
DO NOT OPEN THE SEAL UNTIL INSTRUCTED TO DO SO



Question Booklet No.

QUESTION BOOKLET

PHARMACY

Booklet Series

A

Roll No.

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(Enter your Roll number in the above space)

Time Allowed : 2 Hours

Maximum Marks : 100

INSTRUCTIONS FOR CANDIDATES

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS QUESTION BOOKLET **DOES NOT** HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR QUESTIONS ETC. IF SO, GET IT REPLACED BY A COMPLETE QUESTION BOOKLET.
2. Please note that it is the candidate's responsibility to encode and fill in the Roll Number and Question Booklet Series Code A, B, C or D carefully and without any omission or discrepancy at the appropriate places in the OMR Answer Sheet. Any omission/discrepancy will render the OMR Answer Sheet liable for rejection.
3. This Question Booklet contains **100** questions. Each question is printed in **English** only. Each question comprises four responses (answers). You will select the response which you want to mark on the OMR Answer Sheet. In case you feel that there is more than one correct response, mark the response which you consider the best. In any case, choose **ONLY ONE** response for each question.
4. You have to mark all your responses **ONLY** on the separate OMR Answer Sheet provided. See Instructions at the backside of the OMR Answer Sheet.
5. **All** questions carry equal marks.
6. Before you proceed to mark in the OMR Answer Sheet the response to various questions in the Question Booklet, you have to fill in some particulars in the OMR Answer Sheet as per instructions mentioned on the OMR Answer Sheet.
7. After you have completed filling in all your responses on the OMR Answer Sheet and the examination has concluded, you should hand over to the Invigilator **only the OMR Answer Sheet**. You are permitted to take away with you the **Question Booklet**, along with candidate's copy of **OMR Answer Sheet**.
8. Sheets for rough work are appended in the Question Booklet at the end.
9. **Penalty for wrong answers :**
THERE WILL BE PENALTY FOR WRONG ANSWERS MARKED BY A CANDIDATE AS UNDER.
 - (i) There are four alternatives for the answer to every question. For each question for which a wrong answer has been given by the candidate, **0.25 mark** assigned to that question will be deducted as penalty.
 - (ii) If a candidate gives more than one answer, it will be treated as a wrong answer even if one of the given answers happens to be correct and there will be same penalty as above to that question.
 - (iii) If a question is left blank, i.e., no answer is given by the candidate, there will be no penalty for that question.

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1. The simplest phenols are liquids or low-melting solids and have high boiling points due to

- [A] covalent linkage
- [B] hydrogen bonding
- [C] glycosidic bonding
- [D] electrophilic linkage

2. IR spectra of a sample shows absorption frequencies at 1740 cm^{-1} and 3600 cm^{-1} . This indicates the presence of

- [A] an amide and carboxylic acid in the sample respectively
- [B] a carbonyl group and phenolic OH in the sample respectively
- [C] an amide and substituted benzene in the sample respectively
- [D] an anhydride and carboxylic acid in the sample respectively

3. The IUPAC name of paracetamol is

- [A] N-(4-hydroxyacetyl) acetamide
- [B] N-(4-phenyl) acetamide
- [C] N-(4-hydroxyphenyl) phenylacetamide
- [D] N-(4-hydroxyphenyl) acetamide

4. Match the common developing reagents in TLC with their respective groups they are used to identify :

Developing reagent	Group
(i) Iodine vapour	P. Alkaloids
(ii) 1% ninhydrin	Q. Organic bases
(iii) 2,4-dinitrophenyl hydrazine	R. Amino acids
(iv) Dragendorff	S. Aldehydes

[A] (i)-P, (ii)-Q, (iii)-R, (iv)-S
 [B] (i)-Q, (ii)-R, (iii)-S, (iv)-P
 [C] (i)-P, (ii)-R, (iii)-S, (iv)-Q
 [D] (i)-Q, (ii)-P, (iii)-R, (iv)-S

5. If 5.6 g KOH is dissolved in distilled water and the volume is made up to 100 ml with distilled water, we get a

- [A] 0.1 N solution
- [B] 1 N solution
- [C] 0.01 N solution
- [D] 0.01 M solution

6. Which of the following is the increasing order of elution of solvents?

- [A] Toluene < Cyclohexane < Acetone < Acetonitrile
- [B] Cyclohexane < Acetone < Toluene < Acetonitrile
- [C] Cyclohexane < Acetonitrile < Toluene < Acetone
- [D] Cyclohexane < Toluene < Acetone < Acetonitrile

7. How many aldohexoses are possible, if there are 4 chiral centres in the compound?

- [A] 4
- [B] 8
- [C] 16
- [D] 24

8. How to prepare 0.1M solution of HCl?

- [A] Dilute 85 ml of hydrochloric acid to 1000 ml with water
- [B] Dilute 0.85 ml of hydrochloric acid to 1000 ml with water
- [C] Dilute 8.5 ml of hydrochloric acid to 100 ml with water
- [D] Dilute 8.5 ml of hydrochloric acid to 1000 ml with water

9. KCl reacts with AgNO_3 to form precipitates and conductance of the solution remains same. This is known as
- [A] conductometric titration
 [B] oxidation-reduction reaction
 [C] precipitation conductometric titration
 [D] acid base titration
10. Read the following statements regarding extraction methods :
- (i) Maceration is used for extraction from hard and tough drugs
 (ii) Maceration is used for extraction from expensive drugs
 (iii) Maceration is used for extraction from gummy substances
 (iv) Percolation is used for extraction from hard and tough drugs
- Which of the following statements are **correct**?
- [A] Statements (i) and (ii) are incorrect
 [B] Statements (i) and (ii) are correct
 [C] Statements (iii) and (iv) are incorrect
 [D] All Statements are correct
11. Bloom strength is a measure of cohesive strength and is used to check the quality of
- [A] lactose
 [B] gelatin
 [C] agarosepectin
 [D] chitosan
12. Select a water-soluble synthetic polymer used commonly in pharmaceuticals.
- [A] Carrageenan
 [B] Chitosan
 [C] Polyacrylamide
 [D] Sodium starch glycolate
13. Select the correct assertion from the following.
- [A] Hydrophilic colloids are stable and reversible
 [B] Hydrophobic colloids are stable and reversible
 [C] Hydrophilic colloids show strong Tyndall effect
 [D] Hydrophobic colloids show weak Tyndall effect
14. Which of the following is **not** true for dendrimers?
- [A] Dendrimers are nano-sized molecules
 [B] Dendrimers are radially symmetric molecules
 [C] Dendrimers are heterogeneous
 [D] Dendrimers are hyperbranched molecules
15. Different types of dissolution apparatus are defined in the *United States Pharmacopeia (USP)*. Which of the following is **not** official in the *USP*?
- [A] Basket type
 [B] Flow-through cell
 [C] Paddle over disc
 [D] Reciprocating column

16. Which of the following categories is **correct** according to Biopharmaceutics Classification System (BCS)?

- [A] Class I :
High solubility, high permeability :
generally moderately-absorbed compounds
- [B] Class II :
Low solubility, high permeability :
exhibits dissolution rate-limited absorption
- [C] Class III :
Low solubility, low permeability :
very poor oral bioavailability
- [D] Class IV :
High solubility, low permeability :
exhibits permeability-limited absorption

17. Select the specific chemical test for the phytoconstituents from the following :

Specific chemical test	Phytoconstituents
(i) Murexide test	P. Rhein
(ii) Borntrager test	Q. Glycyrrhizin
(iii) Froth formation	R. Atropine
(iv) Mayer's test	S. Caffeine

- [A] (i)-S, (ii)-P, (iii)-Q, (iv)-R
[B] (i)-P, (ii)-Q, (iii)-R, (iv)-S
[C] (i)-R, (ii)-P, (iii)-Q, (iv)-S
[D] (i)-S, (ii)-Q, (iii)-R, (iv)-P

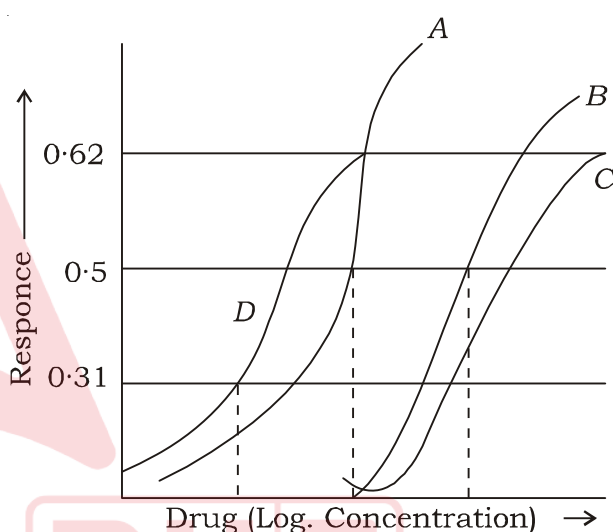
18. If 0.8 ml of volatile oil is isolated from 50 g of fennel, this means yield of volatile oil is

- [A] 1.6% v/v
[B] 1.6% v/v
[C] 1.6% w/v
[D] 1.6% w/w

19. A sample of crude drug shows no reaction in Borntrager's test and pink colouration in modified Borntrager's test. This shows the presence of

- [A] anthraquinone O-glycosides
[B] cardenolides
[C] bufadienolides
[D] anthraquinone C-glycosides

20. The given figure shows the DRC of 4 drugs (i.e. A, B, C, D). Which drug is most potent?



- [A] Drug A is most potent and most efficacious
[B] Drug B is most potent and least efficacious
[C] Drug C is most potent and most efficacious
[D] Drug D is most potent and less efficacious than A

21. Which route for regular formulations **cannot** bypass the first-pass effect?

- [A] Sub-cutaneous
[B] Oral
[C] Sub-lingual
[D] Buccal

22. If a person has had corona virus infection and has immunity, this is known as

- [A] natural immunity
- [B] naturally acquired active immunity
- [C] naturally acquired passive immunity
- [D] artificially stimulated active immunity

23. High plasma protein binding makes the drug to have

- [A] faster elimination
- [B] prolonged action
- [C] faster distribution
- [D] faster metabolism

24. Which of the following enhances insulin secretion?

- [A] Glimepiride
- [B] Metformin
- [C] Acarbose
- [D] Bromocriptin

25. Which of the following is **not** a GMO?

- [A] Dolly
- [B] Golden Rice
- [C] BT Brinjal
- [D] CT Corn

26. Classification of bacteria on the basis of shapes does **not** include which of the following?

- [A] Cyano
- [B] Bacilli
- [C] Cocci
- [D] Spirilla

27. By which method can the following be sterilized in a tissue culture laboratory?

Lab component Sterilization method

- | | |
|----------------------|-------------------------|
| (i) Laboratory | P. Dry heat |
| (ii) Enzyme solution | Q. Moist heat |
| (iii) Growth media | R. Micropore filtration |
| (iv) Glassware | S. Fumigation |

[A] (i)-P, (ii)-Q, (iii)-R, (iv)-S

[B] (i)-S, (ii)-R, (iii)-Q, (iv)-P

[C] (i)-Q, (ii)-S, (iii)-R, (iv)-P

[D] (i)-S, (ii)-P, (iii)-R, (iv)-Q

28. _____ is regarded as the “father” of biotechnology.

- [A] Toshio Murashighe
- [B] Folke K Skoog
- [C] Karole Ereky
- [D] Gottlieb Haberlandt

29. For *in-vitro* cultivation of microorganisms, which of the following is a micronutrient?

- [A] Nitrogen
- [B] Carbon
- [C] Copper
- [D] Phosphate

30. Which of the following is **correct** in increasing order of reliability of evidence?

- [A] Case report < meta-analysis < randomized clinical trial < randomized double blind clinical trial
- [B] Case report < randomized clinical trial < randomized double blind clinical trial < meta-analysis
- [C] Randomized clinical trial < case report < meta-analysis < randomized double blind clinical trial
- [D] Randomized clinical trial < randomized double blind clinical trial < case report < meta-analysis

31. In the Drugs and Cosmetics Act and Rules, which of the following schedule contains requirement and guidelines for clinical trials?

- [A] Schedule U
- [B] Schedule X
- [C] Schedule W
- [D] Schedule Y

32. The sequence for pharmaco-vigilance may be summarized by

- [A] detection of adverse event– separating signal from noise– signal assessment– recommendation for action– exchange of information
- [B] separating signal from noise– detection of adverse event– signal assessment– recommendation for action– exchange of information
- [C] detection of adverse event– exchange of information– separating signal from noise– signal assessment– recommendation for action
- [D] detection of adverse event– recommendation for action– separating signal from noise– signal assessment– exchange of information

33. The Pharmacy Act was enacted in

- [A] 1947
- [B] 1948
- [C] 1949
- [D] 1950

34. The mean and mode of 4,2,4,3,2,2,6,7 are

- [A] 4 and 2 respectively
- [B] 2 and 4 respectively
- [C] 3.15 and 2 respectively
- [D] 3.75 and 2 respectively

35. The full form of CPCSEA is
- [A] Committee for the Purpose of Culture and Supervision of Experiments on Animals
- [B] Committee for the Purpose of Control and Study of Experiments on Animals
- [C] Committee for the Purpose of Control and Supervision of Experiments on Animals
- [D] Committee for the Purpose of Control and Supervision of Ethical work on Animals
36. The first edition of the *Indian Pharmacopoeia* was published in independent India in
- [A] 1947
- [B] 1948
- [C] 1955
- [D] 1950
37. Human plasma contains about 5 mEq/liter of calcium ions. How many milligrams of calcium chloride dihydrate, $\text{CaCl}_2 \cdot 2\text{H}_2\text{O}$ (molecular weight 147 g/mole), are required to prepare 100 ml of a solution equal in Ca^{2+} to human plasma?
- [A] 29.4
- [B] 73.5
- [C] 27.56
- [D] 36.75
38. Which of the following is **true** for any (S)-enantiomer?
- [A] It rotates plane-polarized light to the right
- [B] It rotates plane-polarized light to the left
- [C] It is a racemic form
- [D] It is the mirror image of the corresponding (R)-enantiomer
39. Which of the following nucleophiles assists the deprotection of trimethylsilyl ethers?
- [A] F^-
- [B] OH^-
- [C] NH_2^-
- [D] SH^-
40. In oxidation-reduction titrations, one mole of potassium dichromate is equivalent to Fe of
- [A] 1 mole
- [B] 2 moles
- [C] 4 moles
- [D] 6 moles
41. Presence of lipopolysaccharides in cell wall is a characteristic of
- [A] fungi
- [B] algae
- [C] gram +ve bacteria
- [D] gram -ve bacteria
42. Two bacteria most useful in genetic engineering are
- [A] *Rhizobium* and *Azotobacter*
- [B] *Rhizobium* and *Diplococcus*
- [C] *Nitrosomonas* and *Klebsiella*
- [D] *Escherichia* and *Agrobacterium*
43. Bilirubin is synthesized from
- [A] lipids
- [B] bile
- [C] WBC
- [D] RBC

44. Maintaining the volume and composition of body fluids within a narrow range is called
- [A] rehydration
[B] equilibrium
[C] homeostasis
[D] total body water
45. Which of the following is an example of drug that directly inhibits renin?
- [A] Enalapril
[B] Captopril
[C] Aliskiren
[D] Losartan
46. Which of the following CCBs has most rapid onset of action after oral administration?
- [A] Felodopine
[B] Verapamil
[C] Nifedipine
[D] Diltiazem
47. Which drug is an analog prostaglandin E1?
- [A] Misoprostole
[B] De-nol
[C] Sucralfate
[D] Dinoprostone
48. Identify the antiemetic agent which is related to neuroleptics.
- [A] Meclizine
[B] Prochlorperazine
[C] Tropisetron
[D] Nabilone
49. Which of the following drugs inhibits peristalsis?
- [A] Loperamide
[B] Bisacodyl
[C] Racecadotril
[D] Sorbitol
50. Which of the following statements is **true** about carbamazepine?
- [A] It can be used in the treatment of bipolar disorder, trigeminal neuralgia and epilepsy
[B] Like phenytoin, it enhances GABA activity at therapeutic concentrations
[C] It is an enzyme inhibitor
[D] It can cause a mild, but persistent leukopenia and this is an indication to stop treatment
51. TNF- α responds primarily to which of the following?
- [A] Viral infection
[B] Gram -ve bacteria
[C] Gram +ve bacteria
[D] Tumor growth

52. Which of the following cells **does/do not** contain DNA?
- [A] An enucleated ovum
[B] Hair root
[C] Mature RBCs
[D] A mature spermatozoa
53. Hemophilia-A occurs due to the absence of which clotting factor?
- [A] Factor VIII
[B] Factor VII
[C] Factor IX
[D] Factor X
54. Most of the carbon dioxide produced in the tissues is transported to the lungs as
- [A] carbonates
[B] bicarbonates
[C] dissolved in the blood
[D] attached to haemoglobin
55. During tubular reabsorption process, which ion is reabsorbed in exchange for sodium?
- [A] Potassium
[B] Chloride
[C] Calcium
[D] Magnesium
56. A hormone secreted by kidney, that stimulates bone marrow activity, is called
- [A] renin
[B] aldosterone
[C] somatomedin
[D] erythropoietin
57. Lowering of which hormone causes menstruation in menstrual cycle?
- [A] Estrogen
[B] Thyroxin
[C] Progesterone
[D] Follicle stimulating hormone
58. Change of state from a gas directly to a solid is known as
- [A] fusion
[B] boiling
[C] sublimation
[D] deposition
59. Triple point of water corresponds to
- [A] 600 N/m² pressure and 0.0075 °C temperature
[B] 610 N/m² pressure and 0.0075 °C temperature
[C] 605 N/m² pressure and 0.0075 °C temperature
[D] 610 N/m² pressure and 0.0070 °C temperature
60. At critical temperature, the surface tension of a liquid is
- [A] zero
[B] one
[C] negative
[D] maximum
61. Increase in resistance to flow with increase in rate of shear is referred to as
- [A] dilatancy
[B] rheopaxy
[C] thixotropy
[D] antithixotropy

62. What will be the percent elimination after 2 biological half-lives in first-order kinetics?
- [A] 50%
- [B] 55%
- [C] 65%
- [D] 75%
63. _____ makes an unabsorbable complex with tetracycline.
- [A] Lactose
- [B] Dicalcium phosphate
- [C] Starch
- [D] Gelatine
64. The distinctive signs that identify certain goods produced or provided by a specific person or enterprise are known as
- [A] copyright
- [B] patent
- [C] geographical indications
- [D] trademark
65. Which of the following is **not** an element of non-verbal communication?
- [A] Facial expression
- [B] Eye contact
- [C] Posture
- [D] A speech
66. The correct sequence of solvents when arranged in increasing order of their polarity is
- [A] hexane < chloroform < toluene < ethyl acetate < methanol < water
- [B] toluene < hexane < ethyl acetate < chloroform < water < methanol
- [C] hexane < toluene < chloroform < ethyl acetate < methanol < water
- [D] toluene < hexane < chloroform < ethyl acetate < water < methanol
67. Biogenetic precursor for indole alkaloids is
- [A] tryptophan
- [B] phenylalanine
- [C] tyrosine
- [D] glycine
68. Which of the following oils is rich in alcoholic compounds?
- [A] Fennel oil
- [B] Chenopodium oil
- [C] Spearmint oil
- [D] Coriander oil
69. Phenylpropanoids are biosynthesized through _____ pathway.
- [A] acetate-malonate
- [B] acetate-mevalonate
- [C] polyketide
- [D] shikimic acid

- 70.** A substance is known as a supercritical fluid when it is
- [A] above its critical point of temperature and pressure
 - [B] below its critical point of temperature and pressure
 - [C] at its critical point of temperature and pressure
 - [D] at room temperature and atmospheric pressure
- 71.** The phenomena in which a drug blocks the action of another drug by occupying its receptors without activating them is known as
- [A] partial antagonism
 - [B] competitive antagonism
 - [C] chemical antagonism
 - [D] non-competitive antagonism
- 72.** Which of the following classes of drugs are approved for symptomatic treatment of memory disorders?
- [A] Calcium channel blockers
 - [B] COX inhibitors
 - [C] Acetylcholinesterase inhibitors
 - [D] β -blockers
- 73.** A person is to be given digoxin to treat CHF. Which of the following conditions is to be critically monitored before giving digoxin to avoid digoxin toxicity?
- [A] Hypochloremia
 - [B] Hyponatremia
 - [C] Hypocalcemia
 - [D] Hypomagnesemia
- 74.** A patient suffering from vomiting due to cancer chemotherapy can get relief from
- [A] bromocriptine
 - [B] cimetidine
 - [C] ondansetron
 - [D] loratadine
- 75.** Thioridazine was withdrawn worldwide as its use causes
- [A] constipation
 - [B] disturbed sleep cycles
 - [C] hormonal imbalance
 - [D] cardiac arrhythmias
- 76.** Association, commissural and projection tracts of axons are found in
- [A] cerebral grey matter
 - [B] cerebral white matter
 - [C] basal ganglia
 - [D] epithalamus
- 77.** Groups of lymphatic nodules present in the ileum region of small intestine are known as
- [A] Brunner's glands
 - [B] mucosa-associated lymphoid tissue
 - [C] Paneth cells
 - [D] Peyer's patches
- 78.** The pH of a buffer system can be calculated with the
- [A] Stokes equation
 - [B] Henderson-Hasselbalch equation
 - [C] Michaelis-Menten equation
 - [D] Young equation

- 79.** According to IP, a substance is categorized as 'sparingly soluble' if its
- [A] 40 parts are soluble in 100 parts of the given solvent
 - [B] 20 parts are soluble in 100 parts of the given solvent
 - [C] 30 parts are soluble in 100 parts of the given solvent
 - [D] 50 parts are soluble in 100 parts of the given solvent
- 80.** Enteric coated tablets can be coated with
- [A] hydroxypropyl methyl cellulose
 - [B] polyethylene glycol
 - [C] cellulose acetate phthalate
 - [D] carboxymethyl cellulose
- 81.** Dissolution rate of a tablet is calculated with the help of
- [A] Stokes equation
 - [B] Michaelis-Menten equation
 - [C] Young equation
 - [D] Noyes-Whitney equation
- 82.** Non-linear pharmacokinetics can be due to
- (i) Induction of enzymes
 - (ii) Active secretion
- Which of the following is a **correct** statement?
- [A] (i) is true and (ii) is false
 - [B] (i) is false and (ii) is true
 - [C] Both (i) and (ii) are true
 - [D] Both (i) and (ii) are false
- 83.** Which of the following statements regarding HLB value of emulsifiers is **incorrect**?
- [A] Emulsifiers with HLB value of 1.5 to 3.7 have high water dispersibility
 - [B] Emulsifiers with HLB value of 1.5 to 3.7 have low water dispersibility
 - [C] Emulsifiers with HLB value of 13 to 20 have high water dispersibility
 - [D] Emulsifiers with HLB value of 9.5 to 10.3 form stable milky dispersions
- 84.** Reversible aggregation of droplets of internal phase is known as
- [A] creaming
 - [B] coalescence
 - [C] flocculation
 - [D] phase separation
- 85.** Which of the following is a non-ionic surfactant?
- [A] Polyoxyethylene sorbitan monooleate
 - [B] Dioctyl sulphosuccinate
 - [C] Sodium lauryl sulphate
 - [D] Dioctadecyldimethyl ammonium bromide
- 86.** Leakers test, clarity test, pyrogen test are the common quality control tests done for
- [A] solutions
 - [B] parenteral products
 - [C] suppositories
 - [D] suspensions

- 87.** Major symptoms of Ehlers-Danlos syndrome, which is due to abnormality in gene for procollagen are
- [A] stiff joints which restrict movements and dark, non-elastic skin that constricts peripheral blood vessels
- [B] over-flexible joints which easily get dislocated and highly elastic skin that easily get bruises
- [C] stiff joints and translucent highly elastic skin
- [D] deformed bones and dark, non-elastic skin
- 88.** Phospholipids are important constituents of cell membranes because they have
- [A] both polar and non-polar groups
- [B] fatty acids
- [C] phosphoric acid
- [D] glycerol
- 89.** Rieske iron-sulphur proteins are found in ____ of ETC.
- [A] Complex I
- [B] Complex II
- [C] Complex III
- [D] Complex IV
- 90.** Biological activity of 0.05 μg of cholecalciferol is equivalent to
- [A] 1 IU of vitamin D
- [B] 2 IU of vitamin D
- [C] 3 IU of vitamin D
- [D] 0.5 IU of vitamin D
- 91.** Neurological manifestation of pernicious anemia is due to
- [A] taurine
- [B] tyrosine
- [C] xantherunic acid
- [D] phenylpyruvic acid
- 92.** Organic substance is salted out from its aqueous solution if
- [A] dielectric constant of solution is less than that of pure water
- [B] dielectric constant of solution is more than that of pure water
- [C] dielectric constant of solution is equal to that of pure water
- [D] None of the above
- 93.** Milk of magnesia is used as
- [A] electrolyte
- [B] topical agent
- [C] astringent
- [D] antacid

94. A mixture is having the following group of compounds. Which is the correct order, if these compounds are arranged in decreasing order of the adsorption tendency on a silica column?

- (i) Acidic
 - (ii) Esters
 - (iii) Carbonyl
 - (iv) Alcoholic
 - (v) Hydrocarbons
- [A] (i) > (iv) > (iii) > (ii) > (v)
 [B] (iv) > (iii) > (i) > (v) > (ii)
 [C] (v) > (ii) > (i) > (iii) > (iv)
 [D] (iii) > (v) > (ii) > (iv) > (i)

95. Lag phase, exponential phase, declined growth phase and stationary phase are found in

- [A] suspension culture
- [B] callus culture
- [C] protoplast culture
- [D] hairy root culture

96. To visualize DNA in gel electrophoresis _____ dye is used.

- [A] ethylene bromide
- [B] methylene bromide
- [C] ethidium bromide
- [D] phosphorothioate

97. Good manufacturing practices for AYUSH drugs are covered under

- [A] Schedule M
- [B] Schedule U
- [C] Schedule T
- [D] Schedule Y

98. During the decarboxylation of methylethylmalonic acid in the presence of brucine, the optically active 2-methylbutyric acid is formed. The dextrorotatory enantiomer is 10% less than the levorotatory enantiomer. What is the optical purity of the mixture?

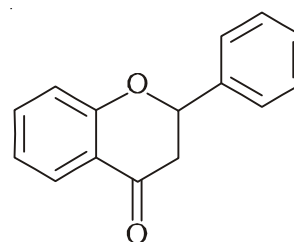
- [A] 10%
- [B] 90%
- [C] 80%
- [D] 20%

99. Match the classes and the alkaloids given below :

Class of Alkaloid	Alkaloid
(i) Tropane	P. Reserpine
(ii) Indole	Q. Scopolamine
(iii) Quinoline	R. Codeine
(iv) Phenanthrene	S. Cinchonine

- [A] (i)-R, (ii)-Q, (iii)-P, (iv)-S
- [B] (i)-Q, (ii)-P, (iii)-S, (iv)-R
- [C] (i)-S, (ii)-Q, (iii)-R, (iv)-P
- [D] (i)-Q, (ii)-S, (iii)-R, (iv)-P

100. The following structure is the basic nucleus of



- [A] flavone
- [B] flavanone
- [C] neoflavone
- [D] isoflavone

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