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PHDURS-EE-2013

SUBJECT : Pharmaceutical Scs.

B

10094

Sr. No. .....

Time : **1¼ Hours** Max. Marks : **100** Total Questions : **100**

Candidate's Name _____ Date of Birth _____

Father's Name _____ Mother's Name _____

Roll No. (in figures) _____ (in words) _____

Date of Examination _____

_____ _____

(Signature of the Candidate) (Signature of the Invigilator)

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1. ***All questions are compulsory and carry equal marks.***
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5. ***Use black or blue ball point pen only in the OMR Answer-Sheet.***
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22/9/13

1. What is the common name of 5-Ethyl-5-(1-methyl butyl)-2-thiobarbituric acid ?

   (1) Phenobarbitone (2) Allobarbital

   (3) Hexobarbitone (4) Thiobarbitone

2. 7-(2-Hydroxy-ethyl) -1, 3-dimethylxanthine is commonly known as :

   (1) Theophylline (2) Theobromine

   (3) Aminophylline (4) Etophylline

3. In a reaction, when p-nitrophenol is reduced, and the resulting p-aminophenol is acetylated by a mixture of acetic anhydride and glacial acetic acid; the crude product is purified by recrystallization from a water :ethanol mixture (1 : 1), the resulting compound is

   (1) Phenacetin (2) Paracetamol

   (3) Acetanilide (4) Aspirin

4. In a reaction, interaction between propiophenone and dimethylamine in the presence of formaldehyde yields a Mannich base, which is subjected to grignardization with benzyl magnesium chloride to yield a racemic mixture of the two diastereoisomers designated as a α- and β-alcohol. Fractional crystallization helps in the separation of α-dl form which is subsequently resolved by d-camphor-sulphonic acid to obtain the (+)-α-form. This is now propionated with propionic acid in the presence of trimethylamine to give which of the following compounds ?

   (1) Fentanyl (2) Pethidine

   (3) Dextropropoxyphene (4) Morphine

5. 2-(2,6-Dichloroanilino)-2-imidazoline hydrochloride is popularly known as :

   (1) Hydralazine (2) Clonidine

   (3) Diazoxide (4) Methyldopa

6. The addition of propylene chlorohydrins to trimethylamine, on acetylation with acetic anhydride would yield which of the following compound ?

   (1) Carbachol (2) Bethanechol

   (3) Methacholine (4) Pilocarpine

7. 2-[(2,6-dichlorophenyl)amino]-Benzene-acetic acid is commonly known as :

   (1) Ibuprofen (2) Diclofenac

   (3) Ketoprofen (4) Indomethacin

8. In a reaction, benzene is nitrated with nitric acid in presence of sulphuric acid. On reduction, aniline is obtained. Upon treatment with hot concentrated sulphuric acid, and chlorination with phosphorous pentachloride gives a compound, which on amination with concentrated ammonia solution, will yield which of the following compounds ?

(1) Sulphanilamide (2) Sulphathiazole

(3) Sulphadiazine (4) Sulphadimidine

9. 2, 4-Diamino-5-(p-chlorophenyl)-6-ethylpyrimidine is commonly known as :

(1) Proguanil (2) Mepacrine (3) Amodiaquine (4) Pyrimethamine

10. Treatment of p-aminophenyl butyric acid with ethylene oxide yields 4-[p-[Bis(2-hydroxyethyl) amino] phenyl butyric acid, which on chlorination with thionyl chloride will yield which of the following anti-cancer compounds ?

(1) Busulfan (2) Chlorambucil (3) Mephalan (4) cyclophosphamide

11. Which of the following drugs is a fast inducer intravenous anaesthetic ?

(1) Propofol (2) Diazepam (3) Lorazepam (4) Midazolam

12. Which of the following opioid analgesics has activity on all the three (mu, kappa and delta) receptors ?

(1) Morphine (2) Etorphine (3) Fentanyl (4) Methadone

13. Which of the following is a hormonal male contraceptive ?

(1) Centchroman (2) Levonergestrel S.c. implant

(3) Depot medroxyprogesterone acetate (4) Testosterone undecanoate

14. Which of the following insulin preparations has an onset of 20 - 30 minutes, and duration of 3-4 hours ?

(1) NPH insulin (2) Insulin lispro

(3) Crystalline Zn insulin (4) Ultra-lente insulin

15. The activity of warfarin is reduced by the concomitant use of which of the following drugs ?

(1) Barbiturates (2) Aspirin (3) Metronidazole (4) Phenytoin

16. Which of the following bond types has an approximate strength of 40 -140 Kcal/mol ?

(1) Hydrophobic bond (2) Dipole - dipole

(3) Hydrogen bond (4) Covalent bond

17. Which of the following anticholinesterases is a naturally occurring molecule ?

(1) Physostigmine (2) Neostigmine

(3) Pyridostigmine (4) miotine

18. What would be the next compound in the following series ?

L-Tyrosine ------- L - Dopa ------- L - Dopamine ------- ? ? ? ?

(1) L-Phenylamine (2) Isoprenaline

(3) L-Norepinephrine (4) L-Epinephrine

19. In a 5-aryl-1,4-benzodiazepine molecule, substitution with an electron withdrawing group at which of the following positions would result in enhancement of CNS depressant activity'

(1) Position 1 (2) Position 2 (3) Position 3 (4) Position 7

20. In a hydantoin molecule, when the following substituents are present :

$$R_3 = H, R_5 = C_6H_5, R'_5 = C_6H_5$$

the drug is commonly known as

(1) Phenyethylhydantoin (2) Phenytoin

(3) Mephenytoin (4) Ethotoin

21. Which of the following drugs is a selective antagonist of the nicotinic receptors at the neuromuscular junction ?

(1) Nicotine (2) Succinylcholine

(3) d-tubocurarine (4) Hexamethonium

22. Which of the following drugs is an agonist of the muscarinic receptors ?

(1) Bethanechol (2) Pirenzepine

(3) Telenzepine (4) Tripitramine

23. Which of the following drugs is a dopamine receptor agonist ?

(1) Phenylephrine (2) Bromocriptine

(3) Clonidine (4) Terbutaline

24. Which of the following drugs is used in glaucoma, by virtue of reduction in aqueous humour formation by blocking beta-2 receptors present on ciliary epithelium ?

(1) Pilocarpine (2) Physostigmine

(3) Timolol (4) Epinephrine

25. Which of the following drugs is a "loop diuretic" ?

(1) Spironolactone (2) Hydrochlorthiazide

(3) Furosemida (4) Mannitol

26. Which of the following ACE inhibitors is not a pro-drug ?

(1) Captopril (2) Enalapril (3) Ramipril (4) Trandolapril

27. A measure of conduction time, from atrium to ventricle, or the time required for an impulse to travel through atria .... AV node ..... Purkinje fibre ..... ventricle, is known as :

(1) QRS - complex (2) T - wave

(3) PR (PQ) interval (4) ST segment

28. What is the desirable plasma lipid levels for LDL-Cholesterol ?

(1) < 200 mg / dL (2) < 130 mg / dL

(3) > 40 mg / dL (4) < 150 mg / dL

29. Which of the following drugs is a Histamine-2 receptor antagonist ?

(1) Triprolidine (2) Chlorpheniramine

(3) Thioperamide (4) Famotidine

30. Which of the following drugs is a selective COX - 2 inhibitor ?

(1) Indomethacin (2) Ibuprofen

(3) Meloxicam (4) Ketorolac

31. Which of the following plants is not used as a drug ?

(1) Rheum officinale B. (2) Rheum rhaponticum L.

(3) Rheum emodi W. (4) Rheum webinum

32. Which of the following plants may show a cardiotonic action ?

(1) Digitalis purpurea (2) Cinchona bark

(3) Raulwolfia (4) Papaver somniferum

33. Which of the following alkaloids, from Vinca roseus G. has reported antineoplastic activity' ?

(1) Ajmalicine (2) Vincristine

(3) Serpentine (4) Tetrahydroalstonine

34. What is the proper name of "Kalmegh" ?
(1) Boerhavia diffusa (2) Curcuma longa
(3) Andrographis paniculata (4) Silybum marianum

35. Convolvulus pluricaulis L. (Fam. Convolvulaceae) is commonly known as :
(1) Shatavari (2) Gurmar
(3) Aswagandha (4) Shannkhpuspi

36. Which of the following is Potato starch ?
(1) Zea mays L. (2) Solanum tuberosum L.
(3) Triticum aestivum L. (4) Oryza sativa L.

37. Which of the following fibres is chiefly composed of the protein keratin ?
(1) Wool (2) Flax (3) Hemp (4) Jute

38. Which of the following herbal drugs is used as a counter-irritant ?
(1) Opium (2) Ginseng (3) Capsaicin (4) Aconite

39. Which of the following ayurvedic drugs is used as an anti-diarrhoeal ?
(1) Rhubarb (2) Bael (3) Aloe (4) Senna

40. The active constituent of which of the following plants is a volatile oil ?
(1) Arachis hypogoea (2) Linum usitatissimum
(3) Sesamum indicum (4) Coriandrum sativum

41. Which of the following pharmacokinetic parameters cannot be determined, using urinary data alone ?
(1) K (2) AUC (3) $t_{1/2}$ (4) V_D

42. Which of the following phases of clinical trials is not official in India ?
(1) Phase zero (2) Phase I (3) Phase 2 (4) Phase 3

43. What is the percent remaining of a drug, at the end of 7 biological half lives, when the drug is administered as a single oral dose, to a healthy human volunteer ?
(1) 3.125 (2) 1.56 (3) 0.78 (4) 0.39

44. Drug products which contain the same amount of the same active drug ingredient (i.e., same salt or ester or chemical form), but contain different inactive ingredients, and which are identical in strength, quality, and purity, as well as content uniformity, disintegration and dissolution rates, are known as :

(1) Generics
(2) Pharmaceutic equivalents
(3) Therapeutic equivalent
(4) Bioequivalents

45. A drug, which has good water solubility, but poor membrane permeability, would be classified under which of the following classes, under Biopharmaceutical Classification System ?

(1) BCS Class I (2) BCS Class II (3) BCS Class III (4) BCS Class IV

46. Which of the following Phase II metabolic reactions do not require prior activation of the drug moiety or the conjugate moiety ?

(1) Glucouronide conjugation
(2) Acetylation
(3) Glutathione conjugation
(4) N-methylation

47. In how many biological half lives would 99 percent of the steady state concentration would be achieved, when a drug is administered as a slow IV infusion, to healthy human ?

(1) 3.00 (2) 3.32 (3) 4.32 (4) 6.65

48. What is the normal value of creatinine clearance in humans ?

(1) 60-80 ml/min
(2) 80-100 ml/min
(3) 100-120 ml/min
(4) 120-140 ml/min

49. For a simple drug, exhibiting linear pharmacokinetics, what would be the change in the t_{max} when the oral dose of the drug is doubled ?

(1) t_{max} reduced to half
(2) t_{max} remains unchanged
(3) t_{max} is doubled
(4) t_{max} is tripled

50. Which of the following drug transport mechanisms, across a biological membrane, is bidirectional in nature ?

(1) Passive diffusion
(2) Facilitated diffusion
(3) Active transport
(4) Pinocytosis

51. Which scientist was the first one to obtain pure cultures of bacteria, using serial dilutions in liquid media ?

(1) Louis Pasteur
(2) Joseph Lister
(3) Robert Koch
(4) Edward Jenner

52. Which of the following microscopic technique can be used for examination of viruses and the ultrastructure of microbial cells ?

(1) Dark - field microscopy (2) Fluorescence microscopy

(3) Phase - contrast microscopy (4) Electron microscopy

53. Which of the following components may account for 50 percent or more of the dry weight of the wall of some of the gram positive bacterial species ?

(1) Peptidoglycan (2) Polysaccharides

(3) Teichoic acids (4) Mycolic acids

54. Which of the following bacteria would grow best within a temperature range of approximately 25 to 40° C ?

(1) Psychrophiles (2) Mesophiles

(3) Thermophiles (4) All of the above

55. When the altered gene triplet produces a chain terminating codon in mRNA, resulting in premature termination of protein formation, during translation, it is called as :

(1) Missense mutation (2) Neutral mutation

(3) Deletion mutation (4) Nonsense mutation

56. 'In fungi, the single - celled spores, which are formed within sacs are called :

(1) Sporangiospores (2) Conidiospores

(3) Chlamydospores (4) Blastospores

57. What is the typical diameter of viruses ?

(1) 1000 - 3000 nm (2) 150 -1000 nm

(3) 250 -400 nm (4) 10 - 300 nm

58. Which of the following temperature would correspond to a steam pressure of 15 lb per sq. inch, in moist heat sterilization ?

(1) 100° C (2) 115° C (3) 121.5° C (4) 126.5° C

59. Which of the following microorganisms was commercially used for production of alcohol by fermentation ?

(1) *Enterobacter aerogenes* (2) *Saccharomyces cerevisiae*

(3) *Aspergillus niger* (4) *Penicillium chrysogenum*

60. Which of the following vaccines is "killed Virus" Vaccine ?

(1) Salk Polio Vaccine (2) Sabin Polio Vaccine

(3) Rabies Vaccine (4) Small Pox Vaccine

61. Which of the following principal serum enzymes is used in clinical diagnosis of viral hepatitis ?

(1) SGOT (2) SGPT (3) Lipase (4) Amylase

62. Pantothenic acid is a component of which of the following B vitamins ?

(1) NAD+ (2) FAD (3) TPP (4) CoA

63. Which of the following vitamins is also known as Antisterility Factor ?

(1) Vitamin A (2) Vitamin D (3) Vitamin E (4) Vitamin K

64. What is the total number of ATPs generated per mol of glucose, under aerobic conditions ?

(1) 38 (2) 36 (3) 32 (4) 24

65. Which of the following is an "essential" amino acid ?

(1) Alanine (2) Asparagine (3) Glutamine (4) Lysine

66. Which of the following is "not" a purine nucleoside ?

(1) Adenosine (2) Guanosine (3) Uridine (4) Inosine

67. Alpha - Amylase catalyses the specific hydrolysis of which of the following bonds ?

(1) Alpha-1-4 glycosidic bonds in glycogen

(2) Beta linkages in cellulose

(3) Alpha -1-6 bonds linking the glucose units of maltose

(4) Alpha -1-4 bonds linking the glucose units of maltose

68. In a test for urine, a small amount of soyabean meal is mixed with the urine sample, and one or two drops of phenol red indicator are added. Upon mixing and allowing to stand for 10-15 minutes, the yellow colour changes to red. This test is used for identification of :

(1) Calcium (2) Urease (3) Uric acid (4) Creatinine

69. The enzyme nomenclature" 1.1.1.1." refers to which of the following enzymes ?

(1) Glutamic dehydrogenase (2) Catalase

(3) Alcohol dehydrogenase (4) Phosphorylase

70. Which of the following is not true for Glycogen ?

(1) Branching occurs after every 10-12 glucose units

(2) It forms an opalescent solution in water

(3) It gives brown to red colour with iodine

(4) It consists of amylase and amylopectin

71. In fluorimetry, the wavelength of the emitted light is..... that of the incident light :

(1) Always greater than (2) Always lesser than

(3) Always equal to (4) Greater than or lesser than

72. In a UV - VISIBLE spectrophotometer, a prism made of the following material, is used as a monochromator :

(1) Glass

(2) Silica

(3) Plastic

(4) Either of the above - material of construction is not important

73. In the fusion test for detection of halogens, an organic compound is fused with metallic sodium. The sodium extract is acidified with an excess of nitric acid, heated, cooled and then Silver nitration solution is added. To the acidified sodium extract, a few drops of Carbon tetrachloride and a few ml of chlorine water are added, and the mixture is shaken thoroughly. If the organic solvent layer turns brown, which of the following halogen is indicated in the organic compound ?

(1) Chlorine (2) Iodine (3) Bromine (4) None of the above

74. When a small quantity of the sample is warmed with a crystal of iodine, and the KOH solution is added drop by drop until the yellow colour of iodine just disappears, a yellow precipitate of iodoform possessing a characteristic odour is obtained. This test is indicative that the sample is :

(1) Phenol (2) Glycerol (3) Methanol (4) Ethanol

75. Which of the following carboxylic acids is a liquid ?

(1) Benzoic acid (2) Phthalic acid (3) Lactic acid (4) Cinnamic acid

76. In a flame test, the material under examination is introduced into a non-luminous flame, with the help of a platinum wire. A yellow colour flame is seen. This test is indicative of presence of which of the following metals, in the material ?

(1) Barium (2) Sodium (3) Calcium (4) Potassium

77. Which of the following substances can be used as a primary standard for alkalimetry ?

(1) Potassium acid phthalate (2) Benzoic acid

(3) Oxalic acid dihyrate (4) Potassium acid chromate

78. Which of the following solvents does not donate or accept protons ?

(1) Water (2) Benzene (3) Alcohol (4) Acetic acid

79. Acetic acid will act like a strong acid in which of the following solvents ?

(1) Anhydrous H_2SO_4 (2) Water

(3) DMF (4) All of the above

80. In an acidic medium oxalic acid ($H_2C_2O_4$) is oxidised to CO_2. What is the valency of carbon in $H_2C_2O_4$?

(1) 1 (2) 2 (3) 3 (4) 4

81. Which, amongst the following, is not an ex-officio member of the Pharmacy Council of India ?

(1) Director General of Health Services

(2) Director of Central Drugs Laboratory

(3) Drugs Controller of India

(4) Chairman, All India Council for Technical Education

82. Through which place can a drug be imported into India, by rail, across the frontier with Bangladesh ?

(1) Ferozpur cantonment (2) Ranaghat

(3) Calcutta (4) Amritsar

83. Which of the following schedules (to the Rules under the Drugs & Cosmetics Act) refers to the "list of substances that are required to be used only under medical supervision and which are to be labelled accordingly" ?

(1) Schedule C (2) Schedule D (3) Schedule G (4) Schedule H

84. Which of the following words does not appear in the official definition of "drugs" in India ?

(1) Prevention (2) Mitigation (3) Diagnosis (4) Cure

85. What is the punishment for an offence related to cultivation of any coca plant or gathering any portion of a coca plant ?

(1) Rigorous imprisonment up to 6 months or fine up to Rs. 10,000 or both

(2) Rigorous imprisonment up to 10 years or fine up to Rs. 1 lakh

(3) Imprisonment up to 3 years and fine up to Rs. 5000

(4) Imprisonment for 2 to 4 years or fine of not less than Rs. 5000 or both

86. What is the license fees for manufacture of medicinal preparations containing alcohol by hospitals & dispensaries ?

(1) Rs. 100 for less than 4000 L.P. per annum

(2) Rs. 200 for more than 4000 L.P. per annum

(3) Rs. 25 per annum

(4) No fees is payable

87. Which of the following advertisements is prohibited under the Drugs & Magic Remedies Act ?

(1) A signboard displayed by a RMP indicating that treatment for hypertension is undertaken

(2) A signboard displayed by a RMP indicating that guaranteed treatment for hypertension is undertaken

(3) A signboard displayed by a RMP indicating that treatment for cancer is undertaken

(4) A signboard displayed by a RMP indicating that treatment for AIDS is undertaken

88. Which of the following is non-patentable, as per the latest Indian Patents Act, 1970 ?

(1) A genetically modified microorganism

(2) A new method of cardiac by-pass surgery

(3) A novel machine for recording of ECG

(4) A novel method of extraction from a known plant drug

89. What is the duration of patent protection period, under latest the Indian Patents Act, 1970 ?

(1) 7 years (2) 14 years (3) 15 years (4) 20 years

90. What is the maximum shelf life (in months) permissible under the Drugs & Cosmetics Act' ?

(1) 24 months (2) 36 months (3) 48 months (4) 60 months

91. Which of the following preservatives has an antifungal action ?
(1) Methylparaben (2) Benzalkonium chloride
(3) Cetylpyridinium chloride (4) Phenol

92. Which of the following sweeteners is 180 - 200 times more sweet than sucrose, and has a same calorific value ?
(1) Glucose (2) Sorbitol (3) Saccharine (4) Aspartame

93. The general purpose soda -lime class is categorised as which of the following official glass types ?
(1) Type I (2) Type II (3) Type III (4) NP

94. What is the increase in the surface area of the powder by decreasing the particle size from 1 mm to 10 microns ?
(1) 10 times (2) 100 times (3) 1000 times (4) 10000 times

95. How many milligrams of aspirin can approximately be filled in an empty hard gelatine capsule, of size 0 ?
(1) 260 mg (2) 325 mg (3) 520 mg (4) 650 mg

96. Which of the following statements is *not true* ?
(1) Molecules having one polar functional group are usually soluble to total chain lengths of five carbon atoms
(2) Molecules having branched chains are more soluble than the corresponding straight chain compounds.
(3) Water solubility increases with an increase in molecular weight
(4) Increased structural similarity between solute and solvent is accompanied by increased solubility

97. Clear, sweetened, hydroalcoholic solutions intended for oral use are called
(1) Syrups (2) Elixirs (3) Tinctures (4) Magmas

98. What is the desired HLB value for a substance to exert its anti-foaming activity ?
(1) 1 to 3 (2) 3 to 6 (3) 7 to 9 (4) 8 to 18

99. Which of the following properties is a colligative property ?
(1) Molecular weight (2) Light refraction
(3) Vapour pressure (4) Interfacial property

100. How many milliequivalents of potassium chloride are in a solution containing 74.5 mg/ml ?
(1) 1 (2) 2 (3) 3 (4) 4