double bond in a ketone causes the following change in its IR spectrum :
- A. Decreases the wave number of ketonic group absorption band (Ans)
 - B. Increases the wave number of ketonic group absorption band
 - C. Decreases the intensity of ketonic group absorption band
 - D. Causes no change in the intensity and position of ketone group absorption band

27. In materials where the fracture occurs across the grain, a stronger tablet will be formed from :

- A. Small granules (Ans)
- B. Large granules
- C. Both small and large granules
- D. None of the above

28. Which of the following conditions favor large crystal formation ?

- A. High degree of supersaturation
- B. Low nucleation rate (Ans)
- C. High magma density
- D. Rapid cooling of magma

29. Calculate clearance of an antibiotic from the following data obtained after i.v. administration of a bolus dose of the antibiotic:

Dose : 200mg

C_b^0 : 8 μ g/ml

K_e : 0.23/hr.

- A. 95.83 mL/min (Ans)
- B. 5.75 L/min
- C. 2.35 L/hr
- D. 25.00 L/hr

30. Which one of the following would be an offence in accordance with the provision of the Drugs & Cosmetics Act, 1940?

- A. Packing of Paediatric oral drops in 30ml pack (Ans)
- B. Packing of Oxytocin injection in a single unit blister pack
- C. Packing of schedule X drugs in 5ml injection pack
- D. Packing of aspirin tablets (75mg) in 14 tablet strip pack

31. A product sample of paracetamol tablets claims to contain 500mg paracetamol, but on analysis by Govt. Analyst it is found to contain 200mg of paracetamol. As per Drugs & Cosmetics Act, 1940, this product would be :

- A. Misbranded drug (Ans)
- B. Adulterated drug
- C. Spurious drug
- D. Unethical drug

32. The mechanism by which micro-organisms are killed by thermal method (wet heat) of sterilization is :

- A. Coagulation of the proteins of the microorganism cells (Ans)
- B. Alkylation of essential metabolites of microorganism cells
- C. Stopping reproduction of microorganism cells as a result of lethal mutations
- D. Oxidation of the proteins of the microorganism cells

33. The effects observed following systemic administration of levodopa in the treatment of parkinsonism have been attributed to its catabolism to dopamine. Carbidopa, can markedly increase the proportion of levodopa that crosses the blood-brain barrier by:

- A. Increasing peripheral metabolism of levodopa
- B. Decreasing peripheral metabolism of levodopa (Ans)
- C. Increasing metabolism of levodopa in CNS
- D. None of the above

34. An antimalarial drug containing endoperoxide structure is:

- A. Quinine
- B. Artemisinin (Ans)
- C. Quinacrine
- D. Cycloguanil

35. An agent that covalently modifies COX by acetylating Ser-530 of COX-1 and Ser-516 of COX-2 is:

- A. Rofecoxib
- B. Indomethacin
- C. Aspirin (Ans)
- D. Diclofenac

36. The common structure amongst the anticonvulsant drugs like barbiturates, succinimides and hydantoins is:

- A. Sulphonamide
- B. Ureide (Ans)
- C. Thiazide
- D. Tetrahydropyrimidine

37. The catalytic triad in acetylcholinesterase is composed of the following amino acid residues:

- A. Serine, Histidine and Glutamate (Ans)
- B. Serine, Arginine and Glutamate
- C. Threonine, Histidine and Aspartate
- D. Threonine, Arginine and Glutamate

38. Which of the following reactions is not a Phase I metabolic reaction?

- A. Oxidation
- B. Reduction
- C. Acetylation (Ans)
- D. Hydrolysis

39. The palmitate ester of Chloramphenicol is less bitter tasting than the parent drug because the ester:

- A. Has lower water solubility (Ans)
- B. Is more stable to enzymes that degrade it in the gut
- C. Directly gets absorbed from the buccal cavity
- D. Is less irritating in the mouth

40. Lycopodium spores are utilized for determination of purity of Ginger powder, as
- Ginger powder contains lycopodium spores
 - Ginger powder contains equal number of starch grains as that of Lycopodium spores
 - 1mg of lycopodium spores contains 94000 spores
 - Lycopodium spores are of uniform size and shape :
 - False-a : true-b : false-c : true-d
 - True-a : false-b : false-c : false-d
 - True-a : true-b : true-c : true-d
 - False-a : false-b : true-c : true-d (Ans)
41. Which one of the following is NOT a steroidal sapogenin?
- Hecogenin
 - Diosgenin
 - Sarsapogenin
 - Hederagenin (Ans)
42. The value of volume of distribution for the highly lipophilic antimalarial chloroquine is 15000. Which one of the following is correct for high value of volume of distribution of chloroquine?
- Chloroquine is highly bound to plasma proteins
 - Chloroquine undergoes first pass metabolism
 - Chloroquine is highly concentrated in extravascular tissues i.e. liver (Ans)
 - Chloroquine undergoes tubular secretion
43. There is a marked difference in indomethacin terminal half life ($t_{1/2} = 120$ hrs) vs steady state half life ($t_{1/2} = 2-3$ hrs). Which one of the following is the correct reason for the above observation?
- Tubular reabsorption
 - First pass effect
 - Biliary cycling (Ans)
 - Plasma protein binding
44. When the particle size is determined by sedimentation method, the following condition is necessary for free settling :
- Particle size should be more than $100\mu\text{m}$
 - Suspension should not have more than 30% w/v composition
 - Reynold number should be less than 0.1 (Ans)
 - Particles must be perfectly spherical
45. Butylated hydroxytoluene in formulations does NOT act via:
- Blocking formation of free radicals
 - Reacting with the formed free radicals (Ans)
 - Reacting with the formed free radicals
 - Scavenging the free radicals

46. Forward flow test is used for :

- A. Determining quality of sealing of ampoules
- B. Testing the integrity and performance of membrane filter (Ans)
- C. Evaluation of rubber closure performance
- D. Performance measurement of HEPA filters

47. The plastibase is a popular ointment base because :

- A. It is having excellent aesthetic feel
- B. It is good emollient to skin
- C. It has a low thermal coefficient relating to better temperature stability. (Ans)
- D. It is a high quality product having least manufacturing problems

48. In the change room of a pharmaceutical manufacturing plant which one of the following is used for hand wash:

- A. Potable water
- B. Purified water (Ans)
- C. Water for injection
- D. Mineral water

49. Which one of the following drying methods is commonly used in pharma industry for drying of soft shell capsules?

- A. Truck drying
- B. Fluid bed drying
- C. Vacuum drying (Ans)
- D. Microwave drying

50. Eugenol is present in one of the following crude drugs :

- A. Fennel
- B. Tulsi (Ans)
- C. Cardamom
- D. Coriander

51. Typically, alkaloids are biosynthesized from:

- A. Amino acids (Ans)
- B. Shikimic acid
- C. Mevalonic acid
- D. Malonic acid

52. Biosynthesis of cholesterol proceeds through:

- A. Mevalonic acid (Ans)
- B. Shikimic acid
- C. Chorismic acid
- D. Malonic acid

53. Alkaloids are not precipitated by :

- A. Mayer's reagent
- B. Dragendorff's reagent
- C. Picric acid
- D. Millon's reagent (Ans)

54. Which of the following alkaloids is derived from tyrosine ?

- A. Quinine
- B. Morphine (Ans)
- C. Atropine
- D. Ephedrine

55. What is NOT true for tannins?

- A. They are polyphenolic substances detected by goldbeater's skin test
- B. They produce colour reaction with ferric chloride solution
- C. They are of hydrolyzable, condensed, pseudo and complex types
- D. They have restricted distribution only in the genera *Hamamelis* and *Quercus* (Ans)

56. Which of the following plants does not find use in cosmetics?

- A. *Valeriana officinalis* (Ans)
- B. *Santalum album*
- C. *Simmondsia chinensis*
- D. *Curcuma longa*

57. The type of stomata present in *Datura stramonium* is :

- A. Anisocytic (Ans)
- B. Anomocytic
- C. Actinocytic
- D. Diacytic

58. Based on the following microscopic characters of a crude drug powder: Anther cells, parenchyma, pollengrains, phloem fibers, volatile oil cells and stone cells. The powdered drug is inferred to be :

- A. Clove bud powder
- B. Clove bud powder with stalk (Ans)
- C. Mother clove
- D. None of the above

59. Atracurium, a neuromuscular blocking agent is metabolized through :

- A. Hoffman elimination (Ans)
- B. Hoffman rearrangement
- C. Curtius reaction
- D. Claisen Schmidt reaction

60. Milk is deficient in which vitamin?

- A. Vitamin C (Ans)
- B. Vitamin A
- C. Vitamin B₁₂
- D. Vitamin K

61. Oxidation of which substance in the body yields the highest amount of calories?

- A. Glucose
- B. Glycogen
- C. Proteins
- D. Lipids (Ans)

62. Which of the following ion is required for crystallization and storage of the hormone insulin?

- A. Mn⁺⁺
- B. Mg⁺
- C. Zn⁺⁺ (Ans)
- D. Ca⁺⁺

63. Which of the following is amino acid derived antibiotic?

- A. Azithromycin
- B. Streptomycin
- C. Penicillin G (Ans)
- D. Tetracycline

64. One of the following antihypertensive has a similar structure as that of diuretic agent chlorthiazide :

- A. Telmisartan
- B. Diazoxide (Ans)
- C. Guanethedine
- D. Minoxidil

65. Choose the most basic heterocyclic compound among the following:

- A. Pyrrole
- B. Pyrrolidine (Ans)
- C. Furan
- D. Thiophine

66. Among the following sugars which one is non-reducing sugar and does not exhibit mutarotation?

- A. Glucose
- B. Lactose
- C. Maltose
- D. Sucrose (Ans)

67. diastereomers possess different physical properties because:

- A. They are mirror images of each other
- B. They are conformationally dissimilar isomers
- C. They are configurationally similar isomers
- D. They are configurationally different isomers (Ans)

68. Some enzymes bind to a non-protein organic molecule for activation, Such a moiety is known as :

- A. Apoenzyme
- B. Cofactor
- C. Coenzyme (Ans)
- D. Haloenzyme

69. Which of the following substances when present in urine is most likely a positive sign of pregnancy?

- A. Thyroid-stimulating hormone
- B. Corticotropin
- C. Human chorionic gonadotropin (Ans)
- D. Interstitial cell stimulating hormone

70. What is the primary mechanism of action of local anesthetics ?

- A. Activation of ligand-gated potassium channels
- B. Blokade of voltage-gated sodium channels (Ans)
- C. Stimulation of voltage-gated N-type calcium channels
- D. Blockade of the GABA-gated chloride channels

71. Increased serum levels of which of the following may be associated with decreased risk of atherosclerosis?

- A. VLDL
- B. LDL
- C. HDL (Ans)
- D. Cholesterol

72. Drugs that can precipitate bronchial asthma are ?

- | | |
|----------------------|-----------------|
| 1. Indomethacine | 3. Rabeprazole |
| 2. Codeine phosphate | 4. Theophylline |

Choose the correct option :

- | | |
|----------------------------|----------------------|
| A. 1 & 3 are correct | C. 3 & 4 are correct |
| B. 1 & 2 are correct (Ans) | D. 2 & 4 are correct |

73. Corticosteroids are administered to treat :

- | | |
|----------------------|------------------------|
| (P) Peptic ulcers | (R) Nephrotic syndrome |
| (Q) Bronchial asthma | (S) Myasthenia gravis |

Select the correct combination of statements :

- | |
|--|
| A. P,Q and S are true while R is false |
| B. P,R and S are true while Q is false |
| C. Q,R and S are true while P is false (Ans) |
| D. P,Q and R are true while S is false |

74. All of the given four drugs are neuromuscular blocking agents. Choose the correct statement about them:

- | | |
|---------------------|--------------------|
| (P) Gallamine | (R) Decamethonium |
| (Q) Succinylcholine | (S) d-Tubocurarine |

- | |
|--|
| A. P & Q are competitive neuromuscular blocking agents |
| B. Q & R are competitive neuromuscular blocking agents |
| C. R & S are competitive neuromuscular blocking agents |
| D. P & S are competitive neuromuscular blocking agents (Ans) |

75. Bio waiver is the concept related to :

- | |
|---|
| A. Permission for not conducting preclinical testing prior to Phase-I studies |
| B. Permission for not conducting bioavailability in humans |
| C. Permission of using dissolution data to indicate bioavailability avoiding bioavailability trials (Ans) |
| D. Permission to market the product without bioavailability and toxicity study |

76. In case of a drug given as intravenous multiple dose, which one of the following statements is correct :

- | |
|---|
| A. The plasm profile is free from fluctuations |
| B. When dose interval is adjusted to biological half life, the ratio of maximum to minimum level is 2 (Ans) |
| C. The constant plasma level is attained after 3 rd dose |
| D. It is not possible to cross 2.5 times toxic level by multiple dosing. |

77. In relation to sterilization, meaning of D300F=2 minutes is :
- A. Death of all microorganism in 2 minutes
 - B. Death of 300 microorganisms in 2 minutes
 - C. Death of all microorganisms in 2 minutes at 300°F
 - D. Death of 90% microorganisms in 2 minutes at 300°F (Ans)
78. Which one of the following drugs is available as tablet triturate ?
- A. Ephedrine hydrochloride
 - B. Theophylline
 - C. Nitroglycerine (Ans)
 - D. Digonin
79. During coating process a porous tablet is likely to show:
- A. Techiiness
 - B. Orange peel effect
 - C. Mottling (Ans)
 - D. Bridging
80. Degradation of ampicillin trihydrate in aqueous suspension follows the following kinetics:
- A. Apparent first order kinetics
 - B. Apparent zero order kinetics (Ans)
 - C. Mixed kinetics
 - D. Fractional order kinetics
81. Wagner-Nelson method deals with:
- A. Stability determination of a drug in GIT
 - B. Prediction of ADME behaviour of a drug
 - C. Calculation of absorbed drug (Ans)
 - D. Calculation of elimination half-life of a drug
82. Fluids that do not flow until a minimum shear stress called 'Threshold shear stress' is applied on them, are known as :
- A. Dilatant
 - B. Bingham plastic (Ans)
 - C. Pesudoplastic
 - D. Newtonian
83. Ethambutol has :
- A. Two chiral centers and 4 stereoisomers (Ans)
 - B. One chiral center and 2 stereoisomers
 - C. Two chiral centers and 3 stereoisomers
 - D. Two chiral centers and 2 stereoisomers
84. Particles of stationary phase of Reversed phase HPLC columns are composed of :
- A. Silica
 - B. Alumina
 - C. Carbon bonded silica (Ans)
 - D. Polyacrylamide

85. One of the following devices is NOT an HPLC detector :
- A. PDA detector
B. Electrochemical detector
C. Electron capture detector (Ans)
D. Refractive index detector
86. Acetylcholine, a neurotransmitter shows the following type of isomerism in its structure :
- A. Conformational isomerism (Ans)
B. Configurational isomerism
C. Functional isomerism
D. Positional isomerism
87. Following are the elements of symmetry in organic molecules EXCEPT the one :
- A. Plane of symmetry
B. Alternating axis of symmetry
C. Center of symmetry
D. Alternating center of symmetry
88. The given notation used in front of the name of an organic compound means that the compound is dextrorotatory :
- A. D-
B. *d*- (Ans)
C. *R*-
D. *Z*-
89. The given compound is an example of pie (π) excessive heterocyclic system :
- A. Quinoline
B. Pyridine
C. Pyrrole (Ans)
D. Pyrrolidine
90. The given compound undergoes Diels-Alder reaction under very mild conditions :
- A. Pyrrole
B. Furan (Ans)
C. Thiophine
D. Imidazole
91. Limit tests of chloride, sulphate and iron are :
- A. Quantitative tests
B. Qualitative tests
C. Semi-quantitative tests (Ans)
D. Identification tests
92. ^{60}Co , a radioactive material is used in medicine for the following purposes:
- A. Theapeutic purposes (Ans)
B. Diagnostic purposes
C. Experimental purposes
D. As a radiotracer
93. Which of the following statements for angle of repose is true
- A. Kinetic angle of repose > Static angle of repose
B. Kinetic angle of repose < Static angle of repose (Ans)
C. Kinetic angle of repose = Static angle of repose
D. None of the above
94. If the glass transition temperature of a polymer is above the room temperature, the polymer behaves at ambient conditions like :
- A. Glass (Ans)
B. Rubber
C. Both of the above
D. None of the above

95. p-Aminohippuric acid can be used for measuring :

- A. Glomerular filtration rate (Ans)
- B. Active tubular secretion rate
- C. Tubular reabsorption
- D. None of the above

96. High value of gold number means :

- A. High efficiency of the protective colloids in protecting sensitization and coagulation
- B. Low efficiency of the protective colloid in protecting sensitization and coagulation (Ans)
- C. Greater particle size of the colloidal particles
- D. None of the above

97. Geriatric population should be included in the following Phase of clinical trials :

- A. Phase I
- B. Phase II
- C. Phase III (Ans)
- D. Phase IV

98. Which one of the following combinations of temperature and time condition can be employed for steam sterilization by autoclaving :

- A. 115 to 118°C and 30 minutes
- B. 121 to 124°C and 15 minutes
- C. 134 to 138°C and 3 minutes
- D. All of the above (Ans)

99. The temperature condition for storage of drug products under cold temperature is given as:

- A. Temperature between 2°C and 8°C
- B. Temperature between 8°C and 25°C
- C. Temperature below 2°C
- D. Temperature at 0°C

100. In which one of the following cases the ointment should be sterile ?

- A. If it is intended for ophthalmic use
- B. If it is intended for use on large wounds
- C. If it is intended for use in severely injured skin
- D. All of the above (Ans)