

(NOT TO BE OPENED BEFORE TIME OR TILL ASKED TO DO SO)

PHDURS-EE-2013

SUBJECT : Pharmaceutical Scs.



10092

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)

CANDIDATES MUST READ THE FOLLOWING INFORMATION/INSTRUCTIONS BEFORE STARTING THE QUESTION PAPER.

1. **All questions are compulsory and carry equal marks.**
2. All the candidates **must return** the question booklet as well as OMR Answer-Sheet to the Invigilator concerned before leaving the Examination Hall, failing which a case of use of unfair-means/misbehaviour will be registered against him/her, in addition to lodging of an FIR with the police. Further the answer-sheet of such a candidate will not be evaluated.
3. In case there is any discrepancy in any question(s) in the Question Booklet, the same may be brought to the notice of the Controller of Examinations in writing **within two hours** after the test is over. No such complaint(s) will be entertained thereafter.
4. The candidate **must not** do any rough work or writing in the OMR Answer-Sheet. Rough work, if any, may be done in the question booklet itself. Answers **Should Not** be ticked in the question booklet.
5. **Use black or blue ball point pen only in the OMR Answer-Sheet.**
6. For each correct answer, the candidate will get full credit. Cutting, erasing, overwriting and more than one answer in OMR Answer-Sheet will be treated as incorrect answer. There will be No Negative marking.
7. *Before answering the questions, the candidates should ensure that they have been supplied correct and complete booklet. Complaints, if any, regarding misprinting etc. will not be entertained 30 minutes after starting of the examination.*

PHDURS-EE-2013/Pharmaceutical Scs./(D)


22/9/13

6305

1. 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
2. Which of the following drugs is an agonist of the muscarinic receptors ?
 - (1) Bethanechol
 - (2) Pirenzepine
 - (3) Telenzepine
 - (4) Tripitramine
3. Which of the following drugs is a dopamine receptor agonist ?
 - (1) Phenylephrine
 - (2) Bromocriptine
 - (3) Clonidine
 - (4) Terbutaline
4. 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
5. Which of the following drugs is a "loop diuretic" ?
 - (1) Spironolactone
 - (2) Hydrochlorothiazide
 - (3) Furosemida
 - (4) Mannitol
6. Which of the following ACE inhibitors is not a pro-drug ?
 - (1) Captopril
 - (2) Enalapril
 - (3) Ramipril
 - (4) Trandolapril
7. 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
8. 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
9. Which of the following drugs is a Histamine-2 receptor antagonist ?
 - (1) Triprolidine
 - (2) Chlorpheniramine
 - (3) Thioperamide
 - (4) Famotidine

10. Which of the following drugs is a selective COX - 2 inhibitor ?
(1) Indomethacin (2) Ibuprofen (3) Meloxicam (4) Ketorolac
11. 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*
12. Which of the following plants may show a cardiotoxic action ?
(1) *Digitalis purpurea* (2) Cinchona bark
(3) *Raulwolfia* (4) *Papaver somniferum*
13. Which of the following alkaloids, from *Vinca roseus* G. has reported antineoplastic activity ?
(1) Ajmalicine (2) Vincristine
(3) Serpentine (4) Tetrahydroalstonine
14. What is the proper name of "Kalmegh" ?
(1) *Boerhavia diffusa* (2) *Curcuma longa*
(3) *Andrographis paniculata* (4) *Silybum marianum*
15. *Convolvulus pluricaulis* L. (Fam. Convolvulaceae) is commonly known as :
(1) Shatavari (2) Gurmar
(3) Aswagandha (4) Shannkhpusti
16. Which of the following is Potato starch ?
(1) *Zea mays* L. (2) *Solanum tuberosum* L.
(3) *Triticum aestivum* L. (4) *Oryza sativa* L.
17. Which of the following fibres is chiefly composed of the protein keratin ?
(1) Wool (2) Flax (3) Hemp (4) Jute
18. Which of the following herbal drugs is used as a counter-irritant ?
(1) Opium (2) Ginseng (3) Capsaicin (4) Aconite
19. Which of the following ayurvedic drugs is used as an anti-diarrhoeal ?
(1) Rhubarb (2) Bael (3) Aloe (4) Senna
20. The active constituent of which of the following plants is a volatile oil ?
(1) *Arachis hypogaea* (2) *Linum usitatissimum*
(3) *Sesamum indicum* (4) *Coriandrum sativum*

21. Which of the following pharmacokinetic parameters cannot be determined, using urinary data alone ?
(1) K (2) AUC (3) $t_{1/2}$ (4) V_D
22. 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
23. 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
24. 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
25. 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
26. 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
27. 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
28. 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

29. 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
30. 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
31. 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
32. 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
33. 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
34. 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
35. 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
36. In fungi, the single - celled spores, which are formed within sacs are called :
- (1) Sporangiospores (2) Conidiospores
(3) Chlamydospores (4) Blastospores

37. What is the typical diameter of viruses ?
(1) 1000 - 3000 nm (2) 150 -1000 nm
(3) 250 -400 nm (4) 10 - 300 nm
38. 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
39. 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*
40. Which of the following vaccines is "killed Virus" Vaccine ?
(1) Salk Polio Vaccine (2) Sabin Polio Vaccine
(3) Rabies Vaccine (4) Small Pox Vaccine
41. Which of the following principal serum enzymes is used in clinical diagnosis of viral hepatitis ?
(1) SGOT (2) SGPT
(3) Lipase (4) Amylase
42. Pantothenic acid is a component of which of the following B vitamins ?
(1) NAD+ (2) FAD (3) TPP (4) CoA
43. Which of the following vitamins is also known as Antisterility Factor ?
(1) Vitamin A (2) Vitamin D
(3) Vitamin E (4) Vitamin K
44. What is the total number of ATPs generated per mol of glucose, under aerobic conditions ?
(1) 38 (2) 36 (3) 32 (4) 24
45. Which of the following is an "essential" amino acid ?
(1) Alanine (2) Asparagine (3) Glutamine (4) Lysine
46. Which of the following is "not" a purine nucleoside ?
(1) Adenosine (2) Guanosine (3) Uridine (4) Inosine

47. 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
48. 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
49. The enzyme nomenclature "1.1.1.1." refers to which of the following enzymes ?
- (1) Glutamic dehydrogenase
 - (2) Catalase
 - (3) Alcohol dehydrogenase
 - (4) Phosphorylase
50. 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 amylose and amylopectin
51. 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
52. 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
53. 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

54. 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
55. Which of the following carboxylic acids is a liquid ?
- (1) Benzoic acid (2) Phthalic acid (3) Lactic acid (4) Cinnamic acid
56. 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
57. Which of the following substances can be used as a primary standard for alkalimetry ?
- (1) Potassium acid phthalate (2) Benzoic acid
(3) Oxalic acid dihydrate (4) Potassium acid chromate
58. Which of the following solvents does not donate or accept protons ?
- (1) Water (2) Benzene (3) Alcohol (4) Acetic acid
59. 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
60. 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
61. 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
62. 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

63. 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
64. Which of the following words does not appear in the official definition of "drugs" in India ?
- (1) Prevention (2) Mitigation (3) Diagnosis (4) Cure
65. 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
66. 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
67. 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
68. 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

69. 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
70. 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
71. Which of the following preservatives has an antifungal action ?
(1) Methylparaben (2) Benzalkonium chloride
(3) Cetylpyridinium chloride (4) Phenol
72. 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
73. The general purpose soda -lime glass is categorised as which of the following official glass types ?
(1) Type I (2) Type II (3) Type III (4) NP
74. 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
75. 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
76. 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

77. Clear, sweetened, hydroalcoholic solutions intended for oral use are called
(1) Syrups (2) Elixirs (3) Tinctures (4) Magmas
78. 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
79. Which of the following properties is a colligative property ?
(1) Molecular weight (2) Light refraction
(3) Vapour pressure (4) Interfacial property
80. How many milliequivalents of potassium chloride are in a solution containing 74.5 mg/ml ?
(1) 1 (2) 2 (3) 3 (4) 4
81. What is the common name of 5-Ethyl-5-(1-methyl butyl)-2-thiobarbituric acid ?
(1) Phenobarbitone (2) Allobarbitol
(3) Hexobarbitone (4) Thiobarbitone
82. 7-(2-Hydroxy-ethyl)-1,3-dimethylxanthine is commonly known as :
(1) Theophylline (2) Theobromine
(3) Aminophylline (4) Etophylline
83. 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
84. 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 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

85. 2-(2,6-Dichloroanilino)-2-imidazoline hydrochloride is popularly known as :
(1) Hydralazine (2) Clonidine (3) Diazoxide (4) Methyldopa
86. 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
87. 2-[(2,6-dichlorophenyl)amino]-Benzene-acetic acid is commonly known as :
(1) Ibuprofen (2) Diclofenac
(3) Ketoprofen (4) Indomethacin
88. 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
89. 2,4-Diamino-5-(p-chlorophenyl)-6-ethylpyrimidine is commonly known as :
(1) Proguanil (2) Mepacrine
(3) Amodiaquine (4) Pyrimethamine
90. 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
91. Which of the following drugs is a fast inducer intravenous anaesthetic ?
(1) Propofol (2) Diazepam (3) Lorazepam (4) Midazolam
92. 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
93. Which of the following is a hormonal male contraceptive ?
(1) Centchroman (2) Levonergestrel S.c. implant
(3) Depot medroxyprogesterone acetate (4) Testosterone undecanoate

94. 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
95. The activity of warfarin is reduced by the concomitant use of which of the following drugs ?
- (1) Barbiturates (2) Aspirin (3) Metronidazole (4) Phenytoin
96. 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
97. Which of the following anticholinesterases is a naturally occurring molecule ?
- (1) Physostigmine (2) Neostigmine
(3) Pyridostigmine (4) miotine
98. 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
99. 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
100. 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