

**DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO**

Test Booklet Series

T. B. C. : DI – 2022/23

**A**

**TEST BOOKLET**  
**DRUG INSPECTOR**

**3057**

Sl. No.

Time Allowed : 3 Hours

Maximum Marks : 200

**: INSTRUCTIONS TO CANDIDATES :**

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET **DOES NOT** HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET OF THE SAME SERIES ISSUED TO YOU.
2. ENCODE CLEARLY THE TEST BOOKLET SERIES A, B, C OR D, AS THE CASE MAY BE, IN THE APPROPRIATE PLACE IN THE ANSWER SHEET USING BALL POINT PEN (BLUE OR BLACK).
3. You have to enter your Roll No. on the Test Booklet in the Box provided alongside. **DO NOT** write anything else on the Test Booklet.
4. YOU ARE REQUIRED TO FILL UP & DARKEN ROLL NO., TEST BOOKLET / QUESTION BOOKLET SERIES IN THE ANSWER SHEET AS WELL AS FILL UP TEST BOOKLET / QUESTION BOOKLET SERIES AND SERIAL NO. AND ANSWER SHEET SERIAL NO. IN THE ATTENDANCE SHEET CAREFULLY. WRONGLY FILLED UP ANSWER SHEETS ARE LIABLE FOR REJECTION AT THE RISK OF THE CANDIDATE.
5. This Test Booklet contains 200 items (questions). Each item (question) comprises four responses (answers). You have to select the correct response (answer) which you want to mark (darken) on the Answer Sheet. In case, you feel that there is more than one correct response (answer), you should mark (darken) the response (answer) which you consider the best. In any case, choose **ONLY ONE** response (answer) for each item (question).
6. You have to mark (darken) all your responses (answers) **ONLY** on the separate Answer Sheet provided, by using BALL POINT PEN (BLUE OR BLACK). See instructions in the Answer Sheet.
7. All items (questions) carry equal marks. All items (questions) are compulsory. Your total marks will depend only on the number of correct responses (answers) marked by you in the Answer Sheet. For each wrong response (answer), 0.25 marks shall be deducted from the marks awarded for correct answers.
8. Before you proceed to mark (darken) in the Answer Sheet the responses (answers) to various items (questions) in the Test Booklet, you have to fill in some particulars in the Answer Sheet as per the instructions sent to you with your **Admission Certificate**.
9. After you have completed filling in all your responses (answers) on the Answer Sheet and after conclusion of the examination, you should hand over to the Invigilator the Answer Sheet issued to you. You are allowed to take with you the candidate's copy / second page of the Answer Sheet along with the Test Booklet, after completion of the examination, for your reference.
10. Sheets for rough work are appended in the Test Booklet at the end.

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LB – 1A/26

(Turn over)

SEAL

- An example of heteroaromatic compound :
  - Tetrahydrofuran
  - Pyrrole
  - Pyrrolidine
  - Piperidine
- Find the odd pair :
  - Topoisomerase II – Etoposide
  - Topoisomerase II – Teniposide
  - Topoisomerase I – Irinotecan
  - Topoisomerase III – Topotecan
- Cellular mechanism of resistance to methotrexate is by :
  - Reduced drug transport
  - Increased polyglutamate formation
  - Increased level of dihydrofolate reductase
  - Both (A) and (C)
- Most intravenous general anaesthetic agents act predominantly through :
  - 5-HT receptor
  - Dopamine receptor
  - GABAA receptor
  - $\alpha_2$  receptor
- Ingestion of organophosphates can cause salivation, lacrimation and diarrhoea due to inhibition of :
  - Butyrylcholinesterase
  - Acetylcholinesterase
- Octreotide is a :
  - Somatostatin analogue
  - Dopamine receptor antagonist
  - Growth hormone antagonist
  - Gonadotrophin releasing hormone agonist
- A transesterification reaction is :
  - Exchange of alkyl group of alcohol with organic group of an ester
  - Exchange of alkyl group of ester with organic group of an ether
  - Exchange of alkyl group of ester with organic group of an alcohol
  - Exchange of alkyl group of ester with organic group of an alkane
- Reduction of nitroalkanes yield :
  - Amines
  - Carboxylic acids
  - Diazo compounds
  - Alcohols
- Which of the following is neither an acid nor a base ?
  - KCl
  - $\text{CH}_3\text{OH}$
  - $\text{CH}_3\text{COOH}$
  - $\text{CH}_3\text{OCH}_3$

10. Correct order of nucleophilicity :
- (A)  $\text{Cl}^- < \text{Br}^- < \text{I}^-$   
(B)  $\text{Br}^- < \text{Cl}^- < \text{I}^-$   
(C)  $\text{I}^- < \text{Br}^- < \text{Cl}^-$   
(D)  $\text{I}^- < \text{Cl}^- < \text{Br}^-$
11. Which of the following pairs of receptors are likely to show the greatest structural similarity ?
- (A) The dopamine receptor subtypes of D3 and D5  
(B) The M2 muscarinic receptor and the  $\beta_2$ -adrenergic receptor  
(C) The H2 histamine receptor and the  $\alpha_1$ -adrenoceptor  
(D) The H1 histamine receptor and the  $\beta_2$ -adrenoceptor
12. 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
13. Which of the following Fermentation Processes is used in the production of Penicillin ?
- (A) Aerobic fermentation followed by anaerobic fermentation  
(B) Anaerobic fermentation  
(C) Aerobic fermentation  
(D) Anaerobic fermentation followed by aerobic fermentation
14. The following chemical moiety is the core motif of the drugs :
- (A) Nalidixic acid  
(B) Mefenamic acid  
(C) Isoniazid  
(D) Tetracycline
15. What plays a major role in extra-hepatic metabolism and contains CYP3A4 isozyme and P-glycoprotein ?
- (A) Kidney  
(B) Intestine  
(C) Pancreas  
(D) Liver
16. Which of the following is an antiarrhythmic drug that is a calcium channel blocker ?
- (A) Lidocaine  
(B) Nitroglycerin  
(C) Nefedipine  
(D) Diltiazem
17. Atropine can be synthesized from :
- (A) Tropine  
(B) Tropic acid  
(C) Both (A) and (C)  
(D) None of these

18. 2-hydroxy-5, 9-dimethyl-6, 7-benzomorphone derivative is :  
(A) Pentazocine  
(B) Hydrocodone  
(C) Cedeine  
(D) Buprenorphine
19. A prodrug of terbutaline is :  
(A) Zafirlukast  
(B) Salmeterol  
(C) Bambuterol  
(D) Nedocromil sodium
20. The selective COX-2 inhibitor is :  
(A) Ketorolac  
(B) Rofecoxib  
(C) Indomethacin  
(D) Naproxen
21. Sumatriptan contains all but :  
(A) Indole  
(B) Sulfonamide  
(C) Tertiary amine  
(D) Alcohol functional group
22. One of the following is not a systemic corticosteroid  
(A) Budosenide  
(B) Dexamethasone  
(C) Methylprednisolone  
(D) Triamicolone
23. Diazonium ions are :  
(A) Weakly electrophile
- (B) Strongly electrophile  
(C) Weakly nucleophilic  
(D) Strongly nucleophilic
24. A MAO-B inhibitor is :  
(A) Selegiline  
(B) Dopamine  
(C) Adrenaline  
(D) Isoprenaline
25. A drug which undergoes significant first pass metabolism is :  
(A) Propranolol  
(B) Mercaptopurine  
(C) Nitroglycerin  
(D) All of these
26. Gelatin used in manufacture of capsules is obtained from collagen by :  
(A) Hydrolysis  
(B) Decarboxylation  
(C) Acetylation  
(D) Conjugation
27. Select the equation that gives the rate of drug dissolution from a tablet :  
(A) Fick's law  
(B) Henderson Hasselbatch equation  
(C) Noyes Whitney equation  
(D) Michelis Menten equation

28. A drug solution of 300 µg/ml was stored in a shelf and after 30 days its concentration was assayed to be 100 µg/ml. The half life of degradation of the drugs is :
- (A) 25 days  
(B) 19 days  
(C) 15 days  
(D) 3 days
29. One of the following does not improve the solubility of a drug :
- (A) Complexation  
(B) Addition of surfactant  
(C) Micronization  
(D) Addition of anti-solvent
30. If the Carr's index of a power is 10% then the type of power flow is :
- (A) Poor  
(B) Excellent  
(C) Very poor  
(D) Good
31. In the preparation of small pox vaccine the drying process used is :
- (A) Spray drying  
(B) Vacuum drying  
(C) Drum drying  
(D) Freeze drying
32. The phenomenon of increasing the solubility of weak electrolytes and non-polar molecules by the addition of a water miscible solvent in which the drug has good solubility is called :
- (A) Complexation  
(B) Cosolvency  
(C) Solubilization  
(D) Hydrotrophy
33. Viscosity of liquid \_\_\_\_\_ with rise in temperature.
- (A) Increases  
(B) Decreases  
(C) Remains constant  
(D) Is independent
34. Semisolid preparations for external application that differ from similar products in containing a high proportion of finely powdered medicaments :
- (A) Ointment  
(B) Paste  
(C) Gel  
(D) Cream
35. Which base is likely to be most occlusive on the skin ?
- (A) Hydrocarbon base  
(B) Absorption base  
(C) Emulsion base  
(D) Water-soluble base
36. Specific gravity of syrup is :
- (A) 1.8  
(B) 1.3  
(C) 1.5  
(D) 3.1

37. Which of the following polyols used as humectants in creams ?
- (A) Glycerine
  - (B) Propylene glycol
  - (C) Sorbitol 70%
  - (D) All of these
38. Which of the following is most commonly used suppository base ?
- (A) Cocoa butter
  - (B) PEG 1000
  - (C) PEG + Hexanetriol
  - (D) None of these
39. If the urine pH increases then :
- (A) Excretion of weakly basic drugs increase
  - (B) Excretion of weakly acidic drugs increase
  - (C) Excretion of non-polar drugs increase
  - (D) Excretion of any type of drugs remain unaffected
40. What is true about intramuscular route of administration ?
- (A) Only aqueous solutions can be injected
  - (B) Volumes in the range of 2-3 ml are generally administered
  - (C) The formulations need not be completely sterilized
  - (D) Hypertonic and not hypotonic solutions can be administered
41. While developing a new formulation excipient should be selected from :
- (A) Cambridge crystallographic database
  - (B) Spectroscopy databases
  - (C) Inactive ingredients database
  - (D) Pharmacopoeal databases
42. The following methods are used for evaluation of suspension except :
- (A) Sedimentation
  - (B) Electrokinetic
  - (C) Micromeritic
  - (D) Sterilization
43. USP type I glass is :
- (A) Highly resistant borosilicate glass
  - (B) Treated soda lime glass
  - (C) Soda lime glass
  - (D) Potassium-lithium augmented glass
44. Water for injection is stored in industries by holding at :
- (A) 80 degree Celsius
  - (B) 60 degree Celsius
  - (C) 100 degree Celsius
  - (D) 4 degree Celsius
45. In the preparation of calamine lotion, sodium citrate is used as :
- (A) Suspending agent
  - (B) Solubilizer
  - (C) Buffering agent
  - (D) Bacteriostatic

46. The net movement of molecules from the region of higher concentration to lower concentration is termed as :
- (A) Osmosis  
(B) Diffusion  
(C) Bulk flow  
(D) Passive transport
47. Which of the following is applicable while assessing the absolute bioavailability of a drug ?
- (A) It must be one or less than one  
(B) It is independent of the route of administration  
(C) It is independent of the systemic clearance  
(D) All of these
48. Which one of the following statement is CORRECT ?
- (A) Prodrugs are always NCE, cannot be considered for biowaivers.  
(B) New prodrugs of an existing drug is never a new entity, always considered for biowaiver.  
(C) A new prodrug can be considered for biowaivers based on certain conditions.  
(D) None of these
49. For tablets made by direct compression, powder filled capsules the dissolution apparatus mostly preferred is :
- (A) Paddle Apparatus  
(B) Basket Apparatus  
(C) Paddle over disk Apparatus  
(D) Reciprocating Holder Apparatus
50. According to the pH-partition hypothesis which one of the given options doesn't govern the absorption ?
- (A) The molecular size of the drug  
(B) pH at the absorption site  
(C) Lipid solubility of unionized drugs  
(D) Dissociation constant
51. True alkaloids are present in plants as :
- (A) Salts of inorganic acid  
(B) Salts of organic acid  
(C) Salts of meconic acid  
(D) Salts of benzoic acid
52. Ajmaline is an \_\_\_\_\_.
- (A) Anti-arrhythmic  
(B) Anti-malarial  
(C) Anti-diabetic  
(D) Anti-tumor
53. Colchicum belong to the family of \_\_\_\_\_.
- (A) Lilliaceae  
(B) Ranunculaceae  
(C) Leguminosea  
(D) Aracaliaceae

54. Dragondrof reagent with Alkaloids give :  
(A) Raddish brown ppt  
(B) Reddish orange ppt  
(C) Orange ppt  
(D) Orange brown ppt
55. One of the following is not an organized drug :  
(A) Leaf of senna  
(B) Bark of cinnamon  
(C) Seeds of coriander  
(D) Juice of Aloe
56. \_\_\_\_\_ is an proto alkaloid.  
(A) Taxol  
(B) Atropine  
(C) Caffiene  
(D) All of these
57. An example of pseudo alkaloïd :  
(A) Caffiene  
(B) Hygrine  
(C) Arecoline  
(D) Lobeline
58. The moisture content in digitalis should not be more than :  
(A) 5%  
(B) 8%  
(C) 10%  
(D) 15%
59. Which of the following saponin containing drug is used as anti-diabetic ?  
(A) Liquorice
- (B) Ginseng  
(C) Brahmi  
(D) Fenugreek
60. Glycosides is Senna are mainly :  
(A) O-Glycoside  
(B) C-Glycoside  
(C) N-Glycoside  
(D) S-Glucoside
61. Which of the following drug contains some of the highest isoflavones ?  
(A) Soyabean  
(B) Orange peel  
(C) Lemon peel  
(D) Psoralea
62. Family of Vinca is :  
(A) Rubiaceae  
(B) Solanaceae  
(C) Apocynaceae  
(D) Erythroxlaceae
63. Resveratrol is :  
(A) Alkaloid  
(B) Flavonoid  
(C) Saponin  
(D) Terpene
64. Andrographis paniculata is used as :  
(A) Hepatoprotective agent  
(B) Antiasthmatic agent  
(C) Immunomodulator  
(D) Both (A) and (C)



65. Which of the following plants contain drug at its bark for curing heart disease ?
- (A) Magnifera indica  
(B) Terminalia Arjuna  
(C) Cinchona officinalis  
(D) Nicotiana tabacum
66. Adhatoda vasak Leaf is used for treatment of :
- (A) Cold and Cough  
(B) Tetanus  
(C) Malaria  
(D) Cholera
67. Precursor for biosynthesis of tropane alkaloid :
- (A) Ornithine  
(B) Tyrosine  
(C) Leucine  
(D) Lysine
68. Purine alkaloids are identified by :
- (A) Van-urks test  
(B) Vitali Morin test  
(C) Murexide test  
(D) Bortrager test
69. The process of detoxification of Ayurvedic preparation is known as :
- (A) Refining  
(B) Concentrating  
(C) Shodana  
(D) Incineration
70. St. John's Wart is the common name of :
- (A) Fagopyrum esculentum  
(B) Hypericum perforatum  
(C) Citrus aurantium  
(D) Podophyllum hexendrum
71. Biological source and an adulterant of Rauwolfia serpentine are :
- (A) Leaves, Rauwolfia densitiflora  
(B) Flower, Pisum sativum  
(C) Dried rhizomes and roots, Rauwolfia perakensis  
(D) Bark, Pisum sativum
72. Following crude drug does not come under class of organised drug :
- (A) Lectin  
(B) Flower  
(C) Fruits  
(D) Gums
73. Disease "stripe canker" is connected with which drug ?
- (A) Nuxvomica  
(B) Rauwolfia  
(C) Ashwagandha  
(D) Cinchona
74. Ergot powder gives blue colour with :
- (A) p-dimethylaminobenzaldehyde  
(B) o-dimethylaminobenzaldehyde  
(C) All of these  
(D) None of these

75. Libermann-burchards test is the identification test for :  
(A) Napthaquinone  
(B) Glycosides  
(C) Tanins  
(D) Steroids
76. The strength and pH of commercial HCl is around :  
(A) 36 M, 1  
(B) 12 M, 1  
(C) 12 M, < - 1  
(D) 3.6 M, < - 1
77. Sequence of events in a mass spectrometer is :  
(A) Acceleration, deflection, detection, ionization  
(B) Ionization, acceleration, deflection, detection  
(C) Acceleration, deflection, ionization, detection  
(D) Ionization, deflection, acceleration, detection
78. If a paracetamol solution (molar absorptivity – 715) placed in a 1 cm path length cuvette provides an absorption value of 0.825, what is the concentration of this solution ?  
(A) 1.1 g / 100 ml  
(B) 0.0011 mg / 100 ml  
(C) 0.0011 g / 100 ml  
(D) 0.0011 mg / 100 ml
79. The mid-IR range corresponds to :  
(A) 4000 – 400  $\text{cm}^{-1}$   
(B) 2.5 – 25000  $\mu\text{m}$   
(C) 250 – 25000 nm  
(D) 12500 – 40000  $\text{cm}^{-1}$
80. A laboratory pH meter works on the principle of :  
(A) Amperometry  
(B) Voltammetry  
(C) Potentiometry  
(D) Colorimetry
81. An analytical technique suitable for studying the different solid state polymorphic forms of a drug is :  
(A) HPLC  
(B) DSC  
(C) NMR  
(D) LC-MS
82. Amino acids detected spraying the plate with ninhydrin solution is an example of :  
(A) Column chromatography  
(B) Thin layer chromatography  
(C) Paper chromatography  
(D) Liquid chromatography
83. In chromatography, the height equivalent to theoretical plate (HETP) is expressed by :  
(A) van der Waal's equation  
(B) van Deemter equation  
(C) Beer-Lamberts Law  
(D) DLVO equation

84. Flow through cell is involved in the USP dissolution apparatus :
- (A) I  
(B) II  
(C) III  
(D) IV
85. In HPLC which detector is based upon bulk property of elute ?
- (A) Refractive index detector  
(B) Diode array detectors  
(C) Florescence detectors  
(D) None of these
86. In flame photometer \_\_\_\_\_ and \_\_\_\_\_ are measured for quantitative and qualitative analysis respectively.
- (A) Wavelength / Colour, Intensity  
(B) Intensity, Wavelength / Colour  
(C) Only Colour is determined for both analysis  
(D) Only Wavelength is determined for both analysis
87. The titration of sulphuric acid with sodium bicarbonate is :
- (A) Titration of monoprotic acid with weak base  
(B) Titration of strong acid with strong base  
(C) Titration of strong acid with weak base  
(D) Titration of monoprotic acid with monoprotic base
88. By convention, standard electrode potential is taken as :
- (A) Oxidation potential  
(B) Reduction potential  
(C) Redox potential  
(D) None of these
89. When the salt bridge is removed from a cell, its voltage :
- (A) Will increase  
(B) Will decrease to half  
(C) Will decrease to zero  
(D) Will not change
90. Which of the following substances can act as both oxidizing and reducing agent ?
- (A)  $\text{KMnO}_4$   
(B)  $\text{K}_2\text{Cr}_2\text{O}_7$   
(C)  $\text{HNO}_3$   
(D)  $\text{H}_2\text{O}_2$
91. The cell constant of a conductivity cell :
- (A) Changes with a change of concentration of electrolyte  
(B) Remains constant for a cell  
(C) Changes with a change of electrolyte  
(D) Changes with change in temperature

92. Method validation parameter that denotes how close the measured values lie with each other after repeated measurements under completely identical set of conditions is:
- (A) Precision  
(B) Accuracy  
(C) Reproducibility  
(D) Robustness
93. Phenolphthalein is a synthetic indicator and its colours in acidic and basic solutions, respectively are:
- (A) Red and blue  
(B) Blue and red  
(C) Pink and colourless  
(D) Colourless and pink
94. The oxidation number of Cr in  $K_2Cr_2O_7$  is:
- (A) +6  
(B) +7  
(C) +5  
(D) +4
95. Which of the following cannot be used as adsorbent in Column adsorption chromatography?
- (A) Magnesium oxide  
(B) Silica gel  
(C) Activated alumina  
(D) Potassium permanganate
96. In quantitative analysis by UV-VIS spectroscopy, the error in the determination of the concentration will be lower if we work with:
- (A) Big cuvettes  
(B) Highly diluted solution  
(C) In the range of intermediate transmittances  
(D) High absorbance
97. The distance between the centers of the peaks of doublet is called as:
- (A) Coupling constant  
(B) Spin constant  
(C) Spin-spin coupling  
(D) Chemical shift
98. Which of the following organic compound with molecular formula  $C_3H_7Cl$  exhibits only one signal in the  $^1H$  NMR spectrum?
- (A) 2,2-dichloropropane  
(B) 1,2-dichloropropane  
(C) 1,3-dichloropropane  
(D) 1,1-dichloropropane
99. Biowaiver is:
- (A) Permission for not conducting preclinical testing prior to Phase-I studies  
(B) Permission for not conducting bioavailability in humans  
(C) Permission for using dissolution data only to indicate bioavailability  
(D) Permission to market the product without bioavailability and toxicity

100. In reverse phase HPLC, the stationary phase is :
- (A) Dimethyl silane
  - (B) Tetramethyl silaxane
  - (C) Hexamethyl disilazine
  - (D) Methyl silane
101. A proteolytic enzyme obtained from Pappaya is :
- (A) Pepsin
  - (B) Lysozyme
  - (C) Bromelain
  - (D) Trypsin
102. The only immunoglobulin that crosses the transplacental barrier and provides maternal protection is :
- (A) IgG
  - (B) IgM
  - (C) IgD
  - (D) IgA
103. An example of double stranded DNA virus is :
- (A) Picornaviridae
  - (B) Parvoviridae
  - (C) Retroviridae
  - (D) Adenoviridae
104. The most common class of hospital acquired infections are :
- (A) Digestive tract infections
  - (B) Urinary tract infections
  - (C) Wound infections
  - (D) Respiratory tract infections
105. Neomycin is obtained from :
- (A) Escherichia coli
  - (B) Bacillus subtilis
  - (C) Staphylococcus aureus
  - (D) Streptomyces fradiae
106. Endo agar contains :
- (A) Safranin
  - (B) Phenol red
  - (C) Basic fuchsin
  - (D) Neutral red
107. Which of the following cells is involved in cell-mediated immunity ?
- (A) Leukaemia
  - (B) T cells
  - (C) Mast cells
  - (D) Thrombocytes
108. New Delhi superbug refers to bacteria :
- (A) Methicillin resistant Staphylococcus aureus
  - (B) Bacteria which produce Metallo-beta-lactamase type 2 enzyme or NDM enzyme
  - (C) Methicillin resistant Streptococcus aureus
  - (D) E. coli isolated from hospital wastes
109. The last line drug used to treat most antibiotic resistant bacterial infections :
- (A) Carbapenems
  - (B) Floroquinolone
  - (C) Macrolides
  - (D) Cephalosporins

110. Which one of the following is not a Gram – negative bacteria ?
- (A) Clostridium perfringes
  - (B) Vibrio cholerae
  - (C) E. coli
  - (D) Bordetella pertussis
111. A disease which is not an example of fungal infection :
- (A) Cryptococcus neoformans
  - (B) Candida albicans
  - (C) Tinea nigra
  - (D) Chlamydiae
112. The Gram stain and Acid fast stain are based on chemical properties of :
- (A) Cell wall
  - (B) Plasma membrane
  - (C) Endoplasmic reticulum
  - (D) Plasmid DNA
113. A pregnant woman has developed urinary tract infection, she should not be treated with :
- (A) Trimethoprim
  - (B) Floroquinolone
  - (C) Sulfoxazole
  - (D) Nitrofurantoin
114. What is the molarity of 20 ppm glucose solution ?
- (A) 0.11 M
  - (B) 1.1 M
  - (C) 20  $\mu$ M
  - (D) 1.8  $\mu$ M
115. Which of the following is true about phosphodiester linkage ?
- (A) 3'-phosphate group of one nucleotide unit is joined to the 5'-hydroxyl group of the next nucleotide.
  - (B) 3'-phosphate group of one nucleotide unit is joined to the 3'-hydroxyl group of the next nucleotide.
  - (C) 5'-phosphate group of one nucleotide unit is joined to the 3'-hydroxyl group of the next nucleotide.
  - (D) 5'-phosphate group of one nucleotide unit is joined to the 5'-hydroxyl group of the next nucleotide
116. In PCR, oligo primers bind to target sequence during \_\_\_\_\_ step at \_\_\_\_\_ temperature.
- (A) Denaturation, 94 $^{\circ}$ C
  - (B) Annealing, 94 $^{\circ}$ C
  - (C) Annealing, temperature varies for each template
  - (D) Extension, 40 $^{\circ}$ C
117.  $\beta$ -oxidation of fatty acids takes place at :
- (A) Peroxisomes
  - (B) Mitochondrion
  - (C) Lysosome
  - (D) Endoplasmic reticulum

118. The enzymes having additional sites, other than catalytic site which is used for binding for regulatory metabolites is referred to as \_\_\_\_\_.
- (A) Isoenzyme  
(B) Biosensor  
(C) Allosteric enzymes  
(D) Effectors
119. The function of ligases is :
- (A) Link phosphate and hydroxyl ends via phosphodiester bond  
(B) Remove phosphate from DNA and RNA  
(C) Transfer terminal phosphate group from ATP to -OH groups  
(D) All of these
120. Which enzyme is not made of protein ?
- (A) DNase I  
(B) Taq DNA polymerase  
(C) RNase H  
(D) Ribozyme
121. Normal SGOT levels in serum are :
- (A) 8 – 45 Units  
(B) 80 – 100 Units  
(C) < 8 Units  
(D) > 80 Units
122. Unit of  $K_m$  in enzyme kinetics :
- (A) Unitless  
(B)  $M^{-1}$   
(C) M  
(D)  $M s^{-1}$
123. When  $[S] = K_M$ , the velocity of an enzyme catalyzed reaction is about :
- (A)  $0.1 \times V_{MAX}$ .  
(B)  $0.2 \times V_{MAX}$ .  
(C)  $0.3 \times V_{MAX}$ .  
(D)  $0.5 \times V_{MAX}$ .
124. Cholesterol and fatty acids absorbed from the intestinal lumen are packaged into which types of lipoproteins and secreted from the enterocytes into the lymph ?
- (A) Chylomicrons and HDL  
(B) Chylomicrons and VLDL  
(C) HDL and LDL  
(D) VLDL and HDL
125. Deficiency of an enzyme called branched-chain alpha-keto acid dehydrogenase causes buildup of amino acids in the body and nerve damage results, the disease is known as :
- (A) Gaucher Disease  
(B) Phenylketouria  
(C) Fabry  
(D) Maple Syrup urine
126. Bedaquiline is used in the treatment of :
- (A) Malaria  
(B) Leishmaniasis  
(C) Tuberculosis  
(D) Yellow fever

127. Which of the following statement is not true for reserpine ?
- (A) It can cause depression
  - (B) It is a terpenoid
  - (C) It is usually prescribed in combination with thiazide diuretics in treatment of hypertension
  - (D) It is prescribed in doses generally not more than 0.2 mg/ day
128. CDSCO is administered under :
- (A) Ministry of Chemicals and Fertilizers, Govt. of India
  - (B) Ministry of Health and Family Welfare, Govt. of India
  - (C) Department of Pharmaceuticals, Govt. of India
  - (D) Ministry of Law and Social Justice, Govt. of India
129. Schedule H1 of Drugs and Cosmetics rule deal with :
- (A) Narcotic drugs
  - (B) Antibiotics
  - (C) Anti-doping drugs in sports medicine
  - (D) Gene therapy
130. The most common complication of insulin therapy is :
- (A) Retinopathy
  - (B) Hypotension
  - (C) Hypoglycemia
  - (D) Muscular dystrophy
131. Misbranded drugs are covered in D and C Act under Section :
- (A) 18
  - (B) 9
  - (C) 12
  - (D) 17
132. Manufacturing of Ayurvedic medicines in D and CA are dealt in :
- (A) Schedule X
  - (B) Schedule T
  - (C) Schedule Y
  - (D) Schedule C
133. Drugs are imported for examination, test or analysis :
- (A) Form 24
  - (B) Form 12
  - (C) Form 10
  - (D) Form 29
134. One of the following laboratories is not established under CDSCO or Drugs and Cosmetics Act :
- (A) CDTL Hyderabad
  - (B) CDTL Mumbai
  - (C) CDRI Lucknow
  - (D) CDL Kasauli
135. Type IADR reactions is :
- (A) Caused when T-cells bind to a specific antigen
  - (B) Caused by tissue injury
  - (C) IgE mediated
  - (D) Caused by cytotoxic antibodies



136. Cell mediated delayed hypersensitivity reactions belong to :
- (A) Type 4 ADR
  - (B) Type 3 ADR
  - (C) Type 2 ADR
  - (D) Type 1 ADR
137. The sponsor in clinical study is :
- (A) Country
  - (B) Organisation
  - (C) Society
  - (D) Cohort
138. Drug price control order 1995 and related orders from time to time are enforced by :
- (A) NPPA
  - (B) CSIR
  - (C) DBT
  - (D) ICMR
139. Blood and blood products are governed by :
- (A) Schedule B
  - (B) Schedule C
  - (C) Schedule C1
  - (D) Schedule G
140. Medical devices are distinguished from drugs on the basis of :
- (A) Chemical composition
  - (B) Physical Form
  - (C) Mechanism of Action
  - (D) Diseases and conditions for which intended
141. Following activity is not considered part of cGMP :
- (A) Maintenance of complaint files
  - (B) Study of stability of finished drug product
  - (C) Non requirement of equipment for processing activity
  - (D) Testing of product containers
142. The FDA requires that all clinical trial records be maintained and accessible at trial sites for minimum of :
- (A) 1 year
  - (B) 2 years
  - (C) 3 years
  - (D) 4 years
143. Specific requirements for manufacture of sterile products and parenteral preparations are prescribe in which part of Schedule M ?
- (A) Part IA
  - (B) Part IB
  - (C) Part IC
  - (D) Part ID
144. Permission to import or manufacture new drugs for clinical trials is provided under :
- (A) Form 21
  - (B) Form 44
  - (C) Form 11
  - (D) Form 12A

145. Prevention of cruelty to animals act was enacted in :
- (A) 1940  
(B) 1950  
(C) 1960  
(D) 1970
146. \_\_\_\_\_ of clinical trial involves first time human trial in a small number of patients.
- (A) Phase I  
(B) Phase II  
(C) Phase III  
(D) Phase IV
147. The antidiabetic drug which can increase the risk of bladder cancer and bone fractures :
- (A) Pioglitazone  
(B) Metformin  
(C) Sitagliptin  
(D) Liraglutide
148. The objectives of PTC is :
- (A) Recomend policies  
(B) Education  
(C) Drug safety and ADR monitoring  
(D) Conducting clinical trails
149. In a patient with mild hypertension the first line drug should be :
- (A) Hydralazine  
(B) Captopril  
(C) Hydrochlorothiazide  
(D) Clonidine
150. The most commonly used radio-pharmaceuticals are based on element :
- (A) Technetium  
(B) Rhenium  
(C) Barium  
(D) Calcium
151. Which of the antihistaminic drug was withdrawn from the market owing to cardiac adverse effects ?
- (A) Cetrizine  
(B) Loartidine  
(C) Terfenadine  
(D) Clemastine
152. Which one is not the side effect of steroids ?
- (A) Hyperglycaemia  
(B) Bone density decline  
(C) Muscular weakness  
(D) Hypoxia
153. For CNS penetration which is desirable quality ?
- (A) Lipid soluble  
(B) Weak bases  
(C) Weak acids  
(D) All of these

154. Which of these is used as preanesthetic medication ?
- (A) Aspirin
  - (B) Atropine
  - (C) Amlodipine
  - (D) Astaxanthine
155. Most common side effect of Morphine is :
- (A) Liver damage
  - (B) Tinitis
  - (C) Blood dyscrasias
  - (D) Constipation
156. Which of these should not be given to a patient with active Tuberculosis ?
- (A) Kanamycin
  - (B) Hydrocortisone
  - (C) Alpha lipoic acid
  - (D) Streptomycin
157. Which of these anticoagulant is the fastest acting ?
- (A) Heparin
  - (B) Warfarin
  - (C) Protamine sulfate
  - (D) Ouabain
158. Colchicine was used mainly for treating :
- (A) Arthritis
  - (B) Gout
  - (C) Diabetes
  - (D) Hypertension
159. Most useful treatment option for Bacterial Meningitis is :
- (A) Tetracycline
  - (B) Cefotaxime
  - (C) Kanamycin
  - (D) Carbachol
160. Which of the following is TNF blocker ?
- (A) Atenolol
  - (B) Sodium Barbiturate
  - (C) Etanercept
  - (D) Cromolyn Sodium
161. Incorrect statement about the important properties of Corona Virus :
- (A) Non-Enveloped RNA virus
  - (B) Enveloped RNA virus
  - (C) Contagious
  - (D) Can spread from person to person
162. Phenytoin should not be used during pregnancy because it cause :
- (A) Gum hypertrophy
  - (B) Hypersensitivity
  - (C) Hirsutism
  - (D) Hypoplastic phalanges
163. Digitalis improves atrial fibrillation by :
- (A) Decrease conduction through AV
  - (B) By decreasing cardiac contractility
  - (C) Increase in refractoriness of AV nodal tissue
  - (D) By causing bradycardia

164. Adverse effect of depot preparation of triamcinolone :
- (A) Atopic dermatitis
  - (B) Proximal myopathy
  - (C) Vasculitis
  - (D) Atrophic rhinitis
165. Which of the following drug is devoid of decreasing angiotensin II activity ?
- (A) Enalapril
  - (B) Valsartan
  - (C) Nesiritide
  - (D) Omapatrilat
166. Which of the following drug is having additional platelet anti-aggregatory effect ?
- (A) Prazosin
  - (B) Losartan
  - (C) Amlodipine
  - (D) Diazoxide
167. Metoprolol is metabolized by which of the following enzyme ?
- (A) CYP2C9
  - (B) CYP2C19
  - (C) CYP2C8
  - (D) CYP2C6
168. Which of the following statement is not true with respect to butyryl cholinesterase ?
- (A) It is found in all cholinergic sites, RBC, and gray matter
  - (B) It is found in plasma, liver, intestine, and white matter
  - (C) It slowly hydrolyses Acetylcholine
  - (D) It is responsible for the hydrolysis of ingested esters
169. What is the drug of choice for eclampsia ?
- (A) Tiagabine
  - (B) Vigabatrin
  - (C) Magnesium Sulphate
  - (D) Sodium valproate
170. Which is the first-choice drug for hyperprolactinaemia ?
- (A) Bromocriptine
  - (B) Cabergoline
  - (C) Quniagolide
  - (D) Pergolide
171. Which of the following diuretics are preferred in hypercalciuric patients ?
- (A) Loop diuretics
  - (B) Potassium sparing diuretics
  - (C) Thiazide diuretics
  - (D) Aldosterone antagonists
172. Which of the following fluoroquinolone is having QTc prolongation action ?
- (A) Levofloxacin
  - (B) Lomefloxacin
  - (C) Pefloxacin
  - (D) Gatifloxacin

3. Remdesivir targets :
- (A) RNA-dependent RNA polymerase
  - (B) Reverse transcriptase
  - (C) Glycoprotein 120
  - (D) Spike protein
174. Heart rate of a patient on imipramine rises to 120/min and has blurred vision. The effect is due to :
- (A) Anti-muscarinic effect of imipramine
  - (B) Epinephrine potentiator
  - (C) Ganglionic blocker
  - (D)  $\alpha$ -adrenergic antagonist
175. Which among the following drug combinations does not produce an additive effect ?
- (A) Aspirin + Paracetamol
  - (B) Nitrous oxide + Halothane
  - (C) Ephedrine + Theophylline
  - (D) Acetylcholine + Physostigmine
176. Heart contraction is initiated by :
- (A) Left Atrium
  - (B) Right ventricle
  - (C) SA node
  - (D) AV node
177. The Dorsal Root Ganglion (DRG) are located :
- (A) Near the Heart
  - (B) Near the spinal cord
  - (C) Near the peripheral nociceptors
  - (D) None of these
178. Peyer's Patches in ileum perform the following function :
- (A) Secretion of digestive enzyme
  - (B) Further digestion of food
  - (C) Absorption of water and nutrients
  - (D) Both (B) and (C)
179. Pigment responsible for light yellow to pale coloration of urine :
- (A) Bilirubin
  - (B) Urobilin
  - (C) Biliverdin
  - (D) None of these
180. The blood pressure of healthy human is represented as :
- (A) 120/80
  - (B) 80/120
  - (C) 120/60
  - (D) 60/120
181. Amount of air that moves in or out of lungs with each respiratory cycle :
- (A) Minute volume
  - (B) Tidal volume
  - (C) Vital capacity
  - (D) Force expiratory volume
182. Methyl Testosterone is a steroidal hormone of the :
- (A) Pituitary
  - (B) Follicle
  - (C) Corpus luteum
  - (D) Interstitial cells

183. Reteroperitoneal in anatomy means : (B) 5.5 – 6.4%  
(A) Left side of Peritoneum (C) 6.5% and above  
(B) Right side of Peritoneum (D) None of these  
(C) Front of the peritoneum  
(D) Behind the peritoneum
184. The lung is lined by thin layer of tissue known as :  
(A) Pleura  
(B) Peritoneum  
(C) Alevoli  
(D) Bronchioles
185. Ocular hypertension lead to :  
(A) Myopia  
(B) Metropia  
(C) Glaucoma  
(D) None of these
186. Blood that has the lowest risk of causing serious reactions for most people who receive it :  
(A) A +  
(B) B +  
(C) AB  
(D) A –
187. Cardiac muscles are :  
(A) Voluntary  
(B) Involuntary  
(C) Skeletal  
(D) None of these
188. Hb1 Ac levels range for diabetes :  
(A) 4.5 – 5.4%
189. EEG is done to measure :  
(A) Brain Activity  
(B) Muscle Activity  
(C) Both (A) and (B)  
(D) Neither (A) Nor (B)
190. Following are the mechanism for heat loss from the body except :  
(A) Radiation  
(B) Evaporation  
(C) Conduction to objects  
(D) Sublimation
191. Arneth count :  
(A) Is utilized to calculate the heartbeat of a dying man  
(B) Is utilized to calculate the inspiratory volumes  
(C) Is utilized to classify neutrophils  
(D) Is a marker of failing kidney
192. Blind spot of retina does not form any images as :  
(A) It is not present in the optical axis of the eye  
(B) Here rods and cones are absent  
(C) On this part only rods are present  
(D) Nerve fibres of this region don't contribute to the formation

193. Volkmann's Contracture is the clinical signs of which of the following condition ?
- (A) Heart attack
  - (B) Myocardial infraction
  - (C) Angina pectoris
  - (D) Ischaemia of forearm
194. Swallowing and speech is controlled by which of the following nerve ?
- (A) Accessory nerves
  - (B) Hypoglossal nerves
  - (C) Abducent nerves
  - (D) Facial nerves
195. Vitamin K is essential for the synthesis of which clotting factors ?
- (A) I, III, IX, VII
  - (B) II, VII, IX, X
  - (C) V, VIII, VI, VII
  - (D) III, V, VIII, IX
196. What is the hemispherical pale area of the nail called ?
- (A) Mantle
  - (B) Cuticle
  - (C) Lunula
  - (D) Nail bed
197. Proprioceptor senses are generated in :
- (A) Skin
  - (B) Muscles and joints
  - (C) Endocrine glands
  - (D) Internal organs of the body
198. The outer plexus of the enteric nervous system is also called as :
- (A) Submucosal plexus
  - (B) Meissner's plexus
  - (C) Auerbach's plexus
  - (D) Choroid plexus
199. All lead to the increase in BMR except :
- (A) Thyroid hormone
  - (B) Fever
  - (C) Sleep
  - (D) Male sex hormones
200. With which organ the Symphysis pubis is associated ?
- (A) Anteriorly with the urinary bladder
  - (B) Anteriorly with the kidney
  - (C) Posteriorly with the uterus and the upper part of the vagina
  - (D) Inferiorly with the urethra and muscles forming the pelvic floor

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