GPAT-2022

Multiple Choice Questions

Pharmaceutics

1. **The intracellular fluid volume including those of the blood cells is approximately**
(a) 15 litres (b) 20 litres (c) 27 litres (d) 35 litres

2. **India's first Central Drug Laboratory was established at**
(a) Mumbai (b) Lucknow
(c) Kolkata (d) Hyderabad

3. **Which of the following instrument is used to determine surface area and pore structure of pharmaceutical powders**
(a) Coulter counter (b) Andrerson apparatus
(c) Quantasorb (d) Optical microscopy

4. **In the process of extraction, if maceration is accomplished by heating the drug and solvent in a close vessel, then this modification is known as**
(a) Digestion (b) Refining
(c) Expression (d) Rendering

5. **The below mentioned complex is not the type of inclusion compounds**
(a) Channel-Lattice type (b) Quinhydrone complex
(c) Layer type (d) Clathrates

6. **Prescription price consists of**
(a) Cost of ingredients only
(b) Cost of professional fee only
(c) Cost of ingredients and cost of dispensing only
(d) Cost of ingredients and professional fee only

7. **Given below are two statements**
Statement I: Drugs Controller General of India is the Chairman of Drugs Technical Advisory Board (DTAB)
Statement II: In DTAB, there will be eight ex-officio members, five nominated and five elected members
In light of the above statements, choose the most appropriate answer from the options given below
(a) Both Statement I and Statement II are correct
(b) Both Statement I and Statement II are incorrect
(c) Statement 1 is correct but Statement II is incorrect
(d) Statement I is incorrect but Statement II is correct

8. **Which of the following vehicles (not required to be sterile, but must be pyrogen free) is intended to be used in the manufacture of injectable products to be sterilized after preparation**
(a) Purified Water
(b) Water for Injection USP
(c) Sterile Water for Injection USP
(d) Bacteriostatic Water for Injection USP

9. **As per the Pharmacy Act, in the composition of Pharmacy Council of India, the total number of Ex-officio members is**
(a) THREE (b) FOUR (c) SIX (d) EIGHT

10. **Match List 1 of Unit operations of crystallizers with List II of principle/characteristics properties of crystallizer**

Crystallizer	Principle/Characteristics
Unit operations	Properties
1. Swenson-walker crystallizer	[P] Adiabatic evaporative cooling
2. Krystal crystallizer	[Q] Cooling alone.
3. Vacuum crystallizer	[R] Evaporation
4. Forced circulation type crystallizer	[S] Heat exchange, separa tion, circulation

Choose the correct answer from the options given below
(a) 1- [P], 2- [Q], 3- [S], 4- [R]
(b) 1- [R], 2- [P], 3- [S], 4- [Q]
(c) 1- [P], 2- [S], 3- [R], 4- [Q]
(d) 1- [Q], 2- [R], 3- [P], 4- [S]

11. **The process of establishing a product in the minds of target customer is called as**
(a) Product positioning (b) Product differentiation
(c) Product targeting (d) Market segmentation

12. **Which of the following materials are specified as a suitable diluent for powdered opium**
[A] Powdered grass
[B] Powdered cocoa husk
[C] Lactose colored with burnt sugar
[D] Powdered digitalis
Choose the correct answer from the options given below
(a) A and D only (b) B and D only
(c) B and C only (d) A and C only

13. **Which of the following statement is false**
(a) Reducing agents often cause fading of dyes
(b) Anionic dyes are the most stable at acid pH
(c) Basic dyes are not sensitive to alkalies
(d) Cationic dyes may be precipitated by soaps and clays

14. **In the process of sugar coating, to prevent moisture penetration into the tablet core, which one of the following step is performed**
(a) Seal Coating (b) Subcoating
(c) Syrup Coating (d) Polishing

15. **Oral efficacy of Sabin Polio Vaccine can be adequately explained by which of the following processes of absorption**
(a) Passive diffusion (b) Active transport
(c) lon-pair transport (d) Pinocytosis

16. Hospital Formulary contains information on the following parameters EXCEPT

(a) Composition (b) Indication
(c) Pricing (d) Dosage and administration

17. Which one of the following is a rate equation for second order bimolecular reaction if, a and b are the initial concentrations of A and B, respectively, and x is the concentration of each species reacting in time t and k is second-order reaction

(a) k = [2.303 / t * (a - b)][log(a) * (a - x) / b * [b - x)]
(b) k = [2.303 / t * (a - b)][log(b) * (a - x) / a * (b - x)]
(c) k = [2.303 / t * [a - b)] / [log(b) * (a - x) / a * (b - x)]
(d) k = [2.303 / t * (a - b)] / [log(a) * (a - x) / b * (b - x)]

18. Which of the following DRYERS is a "static bed dryer"

(a) Freeze dryer (b) Fluid bed dryer
(c) Spray dryer (d) Flash dryer

19. In thermoplastic materials, which are used as a container/packaging material, additives like polyethylene and polypropylene are used as

(a) Plasticizer (b) Stabilizers
(c) Surface treatment film (d) Slip agent

20. Match List I with List II

List I	List II
1. When two dosage forms have equal tmax	[P] When their total body clearance is constant
2. AUC values of the two analogs can be compared to measure relative bioavailability	[Q] Absorption rate constants are equal
3. Urinary data is valid to measure bioavailability	[R] When fraction absorbed and elimination rate is constant
4. C max is proportional to the rate of absorption	[S] Excretion of drug and/or metabolite is related to the bioavailable dose

Choose the correct answer from the options given below

(a) 1 - [Q], 2 - [P], 3 - [S], 4 - [R]
(b) 1 - [P], 2 - [Q], 3 - [R], 4 - [S]
(c) 1 - [P], 2 - [S], 3 - [R], 4 - [Q]
(d) 1 - [R], 2 - [P], 3 - [Q], 4 - [S]

21. Boston Consulting Group (BCG) Matrix is used for

(a) Product life cycle management
(b) SWOT analysis
(c) Product portfolio management
(d) Gap analysis

22. Given below are two statements

6WDWHPHQW , 9HUWLFDO ORQJ WXEH &RQWLQXRXV &DOOHG DV 5LVLQJ ¿OP HYDSRUDWRU
6WDWHPHQW ,,)DOOLQJ ¿OP HYDSRUDWRU &DOOHG DV)RUFHG FLUFXODWLQ W\SH HYDSRUDWRU
,Q OLJKW RI WKH DERYH VWDWHPHQW\ &KRRVH WKH PRVW DS

propriate answer from the options given below

(a) Both Statement I and Statement II are correct
(b) Both Statement I and Statement II are incorrect
(c) Statement I is correct but Statement II is incorrect
(d) Statement I is incorrect but Statement II is correct

23. Of the following, which one is exempted from importing into India without the requirement of a license

(a) Insulin (b) Etoposide
(c) Lactose (d) Glutethimide

24. Given below are two statements, one is labelled as Assertion [A] and the other as is labeled Reason [R]

$VVHUWLRQ >$@ 'XULQJ WKH SURF
WDEOHW PDQXIDFWXULQJ H[SDQVL
5HDVRQ >5@ ([SDQVLRQ RFFXUV LQ
RI 3ODVWLF GHIRUPDWLRQ WKDW K

pression process

In light of the above statements, choose the correct answer from the options given below

(a) Both [A] and [R] are true and [R] is the correct explanation of [A]
(b) Both [A] and [R] are true but [R] is NOT the correct explanation of [A]
(c) [A] is true but [R] is false.
(d) [A] is false but [R] is true

25. Given below are two statements, one is labelled as Assertion [A] and the other is labelled as Reason [R]

$VVHUWLRQ >$@ 7KH SUHVVXUH ¿O
SKDUPDFHXWLFDO DHURVRO LV XVX
¿OOLQJ PHWKRG
5HDVRQ >5@ %HFDXVH ZLWK SUHVV
SURGXFWLRQ VSHHG FDQ EH DFKLH
LV ORVW
,Q OLJKW RI WKH DERYH VWDWHPHQ
DQVZHU IURP WKH RSWLRQV JLYHQ

(a) Both [A] and [R] are true and [R] is the correct explanation of [A]
(b) Both [A] and [R] are true but [R] is NOT the correct explanation of [A]
(c) [A] is true but [R] is fake
(d) [A] is false but [R] is true

26. Statement I: The problem of declining potency in an unstable preparation can be ameliorated by the addition of an excess or overage of the active ingredient
Statement II: Overages, are added to pharmaceutical formulations to keep the content of the active ingredient well above the limit, compatible with therapeutic requirements. for a predetermined period of time

(a) Both Statement I and Statement II are correct
(b) Both Statement I and Statement II are incorrect
(c) Statement I is correct but Statement II is incorrect
(d) Statement I is incorrect but Statement II is correct

27. _____ is the practice of pharmacy in private and government-owned hospitals, health maintenance organizations (HMOs), clinics, walk-in health centers, and nursing homes

(a) Community pharmacy
(b) Health-systems pharmacy
(c) Government service
(d) Organizational management

28. Which one of the following statement holds true for Passive Diffusion

(a) Greater the area and greater the thickness, faster is the diffusion
(b) Rate of drug transfer is directly proportional to the concentration gradient between Gl fluids and the blood compartment
(c) Rate of transfer of ionised drug species is 3-4 times the rate for unionised drug species
(d) Greater the membrane/water partition coefficient of drug, slower is the absorption

29. Choose the correct answer from the options given below
[A] Water and alcohol
[B] Acetone and akohol.
[C] Water and benzene
[D] Carbon tetrachloride and benzene
Select correct option for miscible solvents
(a) A and B only (c) A, B and D only
(b) A, B and C only (d) A and D only

30. Which of the following is most appropriate to crystalline solid
(a) Give diffraction bands
(b) Characteristics geometrical shapes
(c) Sharp melting point
(d) All of these

31. Which of the following is NOT a cause for the drug undergoing nonlinear pharmacokinetics
(a) Enzyme inhibition
(b) Enzyme induction
(c) Saturation of carrier molecules
(d) Saturation of plasma protein binding

32. Water for injection is prepared by using_____ distillation
(a) Fractional (b) Molecular
(c) Simple (d) Steam

33. Decrease in effective surface area available to the dissolution medium leading to a fall in the dissolution rate, may happen due to which one of the following reasons
(a) Addition of cyclodextrin
(b) Addition of surfactant to increase the surface tension
(c) Addition of hydrophilic diluent
(d) Surface charges due to extreme particle size reduction

34. In the process of adding lubricant to a granulation, the lubricant is divided finely by passing it through 60-100 mesh nylon cloth on to the granulation, in production this process is called as _____ the lubricant
(a) Bolting (b) Mixing (c) Tumbling (d) Grinding

35. Which one of the following manufacturing facility may not be required for oral solid dosage form
(a) Material Handling (b) Chemical weighing
(c) Blending (d) Aseptic filling

36. The temperature at which the solubility of the surfactant is equal to the CMC, is called as
(a) Critical micellar concentration
(b) Cloud point
(c) Krafft point
(d) Solubilization

37. Cottrell's method is used for the measurement of
(a) Depression of freezing-point
(b) Elevation of boiling-point
(c) Lowering of vapour pressure
(d) Osmotic pressure

38. Drugs 'A', 'B' and 'C' follow zero order, first order and second order degradation kinetics respectively, but have the same rate constant Which of the following statement is true in this respect
(a) Drug 'A' will be the first to degrade by 50%
(b) Drug 'B' will be the first to degrade by 50%
(c) Drug 'C' will be the first to degrade by 50%
(d) Drugs 'B' and 'C' will degrade by 50% at the same time

39. Which of the following is an example of a thermosetting plastic material
(a) PVC (b) Polyester (c) Polypropylene (d) Urethanes

40. Given below are two statements, one is labelled as Assertion [A] and the other is labeled as Reason [R]
Assertion [A]: In the manufacturing of glycerol-gelatin suppositories, overfilling of mould is necessary
Reason [R]: Glycero-gelatin bases contract very little on cooling and the excess cannot be neatly removed
In light of the above statements, choose the correct answer from the options given below
(a) Both [A] and [R] are true and [R] is the correct explanation of [A]
(b) Both [A] and [R] are true and [R] is the correct explanation of [A]
(c) [A] is true but [R] is fake
(d) [A] is false but [R] is true

41. A typical skin cream consisting of stearic acid, potassium hydroxide, glycerin, water, preservative and perfume, would be commonly known as
(a) Cold cream (b) Vanishing cream
(c) Foundation cream (d) All purpose cream

42. Which of the following conjugation reactions DOES NOT REQUIRE reaction with an activated conjugating agent
(a) Glucouronidation (b) Sulfation
(c) Methylation (d) Glutathione conjugation

43. Stability index, determined for evaluating the stability of oil-water viscous emulsions, based on electric conductivity changes during non-destructive short heating-cooling- heating cycles
[A] is defined as Δ/h, where h is the change in the conductivity between 35°C and 45°C and Δ is the conductivity interval within the two heating curves at 35°C
[B] Indicates the relative change in enthalpy between two cycles
[C] is defined as 2Δ/h, where h is the change in the conductivity between 35°C and 45°C and Δ is the conductivity interval within the two heating curves at 35°C
[D] Indicates the relative change in conductivity between two cycles Choose the correct answer from the options given below

(a) A and B only (c) C and D only
(b) B and C only (d) D and A only

Pharmacology

44. Match List I with List II Match the following drugs with their classes

/LVW ,	/LVW ,,
'58*6	&/$66(6
1. Anakinra	[P] IL-2 receptor antagonist
2. Basiliximab	[Q] TNFα inhibitors
3. Infliximab	[R] Calcineurin inhibitors
4. Tacrolimus	[S] Mtor inhibitors
	[T] IL-1 receptor antagonist

Choose the correct answer from the options given below
(a) 1- [R], 2- [Q], 3- [P], 4- [S]
(b) 1- [T], 2- [Q], 3- [R], 4- [P]
(c) 1- [P], 2- [R], 3- [T], 4- [Q]
(d) 1- [T], 2- [P], 3- [Q], 4- [R]

45. Which of the following is a malignant type of tumor
(a) Lipoma (b) Adenoma
(c) Melanoma (d) Osteoma

46. In human body system operates to maintain pH of blood plasma
(a) The acetate buffer (b) The lysis buffer
(c) The potassium citrate (d) The carbonic acid

47. Match List 1 with List II Match the following with their mechanism of action

/LVW	/LVW ,,
0(&+$1,60 2) $&7,21	'58*6
1. DPP4 inhibitors	[P] Metformin
2. KAT Channel blocker	[Q] Pioglitazone
3. PPARY activator	[R] Glimepiride
4. AMPK Activator	[S] Teneligliptin
	[T] α glucosidase inhibitors

Choose the correct answer from the options given below
(a) 1- [Q], 2- [T], 3- [R], 4- [S]
(b) 1- [Q], 2- [R], 3- [S], 4- [P]
(c) 1- [S], 2- [R], 3- [Q], 4- [P]
(d) 1- [S], 2- [P], 3- [T], 4- [R]

48. Blood grouping is basically possible because of the presence of following
(a) Antigens on RBCs (b) MHCs on WBCs
(c) MHCs on RBCS (d) Antigens on WBCS

49. The objective of the Abbreviated New Drug Application is to
(a) Get approval to conduct clinical trials
(b) Get market approval of new chemical entities
(c) Get market approval of generics
(d) Get approval for animal studies of new chemical entities

50. Which of the following could be the reason(s) for Pharmacokinetic Drug Interactions
[A] Interference with absorption
[B] Changes in protein binding
[C] Competition at receptor sites
[D] Interference with renal excretion
Choose the correct answer from the options given below
(a) A, B and C only (b) A. B and D only
(c) A, C and D only (d) C only

51. Match the following phases of clinical trial with their significance

/LVW ,	/LVW ,,
1. Phase-1	[P] Post marketing surveillance
2. Phase-0	[Q] Microdosing
3. Phase-3	[R] First in human dose
4. Phase-4	[S] Multicentric trials

Choose the correct answer from the options given below
(a) 1-[R], 2-[Q], 3-[P], 4- [S]
(b) 1-[R], 2-[Q], 3-[S], 4- [P]
(c) 1-[Q], 2-[S], 3- [P], 4- [R]
(d) 1-[S], 2-[P], 3-[Q], 4- [R]

52. Formation and maintenance of myelin sheath around CNS axons are done by
(a) Schwann cells (b) Oligodendrocytes
(c) Microglia (d) Astrocytes

53. Which of the following statement is true for the periosteum of bone
(a) Protects the bone by assisting in fracture repair
(b) Has osteogenic cells which enable bone to grow in thickness, but not in length
(c) It is composed of an outer fibrous layer of dense irregular connective tissue and an inner osteogenic hyer that consists of cells
(d) All of the above

54. Which of the following clinical feature is not responsible for insulin resistance in type 2 diabetes
(a) Increased LDL (b) Increased HDL
(c) Reduced HDL (d) Increased triglycerides

55. Which of the following is a specific enzyme marker of cell death in acute myocardial infarction
(a) Creatine Kinase-MB
(b) Aspartate aminotransferase
(c) Lactate dehydrogenase
(d) Cardiac troponin

56. A patient with pheochromcytoma is undergoing surgery and has not been administered with alpha receptor blocker If he is administered with intravenous propranolol, thenwhich of the following effects will be eviden
(a) There will be a rise in the blood pressure
(b) There will be a fall in the blood pressure
(c) The blood pressure will remain unchanged
(d) The patient may suffer severe bronchoconstriction

57. Nitric oxide synthase exists in

(a) Two isoforms (b) Three isoforms
(c) Four isoforms (d) Five isoforms

58. Viable cells (viability assay) are assayed by all of the following methods EXCEPT

(a) MTT/MTS/Resazurin assay
(b) Apoptosis assay
(c) ATP assay
(d) Protease marker assay

59. Which of the following statements are true with the Adverse Drug Reactions

[A] Any response to a drug which is noxious and unintended
[B] Which occurs at doses normally used in man for prophylaxis, diagnosis or therapy of a disease
[C] Adverse drug event is same as that of Adverse Drug Reaction
[D] Which occurs at normal dose or overdose when used for prophylaxis, diagnosis or therapy of a disease

Choose the correct answer from the options given below

(a) A and B are true while C and D are false
(b) A and C are true while B and D are false
(c) B, C and D are false, Only A is true
(d) A, B and C are false, Only D is true

60. Which of the statement is true in geriatrics practice

(a) The incidence of Adverse Drug Reactions diminishes with advancement of age
(b) Dose reduction is inevitable for each and every drug used in geriatric patients
(c) Patient compliance is highest in geriatric patients
(d) Polypharmacy is often a problem in elderly

61. The 'Up-and-Down' method for a projected LD,, determination is described in the

(a) OECD Guideline 401 (c) OECD Guideline 423
(b) OECD Guideline 420 (d) OECD Guideline 425

62. Match List I with List II

List I	List II
POISONING	TREATMENT
1. Warfarin	[P] Pralidoxime
2. Carbon monoxide	[Q] Oxygen
3. Cyanide	[R] Vitamin K
4. Nitrites	[S] Dicobalt edetate
5. Organophosphates	[T] Methylene blue

Choose the correct answer from the options given below

(a) 1- [R], 2 [Q], 3- [S], 4- [T], 5- [P]
(b) 1- [P], 2- [Q], 3- [T], 4- [S], 5- [R]
(c) 1- [Q], 2- [S], 3- [P], 4- [R], 5- [T]
(d) 1- [T], 2- [Q]. 3- [R], 4- [P], 5- [S]

63. Which of the following is/are not true about Parkinson's disease

[A] Parkinson's disease is caused by the degeneration of the substantia nigra in the midbrain
[B] Parkinson's disease is caused by the degenerative loss of nigrostriatal dopaminergic neurons
[C] %UDG\NLQHVLD ULJLGLW\ DQG W V\PSWRPV LQ 3DUNLQVRQ¶V GLVHDV
[D] Parkinson's disease is caused by the degenerative loss of nigrostriatal cholinergic neurons

Choose the correct answer from the options given below

(a) A, B and D only (b) A, B and D only
(c) Conly (d) D only

64. Tendon rupture or tendonitis of Achilles tendon is an adverse reaction of

(a) Fluoroquinolones (b) Tetracyclines
(c) Cephalosporins (d) Aminoglycosides

65. Regarding Bromocriptine, which of the following statement is TRUE

[A] It is a relatively selective dopamine D2 agonist with prominent action on pituitary lactotrophs (inhibit prolactin release)
[B] In striatum (antiparkinsonian)
>&,@ &7= DQWLHPHWLF
[D] As an adjunctive treatment for type 2 DM

Choose the correct answer from the options given below

(a) A, B and D only (c) B and D only
(b) A, B and C only (d) A and B only

66. Which of the following statement/s are correct regarding the alkylating agents as anticancer agents

[A] They get converted into highly nucleophilic anions and bind to the nitrogen atom of guanine intercalating the DNA strands
[B] Cyclophosphamide and busulfan belong to this class
>&@KH\ LQKLELW WKH '1$ V\QWKHVL '1$ SRO\PHUDVH HQ]\PH
[D] They inhibit the DNA supercoiling by irreversibly inhibiting the DNA topoisomerase enzyme

Choose the correct answer from the options given below

(a) A, B and D only are correct
(b) Only B is correct
(c) Only A and B are correct
(d) All A, B, C and D are correct

67. Reason for the combination of Diphenoxylate (2.5 mg) + Atropine (0.025 mg) is to

(a) Inhibits the side effects of Diphenoxylate
(b) Discourage abuse of Diphenoxylate
(c) Augment the anti-motility action of Diphenoxylate
(d) Suppress gastroenteritis-related vomiting

68. Which of the following type is a reversible cell injury

(a) Karyolysis (b) Nuclear clumping
(c) Phagocytosis (d) Cytoskeletal damage

69. A neonate suffering from icterus is intravenously administered with Phenobarbital The justification for this therapy is

(a) Phenobarbital is a short acting barbiturate and hence safe to induce sleep in neonates
(b) Phenobarbital suppresses the bilirubin synthesis in neonates
(c) Phenobarbital suppresses hepatic glucuronyl transferase and increases clearance of bilirubin
(d) Phenobarbital induces hepatic glucuronyl transferase and increases clearance of bilirubin

70. The quadruple therapy of Helicobacter pylori infection includes
(a) Bismuth subsalicylate, metronidazole, tetracycline and a proton pump inhibitor
(b) Streptomycin, metronidazole, tetracycline and a proton pump inhibitor
(c) Sulfasalazine, metronidazole, tetracycline and a proton pump inhibitor
(d) Bismuth subsalicylate, metronidazole, azithromycin and a proton pump inhibitor

71. When RBCs are kept in isotonic NaCl solution
(a) There will not be any movement of solutes across the RBC membrane
(b) The RBC shape and size will not change
(c) Because the osmotic pressure across the membrane is same the solutes will not cross across the RBC membrane
(d) All of the above

72. Which statements are not true about the grafts
[A] Isografts are grafts in which the donor and recipient is the same individual
[B] Autografts are grafts between the donor and recipient of the same genotype
> & @ @ O O R J U D I W V D U H W K R V H L Q Z K L F K W K H G R Q R U L V R I W K H V D P H V S H F L H V E X W R I D G L u H U H Q W J H Q R W \ S H
[D] Xenografts are those in which the donor is of a different species from that of the recipient
Choose the correct answer from the options given below
(a) A, B and D only (b) A and B
(c) B and C (d) C and D

73. At the site of tissue injury, the activated platelet releases ADP and activates surrounding platelets to form platelet-plug, but this process will not continue to activate whole platelets in the body to form a massive ball of platelets because
(a) The adjacent normal endothelial cells physiologically release 'NO' which is a platelet inhibitor
(b) There will be plasminogen activators in the plasma
(c) There will be plasminogen activator inhibitors in plasma
(d) There will be a tissue plasminogen activator (tPA) which inhibits the platelets

Pharmacognosy

74. Dioscin, a steroidal saponin glycoside of Dioscorea tubers after hydrolysis gives
(a) Diosgenin +3 Glucose
(b) Diosgenin+ 3 Rhamnose
(c) Diosgenin +2 Glucose + 1 Rhamnose
(d) Diosgenin + 1 Glucose + 2 Rhamnose

75. Rancidity in the fixed oils generally show
(a) Higher lodine value as compared to the standards
(b) Higher Acid value as compared to the standards
(c) Higher Peroxide value as compared to the standards
(d) Higher level of Unsaponifiable matter

76. One of the following is an example of chemical method of evaluation
(a) Determination of volatile oil
(b) Determination of refractive index
(c) Detection of alkaloids
(d) Determination of vascular bundles

77. 'Star spots' present in the transverse section of decorticated Rhubarb rhizomes are
(a) Lignified cells
(b) Pericyclic fibres
(c) Concentric vascular bundles
(d) Crystals of calcium oxalate

78. The best quality of the Lemon oil is obtained by using
(a) Hydrodistillation method (b) Extraction method
(c) Enfleurage method (d) Hand press method

79. Type of alkaloids present in Colchicum
(a) Tropane alkaloids (b) Steroidal glycoalkaloids
(c) Amino alkaloids (d) Quinoline alkaloids

80. HPTLC analysis is useful for following types of analysis of herbal drugs
[A] Quantitative estimation of marker compound
[B] Authentication of extracts
> & @ @ W H F W L R Q R I S H V W L F L G H V
[D] Standardization of herbal drugs
Choose the correct answer from the options given below
(a) A, B and D only (b) D only
(c) A and D only (d) A, B, C and D

81. Anthranilic acid is an immediate precursor in the formation of
(a) Tyrosine (b) Tryptophan
(c) Ornithine (d) Methidine

82. Which of the below are true for Rutin
[A] Rutin is a Bioflavonoid
[B] Rutin is a flavonol glycosides
> & @ 5 X W L Q L V X V H G L Q &D S L O O D U \ E C
[D] Rutin is used as Vitamin P
(a) A and B only (b) A, B and C only
(c) A, B and D only (d) All of these

83. Tropane nucleus is combination of
(a) Pyrolidine & piperidine (c) Pyrolidine & oscine
(b) Pyrolidine & pyridine (d) Piperidine & oscine

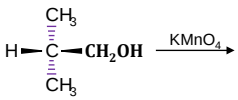
Pharmaceutical Chemistry

84. When alkenes are epoxidised with optically active per acids, optically active epoxides are formed. Under the same defined conditions, epoxidation of E-but-2-ene by peroxycamphoric acid affords unequal yields of enantiomeric epoxides. However, a similar epoxidation of Z-but-2-ene can only afford
(a) Z-epoxide (b) Meso epoxide
(c) E-epoxide (d) None of these

85. Phenol upon treatment with bromine in the presence of carbon disulphide at 0°C yiekls
(a) 4-Bromophenol (b) 2-Bromophenol
(c) 2,4-Dibromophenol (d) 2, 4, 6-Tribromophenol

86. Identify the major product formed in the below reaction from the four choices listed below

(a) (S)-(+)-2-methylbutanoic acid
(b) (S)-(-)-2-methylbutanoic acid
(c) (S)-(+)-2-methylbutanol
(d) (S)-(-)-2-methylbutanol



87. Among the following organic compounds, the one that is non- aromatic is

(a) (b) (c) (d)

88. Identify which statement among the following is true in case of E2 and S. 2

(a) Secondary substitution undergoes slow elimination and fast substitution
(b) Primary substitution undergoes slow elimination and fast substitution
(c) Tertiary substitution undergoes slow elimination and fast substitution
(d) Primary substitution does not undergo elimination and substitution reactions

89. Insertion of an oxygen in a carbonyl compound to form an ester is known as

(a) Baeyer Villiger oxidation (b) Sharpless epoxidation
(c) Prevost oxidation (d) Lossen rearrangement

90. Identify the product formed when 2-cholestene is treated with Br

(a) 5B, 6a-dibromocholestane
(b) 2ß, 3a-dibromocholestane
(c) 5a, 6ß-dibromocholestane
(d) 5a, 6ß-dibromo 38-hydroxy cholestan

91. Controlled alkylation of a ketone via an enamine intermediate is named as

(a) Mannich reaction (b) Robinson annulation
(c) Stork reaction (d) Bamford Stevens reaction

92. Heme is

(a) Iron containing tetrapyrrole
(b) Iron containing polypeptide
(c) Copper or magnesium containing tetrapyrrol
(d) Iron containing imidazole

93. Isobutane upon bromination under the influence of ultraviolet light at 127 deg 0C affords the following major product

(a) N-Butyl bromide (b) Isobutyl bromide
(c) sec-Butyl bromide (d) ter-Butyl bromide

94. Match the statements in List I with their correct answers in List II, respectively, in respect to modified 1" law of thermodynamics, and Choose the correct answer from the options given below

/ , 6 7 ,	/ , 6 7 , ,
1. Constant heat (q = 0)	[P] Isothermal
2. Reversible process at constant temperature (dT = 0)	[Q] Isometric
3. Constant volume (dV = 0)	[R] Adiabatic
4. Constant pressure (dP = 0)	[s] Isobar

(a) 1 -[Q], 2 -[P], 3 -[R], 4 -[S]
(b) 1 -[P], 2 -[R], 3 -[Q], 4 -[S]
[c] 1 -[R], 2 -[P], 3 -[Q], 4 -[S]
(d) 1 -[S], 2 -[P], 3 -[Q], 4 -[R]

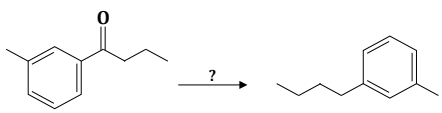
95. Ethylketazocine is a 6, 7-benzomorphan derivative with receptor selectivity

(a) Mu-opioid (b) Delta-opioid
(c) Kappa-opioid (d) NOP

96. In the determination of configuration of glucose, Fischer subjected (-) arabinose to Ruff's degradation The four-carbon sugar obtained by the degradation process was

(a) (-) Threose (b) (+) Threose
(c) Erythrose (d) (+) Erythros

97. The set of specific reagents used in the below-mentioned synthesis of m-(n-Butyl) toluene from n-propyl m-tolyl ketone is

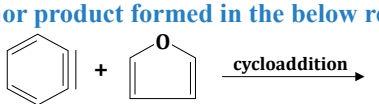


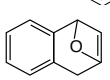
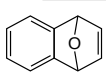
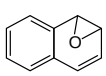
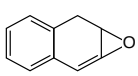
(a) Zn(Hg), HCI (b) $NaBH_4$, CH_3OH
(C) NH_2NH_2NaOH (d) $SnCL_2$,CH_3OH

98. Optically active mandelic acid can be synthesized from benzaldehyde in the presence of the enzyme

(a) Invertin (b) Myrosin
(c) Emulsin (d) Zymase

99. The major product formed in the below reaction is



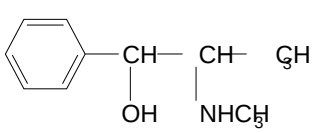
(a)  (b)  (c)  (d) 

100. Identify the functional groups from the below mentioned options that lead to weakening of benzoic acid
[A]-OH [B]-CI [c]-NH_2 [D]-NO_2

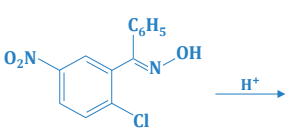
(a) A and B (d) A and D (c) B and C (d) A and C

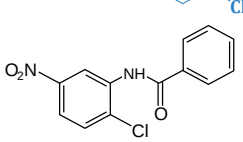
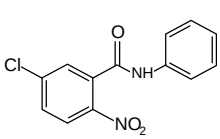
101. The below structure is of

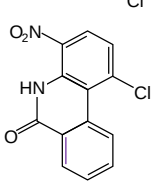
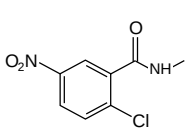
(a) Nor ephedrine
(b) Pseudoephedrine
(c) Ephedrine
(d) Nor pseudoephedrine



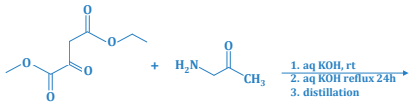
102. The major product formed in the below acid-catalyzed reaction

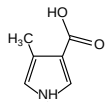
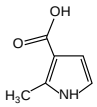


(a)  (b) 

(c)  (d) 

103. The major product formed in the below-given Knorr synthesis is



(a)
(b)
(c) 
(c) 

104. When 100 mL of 0.1 M sodium hydroxide solution is added to 100 ml of 0.1 M acetic acid (Ka = 1.82 * 10 deg) , pH of the solution will be

(a) 8.3 (b) 7.0 (c) 3.8 (d) 87

105. In the case of halogenation reaction of alkanes, abstract of primary hydrogen yieks a primary radical and abstract of secondary hydrogen yields a secondary radical

R-H+ Br- ⟶ R++H-Br

The above example is of

(a) High reactivity and low selectivity
(d) Low reactivity and low selectivity
(c) High reactivity and high selectivity
(d) Low reactivity and high selectivity

106. Identify the correct descending order of strength of nucleophilic solvents from the bebw-given options

(a) Trifluroethyl alcohol methanol formic acid acetic acid
(b) Formic acid acetic acid methanol trifluroethyl alcohol
(c) Methanol formic acid acetic acid, trifluroethyl alcohol
(d) Methanol acetic acid, formic acid trifluoroethyl alcohol

Pharmaceutical Analysis

107. According to the n + 1 rule, what would be the multiplicities of the signals in the proton NMR spectrum of 1, 1- dibromoethane

(a) Triplet and doublet (b) Quartet and doublet
(c) Triplet and quartet (d) Triplet and triplet

108. According to Mohr method, the silver nitrate solution can be standardized against primary-standard grade

(a) Sodium carbonate
(b) Sodium chloride
(c) Sodium hydrogen carbonate
(d) Sodium metabisulfite

109. Match the symbols in the List I with the terms used in the List II of conductance measurements and symbols

/LVW ,	/LVW ,,
6<0%2/6	7(506
1. 01	[P] Specific conductance
2. A	[Q] Electrical conductance
3. k	[R] Specific resistance
4. p	[S] Equivalent conductance

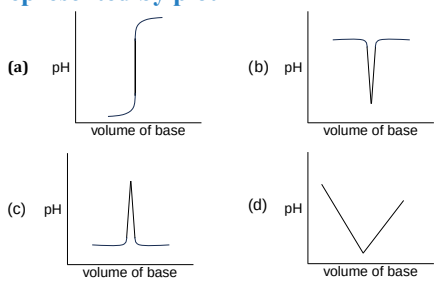
Choose the correct answer from the options given below

(a) 1-[R], 2-[P], 3-[S], 4- [S]
(b) 1-[S], 2-[S], 3-[P], 4- [R]
(c) 1-[S], 2-[S], 3-[R], 4-[P]
(d) 1-[P], 2-[R], 3-[S], 4-[S]

110. Benzene theoretically can have___ number of possible fundamental absorption bands in the IR spectrum

(a) 30 (b) 15 (c) 6 (d) 0

111. The titration of a strong acid with a strong bade is represented by plot



112. Potential at the equivalence point for a redox reaction

(a) $E = (bE_1^0 + a E_2^0)/(a + b)$
(b) $E=E^0$ (00592/n) x log Q
(c) $E=E^0$+ (00592/n) x log (Red/OX)
(d) $E = E1^0 + E_1^0/2$

113. Back-titration method is used for

[A] Volatile substances
[B] Insoluble substances
[C] Substances for which a quantitative reaction proceeds rapidly only in the presence of excess of the reagent
[D] Substances that require heating with a volumetric reagent during the determination, in which decomposition or loss of the reactants would occur in the process

Choose the correct answer from the options given below

(a) A only (b) A and C
(c) A, B and D (d) A, B, C and D

114. Match List I with List II

/,67 ,	/,67 ,,
%8))(56	S+ 9$/8(
1. HCI and KCI	[P] 8 to 10
2. HCI and Potassium Hydrogen Phthalate	[R] 0.2 to 4.0
3. NaOH and Potassium Hydrogen Phthalate	[Q] 1.2 to 2.2
4. H3BO3 NaOH, and KCI	[S] 4.2 to 5.8

Choose the correct answer from the options given below

(a) 1-[Q], 2-[R], 3-[S], 4-[P]
(b) 1-[R], 2-[Q], 3-[S], 4-[P]
(c) 1-[Q], 2-[S], 3-[P], 4-[Q]
(d) 1-[R], 2-[S], 3-[Q], 4-[P]

115. Boricacid with molecular weight 61.83 was partitioned between water and amyl alcohol at 25 °C. The amount of boric acid was determined to be 0.24 g in 250 ml of amyl alcohol and 0.32 g in 100 ml water. The partition coefficient of boric acid between water and amyl alcohol, when calculated at molar concentration for each of the solution, is

(a) 1.33 (b) 0.75
(c) 0.30 (d) 3.33

116. Match list I with list II, and

/LVW ,	/LVW ,,
9ROXPHWULF	6ROXWLRQ \ 6WDQGDUG
1. 0.1 M Iodine	[P] Potassium iodate
2. 0.1M Sodium thiosulphate	[Q] Potassium bromate
3. 0.1M Sodium hydroxide	[R] Potassium hydrogen phthalate
4. 0.1M Perchloric acid	[S] Arsenic trioxide
	[T] Potassium hydrogen phthalate

Choose the correct answer from the options given below

(a) 1-[S], 2-[Q], 3-[R], 4-[T]
(b) 1-[S], 2-[Q], 3-[R], 4-[P]
(c) 1-[P], 2-[S], 3-[Q], 4-[R]
(d) 1-[R], 2-[Q], 3-[S], 4-[P]

Other Subjects

117. Which one of the following is NOT a phospholipid

(a) Sphingomyelin (b) Lysolecithin
(c) Cardiolipin (d) Galactosylceramide

118. Citric acid cycle is the final pathway during the oxidation of

(a) Carbohydrates (b) Lipids
(c) Proteins (d) All of these

119. Given below are the two statements

Statement I: Glucose-6-phosphate can be formed from glucose, but not from glycogen

Statement II: Glucose-1-phosphate may be hydrolyzed to yield free glucose in liver

Choose the most appropriate answer from the options given below

(a) Both Statement I and Statement II are correct
(b) Both Statement I and Statement II are incorrect
(c) Statement I is correct but Statement II is incorrect
(d) Statement I is incorrect but Statement II is correct

120. All enzymes accelerate the reaction rates by

(a) Lowering activation energy barrier (ΔG_f) for a reaction
(b) Denaturing the substate
(c) Increasing the temperature
(d) Changing the pH

121. Match List I with List II

&ODVVL¿FDWLRQ	2I %DFWHULD
1. Gram positive spherical shaped nonmotile bacteria	[P] Clostridium tetani
2. Gram positive sporulating obligate anaerobic bacteria	[Q] Bacillus anthracis
3. Gram positive rod shaped non-sporulating bacteria	[R] Streptococcus sp
4. Gram positive sporulating rod shaped motile bacteria	[S] Corynebacterium diphtheria
	[T] Ecoli

Choose the correct answer from the options given below

(a) 1-[R], 2-[S], 3-[P], 4-[T]
(b) 1-[S], 2-[P], 3-[Q], 4-[R]
(c) 1-[R], 2-[P], 3-[S], 4-[Q]
(d) 1-[P], 2-[S], 3-[Q], 4-[R]

122. Which of the following statements are true about Prions

[A] Prion is a type of infectious protein
[B] Prions contain single stranded RNA
&&@UHXW]IHOGW -DNRE GLVHDVH & 3ULRQ
[D] Prions are even more difficult to destroy than bacterial spores

Choose the correct answer from the options given below

(a) A, B and D only (b) A only
(c) A and D only (d) A, C and D only

123. Which of the following statements are true

[A] Bacteria are categorized underneath the Kingdom Monera
[B] Protista are unicellular and eukaryotic organisms
&&@HDVWV DQG PROGV DUH XQGHU
[D] Multinucleated higher fungi are under Animalia

Choose the correct answer from the options given below

(a) A, B and C only (b) B, C and D only
(c) A and B only (d) C and D only

124. Given below are two statements

Statement I: Sequencing of DNA is much easier than RNA sequencing due to greater stability

Statement II: The chemical method of DNA sequencing (Maxam & Gilbert) works for only single stranded DNA

In light of the above statements,

Choose the correct answer from the options given below

(a) Both Statement I and Statement II are true
(b) Both Statement I and Statement II are false
(c) Statement I is true but Statement II is false
(d) Statement I is false but Statement II is true

125. Match List I with List II

/,67,	/,67 ,,
Antigen-Antibody Reaction Types	Application
1. Precipitin test	[P] Screening for Rubella and Type2 Herpes viruses
2. Agglutination (Haemagglutination)	[P] Streptococcal differentiation into serological groups
3. Complement Fixation reaction	[P] Serological diagnosis of influenza & mumps viruses
4. ELISA	[P] Treponema pallidum identification
	[P] Mycobacterium identification

Choose the correct answer from the options given below

(a) 1-[R], 2-[T], 3-[Q], 4-[P]
(b) 1-[Q], 2-[S], 3-[P], 4-[R]
(c) 1-[S], 2-[Q], 3-[R], 4-[P]
(d) 1-[P], 2-[R], 3-[Q], 4-[S]

Answer Key

1-c	2-c	3-c	4-a	5-b	6-d	7-d	8-b	9-a	10-d
11-a	12-c	13-*	14-a	15-d	16-c	17-b	18-a	19-*	20-a
21-c	22-c	23-c	24-c	25-a	26-c	27-c	28-b	29-c	30-d
31-a	32-c	33-d	34-a	35-d	36-b	37-b	38-c	39-d	40-d
41-b	42-d	43-d	44-c	45-c	46-d	47-c	48-a	49-c	50-b
51-b	52-b	53-d	54-b	55-d	56-a	57-b	58-b	59-a	60-d
61-d	62-a	63-d	64-a	65-a	66-b	67-b	68-b	69-d	70-a
71-b	72-b	73-a	74-d	75-b	76-c	77-c	78-d	79-c	80-d
81-b	82-d	83-a	84-b	85-a	86-a	87-d	88-b	89-a	90-b
91-c	92-a	93-d	94-c	95-c	96-c	97-c	98-c	99-b	100-b
101-c	102-d	103-a	104-d	105-b	106-d	107-b	108-b	109-b	110-a
111-a	112-a	113-d	114-b	115-d	116-a	117-d	118-d	119-b	120-a
121-c	122-c	123-a	124-c	125-b					