

Q.1. Which of the following respective Phase-1 and Phase-2 reactions are the most common drug biotransformation reactions?

- (A) Oxidation and Glucuronidation
- (B) Reduction and Acetylation
- (C) Hydrolysis and Glucuronidation
- (D) Oxidation and Glutathion conjugation

Ans:A

Q.2 Which one of the following drugs has positive inotropic and negative chronotropic action?

- (A) Dopamine (B) Epinephrine (C) Digoxin (D) Isoprenaline

Ans:C

Q.3 Which one of the following therapeutic classes has been proved clinically as a first line therapy for heart failure and has shown decreased hospitalization, improved symptoms and delayed disease progression?

- (A) Cardiac glycosides
- (B) ACE Inhibitors (ACEis)
- (C) Renin Antagonists
- (D) Nitrites

Ans:B

Q.4 Which one of the following glucose transporters is the new drug target for the management of Type-2 diabetes mellitus?

- (A) Sodium glucose linked transporter-2 (SGLT2)
- (B) Glucose transporter-1 (GLUT1)
- (C) Sodium glucose linked transporter-1 (SGLT1)
- (D) Glucose transporter-2 (GLUT2)

ANS.A

Q.5 Which one of the following modes of HIV transmission carries highest relative risk of infection with single exposure?

- (A) Transfusion of blood and blood products
- (B) Perinatal - from mother to child
- (C) Sexual contacts with infected partners

(D) Syringe sharing with drug addicts

Ans.A

Q.6 Which of the followings are the critical neurotransmitters playing major role in depression?

(A) Acetylcholine, Norepinephrine and Dopamine

B) Dopamine, Norepinephrine and Serotonin

(C) Serotonin, Dopamine and  $\gamma$ -Amino butyric acid

(D) Acetylcholine, Serotonin and  $\gamma$ -Amino butyric acid

Ans.B

Q.7 A 55 years old man is under DOTS treatment for pulmonary tuberculosis for the last four months. Now, he has developed symptoms of peripheral neuritis. Which one of the followings is the right addition to his therapy to manage peripheral neuritis?

(A) Cyanocobalamin

(B)  $\alpha$ -Lipoic acid

(C) Pyridoxine

(D) Prednisolone

ANS:C

Q.8 What is the primary mechanism of action of local anesthetics?

(A) Activation of ligand-gated potassium channels

(B) Blockade of voltage-gated sodium channels

(C) Stimulation of voltage-gated N-type calcium channels

(D) Blockade of GABA-gated chloride channels

ANS:B

Q.9 Which one of the following anti-arrhythmic drugs acts by inhibiting potassium, sodium and calcium channels?

(A) Quinidine

(B) lignocaine

(C) Amiodarone

(D) Flecainide

ANS:C

Q.10 A 48 years old woman is having the symptoms of weight gain, cold intolerance, constipation, bradycardia, puffy face, lethargy and dry skin. These symptoms are suggestive of which of the followings?

(A) Over use of corticosteroid

(B) Hypothyroidism

(C) Estrogen deficiency

(D) Over use of thyroxin sodium

ANS:B

Q.11 Which one of the following receptors is NOT a ligand-gated ion channel receptor?  
(A) Nicotinic Receptor (B) 5HT<sub>3</sub> - Receptor  
(C) GABA<sub>A</sub> - Receptor (D) H<sub>2</sub> – Receptor

ANS:D

Q.12 Which one of the following classes of drugs causes side effects like dryness of mouth, tachycardia, urinary retention, constipation, blurring of vision, precipitation of glaucoma, drowsiness and impairment of cognition?

- (A) Anti-adrenergic (B) Anti-cholinergic  
(C) Anti-serotonergic (D) Anti-dopaminergic

ANS:B

Q.13 Which of the following cytokines are the most important regulators in inflammation and are the targets for anti-inflammatory agents used in rheumatoid arthritis?

- (A) Tumor necrosis factor- $\alpha$  and Interleukin-1  
(B) Acetylcholine esterase and Eicosanoids  
(C) Leukotrienes and Isoprostanes  
(D) Adhesion factor and Monoamine oxidase A

ANS:A

Q.14 Which one of the followings is a FALSE statement for competitive antagonists?

- (A) They have an affinity for the agonist binding site on receptor  
(B) They have no intrinsic activity  
(C) They cause parallel rightward shift of the control dose response curve  
(D) Maximum response of the agonist cannot be achieved in their presence by increasing the concentration of the agonist.

ANS:D

Q.15 Atypical antipsychotics differ from the typical antipsychotics in various ways that define them as atypical. Which one of the followings is NOT a defining property of the atypical antipsychotics?

- (A) Sustained hyperprolactinemia  
(B) Improved efficacy in treating the negative symptoms  
(C) Lower risk for extrapyramidal side effects (EPSs)  
(D) Greater serotonin receptor blockade than dopamine blockade

ANS:A

Q.16 Which one of the following drugs produces significant relaxation of both venules and arterioles?

- (A) Hydralazine (B) Minoxidil  
(C) Diazoxide (D) Sodium nitroprusside

ANS:D

Q.17 Antiviral action of purine analogues is primarily related to the followings:

[P] : Inhibition of RNA synthesis [Q] : Inhibition of DNA polymerase  
[R] : Immunomodulation [S] : Inhibition of viral penetration

Choose the correct option:

- (A) R is correct and Q is incorrect  
(B) Q is correct and S is incorrect  
(C) P is correct and R is incorrect  
(D) S is correct and P is incorrect

ANS:B

Q.18 Which one of the followings is a tyrosine kinase inhibitor indicated for a variety of malignancies?

- (A) Imatinib (B) Paclitaxel (C) Ezetimibe (D) Mitomycin

ANS:A

Q.19 Which one of the followings is the most likely positive sign of pregnancy when detected in urine?

- (A) Estrogens  
(B) Progesterone  
(C) Human Chorionic Gonadotropin (HCG)  
(D) Corticotrophic Hormone

ANS:C

Q.20 Following are some opioid analgesics:

[P] : Morphine [Q]: Pethidine  
[R] : Pentazocine [S] : Fentanyl

Choose the correct order of respiratory depressant propensity of these agents.

- (A) P>Q>R>S (B) Q>P>R>S (C) R>P>Q>S (D) S>P>Q>R

ANS:D

Q.21 Which one of the following alkaloids is derived from Lysine?

- (A) Emetine      (B) Chelidonine      (C) Lobeline      (D) Stachydrine

ANS:C

Q.22 Histologically the barks of *Cinnamomum cassia* and *Cinnamomum zeylanicum* differ in one of the following features. Identify that.

- (A) Sclerieds      (B) Phloem Fibers  
(C) Pericyclic Fibres      (D) Cortex

Ans;D

Q.23 The following characteristic properties are given in context of saponins:

[P] : Saponins give precipitate by shaking with water.

[Q] : Saponins are diterpenes and give foam on shaking with water.

[R] : Saponins are triterpenoidal compounds and cause haemolysis of erythrocytes.

[S] : They are steroidal or triterpenoidal compounds with tendency to reduce surface tension of water.

Choose the correct option.

- (A) P is true; Q is true; R is true; S is true  
(B) P is false; Q is true; R is false; S is true  
(C) P is false; Q is true; R is true; S is true  
(D) P is false; Q is false; R is true; S is true

ANS:D

Q.24 Read the given statements about the constituents of Shellac:

[P] : Shellolic acid, a major component of alicyclic fraction is responsible for colour.

[Q]: Shellolic acid, a major component of aromatic fraction is responsible for colour.

[R] : Shellolic acid is a major component of aliphatic fraction and laccaic acid is an component of aromatic fraction.

[S] : Aliphatic components are shellolic acid which is alicyclic and aleuratic acid which is acyclic, while laccaic acid is an aromatic colouring principle.

What is the correct combination of options?

- (A) P is true; Q is true; R is true; S is true  
(B) P is false; Q is false; R is false; S is true  
(C) P is false; Q is false; R is true; S is true

(D) P is true; Q is false; R is false; S is true

ANS:C

Q.25 Major component of *Cymbopogon citratus* is citral which is utilized commercially for the followings:

[P] : Synthesis of Vitamin A directly from citral

[Q]: Synthesis of Vitamin A by first converting to T-ionone

[R] : Synthesis of Vitamin A by first converting to T-ionone followed by conversion to α-ionone which is very important intermediate for carotenoid synthesis

[S] : Synthesis of Vitamin A by first conversion of citral to T-ionone followed by conversion to P-ionone which is an important intermediate for carotenoid synthesis

Which is the correct combination of options?

(A) P is true; Q is true; R is true; S is true

(B) P is false; Q is true; R is false; S is true

(C) P is false; Q is false; R is true; S is true

(D) P is false; Q is false; R is false; S is false

ANS:B

Q.26 Which one of the following constituents is reported to have anti-hepatotoxic activity?

(A) Podophyllotoxin

(C) Linalool

(B) Andrographoloid

(D) Safranal

ANS:B

Q.27 All of the followings applicable to Lignans are correct statements except for one. Identify the INCORRECT statement.

(A) Lignans are formed by the dimerization of the phenylpropane moiety

(B) Podophyllotoxin can be termed phytochemically as a lignan

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(C) Lignans can be formed by cyclization of phenylpropane nucleus

(D) Lignans are the secondary metabolites formed from the Shikimic acid pathway

ANS:C

Q.28 Rhizomes of *Zingiber officinale* contain some sesquiterpene hydrocarbons. Some hydrocarbons are given below:

[P] : 3-Bisabolene    [Q]: Gingerone A    [R] : Gingerol    [S] : Zingiberene

Identify the correct pair of constituents present in the rhizomes.

(A) P and S    (B) P and Q    (C) Q and S    (D) Q and R

ANS:A

Q.29 Listed below are the chemical tests used to identify some groups of phytoconstituents. Identify the test for the detection of the purine alkaloids.

(A) Keller-Killani Test    (C) Shinoda Test  
(B) Murexide Test    (D) Vitali-Morin Test

ANS:B

Q.30 Atropine biosynthesis involves a pair of precursors. Identify the correct pair.

(A) Ornithine and Phenylalanine  
(B) Tyrosine and Tryptophan  
(C) Tryptophan and Dopamine  
(D) Tyrosine and Dopamine

ANS:A

Q.31 Study the following statements:

[P] : Lutein and zeaxanthin are flavonoids

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[Q]: Lutein and zeaxanthin are xanthophylls

[R] : Lutein and zeaxanthin are required to control age-related macular degeneration

[S] : Lutein is a flavonoid while zeaxanthin is its glycoside Choose the correct answer.

- (A) P is correct while Q, R and S are incorrect
- (B) Q and R are correct while P and S are incorrect
- (C) Statement P is the only correct statement
- (D) Statement S is the only correct statement

ANS: B

Q.32 Listed below are some phytoconstituents.

[P] : Galactomannan

[Q]: Glucomannan

[R] : Barbaloin

[S] : Phyllanthin

Identify the constituent(s) present in Aloe vera.

- (A) Only P
- (B) Q and R
- (C) Only S
- (D) P and S

ANS: B

Q.33 Choose the correct answer for the binomial nomenclature of fruits of star-anise.

- (A) Pimpinella anisum
- (B) Illicium verum
- (C) Illicium anisatum
- (D) Illicium religiosum

ANS: B

Q.34 Peruvoside is naturally obtained from one of the following plants. Identify the correct name.

- (A) Dioscorea
- (B) Ginseng
- (C) Liquorice
- (D) Thevetia

ANS: D

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Q.35 One of the followings is NOT required for the initiation and maintenance of plant tissue culture. Identify that.

- (A) Sucrose      (B) Kinetin      (C) Auxin      (D) Abscic acid

ANS:D

Q.36 For the equation  $PV = nRT$  to hold true for a gas, all of the following conditions are necessary EXCEPT for ONE. Identify that.

- (A) The molecules of gas must be of negligible volume  
(B) Collisions between molecules must be perfectly elastic  
(C) The velocities of all molecules must be equal  
(D) The gas must not be decomposing

ANS:C

Q.37 Atracurium besylate, a neuromuscular blocking agent, is metabolized through one of the following reactions. Identify that.

- (A) Hoffman elimination      (B) Hoffman rearrangement  
(C) Michael addition      (D) Claisen condensation

ANS:A

Q.38 Identify the metabolite of prontosil responsible for its antibacterial activity.

- (A) Sulphacetamide      (B) Sulphanilamide      (C) p-Amino benzoic acid      (D) Probenecid

ANS:B

Q.39 The central bicyclic ring in penicillin is named as one of the followings. Find the correct name.

- (A) 1-Thia-4-azabicyclo[3.2.1]heptane      (B) 4-Thia-1-azabicyclo[3.2.0]heptane  
(C) 4-Thia-1-azabicyclo[3.2]heptane      (D) 1-Thia-4-azabicyclo[1.2.3]heptanes

ANS:B

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Q.40 Quantification of minute quantity of a drug from a complex matrix, without prior separation can be done using one of the following techniques. Identify that.

- (A) Coulometry (B) Potentiometry  
(C) Fluorescence spectroscopy (D) Radioimmunoassay

ANS:D

Q.41 Read the following statements carefully about Volhard's method:

[P] : In Volhard's titration, silver ions are titrated with thiocyanates in acidic solution

[Q]: Ferric ions act as indicator in Volhard's method, yielding reddish brown ferric thiocyanate

[R] : Volhard's method is used to determine halides

[S] : Volhard's method is a direct titration

Choose the correct set of answers.

- (A) P, Q and R are true and S is false  
(B) Q, R and S are true and P is false  
(C) R, S and P true and Q is false  
(D) P, Q, R and S all are true

ANS:A

Q.42 Read the following statements about S<sub>N</sub>A reactions:

[P] : They proceed with complete inversion (Walden inversion).

[Q] : They proceed with racemization plus some net inversion.

[R] : They are characterized by rearrangements.

[S] : They are characterized by the reactivity sequence,  $\text{CH}_3 > 1^\circ > 2^\circ > 3^\circ$  Choose the correct combination?

- (A) P and Q are true while R and S are false  
(B) P and R are true while S and Q are false  
(C) Q and R are true while P and S are false  
(D) R and S are true while P and Q are false

ANS:C

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Q.43 Followings are some drug derivatives used to increase/decrease the water solubility of the parent drugs:

[P] : Rolitetracycline

[Q] : Erythromycin lactobionate

[R] : Chloramphenicol succinate

[S] : Erythromycin stearate

Choose the correct combination of statements.

- (A) Q and R are used to increase water solubility while P and S are used to decrease it  
(B) P, Q and R are used to increase water solubility while S is used to decrease it  
(C) Q, S and R are used to increase water solubility while P is used to decrease it  
(D) Q and S are used to increase water solubility while P and R are used to decrease it

ANS: B

Q.44 One of the following ring systems can be used as the bioisosteric replacement for benzene ring in drug design:

[P]: Thiophene [Q]: Cyclohexa-1,3-diene [R]: Pyrrolidine [S] : Imidazoline

Identify the correct answer.

- (A) P (B) Q (C) R (D) S

ANS: A

Q.45 Some of the following statements describe the properties of Dropping Mercury Electrode (DME) correctly:

[P] Constant renewal of electrode surface eliminates poisoning effects.

[Q] Mercury makes many metal ions easily reducible.

[R] Mercury has large hydrogen over-voltage.

[S] The electrode can get oxidised with ease.

Identify the correct combination.

- (A) All statements P, Q, R and S are correct  
(B) Statements P, Q and R only are correct  
(C) Statements P, R and S only are correct

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(D) Statements P, Q and S only are correct

ANS:A

Q.46 Penicillin ring system is derived from two of the following amino acids:

[P] : Alanine and methionine

[Q] : Cysteine and valine

[R] : Glycine and cysteine

[S] : Methionine and leucine

Choose the correct pair.

(A) P (B) Q (C) R (D) S

ANS:B

Q.47 Some statements are given for clavulanic acid, sulbactam and tazobactam:

[P] : All three lack the 6-acylamino side chain

[Q]:All are potent inhibitors of the enzyme P-lactamase

[R] :All are prodrugs of penicillin

[S] : All have weak antibacterial activity

Choose the correct combination of statements.

(A) P, Q and R are true while S is false

(B) Q, R and S are true while P is false

(C) P, R and S are true while Q is false

(D) P, Q and S are true while R is false

ANS:D

Q.48 Which detector is used in gas chromatography for halogen containing compounds specifically?

(A) Katharometer

(B) Electron capture detector

(C) Flame ionization detector

(D) Thermal conductivity detector

ANS:B

Q.49 Precessional frequency of a nucleus depends on the followings:

[P] : Quantum of externally applied magnetic field

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[Q] : Quantum of electron density present around the nucleus

[R] : Frequency of applied electromagnetic radiations

[S] : Electronegativity of the element

Choose the correct combination of statements.

(A) P & Q are true (B) P & R are true

(C) Q & R are true (D) P & S are true

ANS:A

Q.50 Some statements are given about disodium edetate:

[P] : Disodium edetate is a bidentate ligand

[Q] : Disodium edetate is a complexing agent but not a chelating agent

[R] : Disodium edetate can be used for the assay of lithium carbonate

[S] : Disodium edetate can be used for the assay of zinc sulphate

Choose the correct answer.

(A) Q, R & S are true (B) Q & S are true

(C) S only is true (D) P, Q, R & S all are true

ANS:C

Q.51 Which one of the following amino acids is the most effective contributor of protein buffer?

(A) Alanine (B) Glycine (C) Histidine (D) Arginine

ANS:C

Q.52 Study the following statements on alkylating agents as antineoplastics:

[P] : They get converted to aziridinium ions and bind to 7th position -N atom of guanine of DNA base pairs

[Q] : Nitrogen mustards and Sulfur mustards belong to this class of drugs

[R] : They inhibit dihydrofolate reductase enzyme thereby inhibiting DNA

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synthesis

[S] : They chelate electropositive atoms present in the DNA thereby inhibiting DNA uncoiling

Choose the correct combination of statements.

- (A) P and Q are correct      (B) R and S are correct  
(C) P and S are correct      (D) Q and R are correct

ANS:A

Q.53 Following are some statements about Captopril:

[P] : It is a prototype molecule in the design of ACE inhibitors

[Q] : It contains a sulphonyl group in its structure

[R] : It has a proline moiety in its structure

[S] : It has an ester linkage

Choose the correct combination of statements.

- (A) P & Q are true while R & S are false  
(B) Q & R are true while P & S are false  
(C) P & R are true while Q & S are false  
(D) R & S are true while P & Q are false

ANS:C

Q.54 Cetirizine as an antihistaminic agent has a low sedative potential due to one of the following reasons. Identify that.

- (A) It has a chiral center      (B) It has high log P value  
(C) It has high polarity      (D) It has low molecular weight

ANS:C

Q.55 Titanium dioxide is used in sun screen products as a topical protective. The topical protective

effect of titanium dioxide is arising due to one of the following properties. Identify that.

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- (A) It has a high bulk density                      (B) It has a high LTV absorptivity  
(C) It has a low water solubility                (D) It has a high refractive index

ANS:D

Q.56 Parachor and Molar refraction can be categorized under one of the following properties. Identify that.

- (A) Additive properties                      (B) Constitutive properties  
(C) Colligative properties                  (D) Additive and constitutive property

ANS:D

Q.57 Rast's camphor method is used for determination of molecular weight of solutes which are soluble in molten camphor. The basic principle of the method is dependent on one of the following properties. Identify that.

- (A) Elevation of freezing point of camphor by the solute  
(B) Lowering of vapour pressure of camphor by the solute  
(C) Lowering of freezing point of camphor by the solute  
(D) Elevation of boiling point of camphor by the solute

ANS:C

Q.58 In polarography, when the limiting current is achieved, one of the following processes takes place. Choose that.

- (A) The rate of electron transfer just matches the rate of mass transfer  
(B) The rate of electron transfer is slower than the rate of mass transfer  
(C) The rate of electron transfer becomes independent of the rate of mass transfer  
(D) The rate of electron transfer far exceeds the rate of mass transfer

ANS:D

Q.59 Starch-iodide paste/paper is used as an external indicator in one of the following titrations.

Identify that.

- (A) Iodometric titration of copper sulphate using sodium thiosulphate as titrant  
(B) Iodimetric titration of ascorbic acid using iodine solution as titrant

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(C) Diazotisation titration of sulphadiazine using sodium nitrite as titrant

(D) Potassium dichromate titration using sodium thiosulphate as titrant

ANS:C

Q.60 For a dye to be used as metal indicator in complexometric titrations, some of the dye properties are listed below:

[P] : The dye should have distinct colour than the dye-metal complex

[Q]: The dye-metal complex should have a higher stability than the metal-chelate (titrant) complex

[R] : The dye should be capable of complexing with the metal ions

Choose the correct combination of statements for the dye to be used as an indicator in complexometric titrations.

(A) P & Q are correct while R is not

(B) Q & R are correct while P is not

(C) P & R are correct while Q is not

(D) P, Q & R all are correct

ANS:C

Q.61 In amperometry, rotating platinum electrode (RPE) is used as indicating electrode. It has certain advantages as well as disadvantages. Read the following statements about the use of rotating platinum electrode in amperometry:

[P] : It causes large diffusion current due to rotation resulting in greater mass transfer

[Q] : It causes greatly reduced residual current due to lack of condenser effect

[R]: It has a low hydrogen over potential

Choose the correct combination of statements.

(A) P, Q & R are all advantages of using RPE in amperometry

(B) P & R are advantages of RPE while Q is a disadvantage

(C) Q & R are advantages of RPE while P is a disadvantage

(D) P & Q are advantages of RPE while R is a disadvantage

ANS:D

Q.62 There are some statements related to the protein binding of drugs as given below:

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[P] : Protein binding decreases the free drug concentration in the system.

[Q]:Protein binding to plasma albumin is an irreversible process.

[R] : Drugs with a low lipophilicity have a high degree of protein binding.

[S] : Protein binding of one drug can be affected by the presence of other drug.

Choose the correct combination of statements.

- (A) P & Q are true while R & S are false
- (B) Q & R are true while P & S are false
- (C) R & S are true while P & Q are false
- (D) P & S are true while Q & R are false

Ans:D

Q.63 Based on Henderson-Hasselbalch equation, at what pH value a weak acid would be 99.9% ionized?

- (A) At pH equivalent to  $pK_a + 3$
- (B) At pH equivalent to  $pK_a - 3$
- (C) At pH equivalent to  $pK_a - 1$
- (D) At pH equivalent to  $pK_a + 1$

ANS:A

Q.64 Which one of the followings is NOT used in preparation of baby powders?

- (A) Stearic acid (B) Boric acid (C) Kaolin (D) Calcium carbonate

ANS-B

Q.65 According to Kozeny Carmen equation a 10% change in porosity can produce:

- (A) Two fold change in viscosity
- (B) Five fold change in viscosity
- (C) Three fold change in viscosity
- (D) None of the above

ANS-C

Q.66 Containers used for aerosols should withstand a pressure of:

- (A) 130-150 Psig at 130 °F
- (B) 140-180 Psig at 130 °F
- (C) 140-170 Psig at 120 oF
- (D) 120-140 Psig at 120 oF

ANS:B

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Q.67 Study the following two statements:

[X] : If the gas is cooled below its critical temperature, less pressure is required to liquefy it.

[Y] : At critical temperature and critical pressure, the liquid will have highest vapor pressure.

Choose the correct combination of statements.

- (A) Both X and Y are correct
- (B) X is incorrect and Y is correct
- (C) X is correct and Y is incorrect
- (D) Both X and Y are incorrect

ANS:A

Q.68 Determine the correctness or otherwise of the following Assertion [a] and the Reason [r]:

Assertion [a]: For an API of approximately same particle size, the angle of repose will increase with departure from spherical shape.

Reason [r] : Angle of repose is a function of surface roughness and particle size. With constant particle size, increase in roughness increases angle of repose.

- (A) Although [a] is true but [r] is false
- (B) Both [a] and [r] are false
- (C) Both [a] and [r] are true and [r] is the correct reason for [a]
- (D) Both [a] and [r] are true but [r] is NOT the correct reason for [a]

ANS:C

Q.69 Choose the correct formula for the calculation of the retail price of a formulation, given by the Govt, of India.

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- (A) R.P. = (M.C. + E.D. + P.M. + P.C.) × (1 + MAPE/100) + C.C.  
(B) R.P. = (M.C. + C.C. + P.M. + P.C.) × (1 + MAPE/100) + E.D.  
(C) R.P. = (M.C. + C.C. + E.D. + P.C.) × (1 + MAPE/100) + P.M.  
(D) R.P. = (M.C. + C.C. + P.M. + E.D.) × (1 + MAPE/100) + P.C.

ANS:B

Q.70 Which one of the following statements is FALSE about Interferons?

- (A) Interferons are cellular glycoproteins produced by virus infected cell  
(B) Interferons have no effects on extracellular virus  
(C) Interferons are virus specific agents that can interfere either with DNA or RNA virus  
(D) They are produced as potent broad spectrum antiviral agents

ANS:C

Q.71 Which one of the following statements is NOT true for stainless steel 316?

- (A) It is also called inox steel  
(B) It contains 10.5- 11% chromium  
(C) Due to the presence of chromium it exhibits passivation phenomenon  
(D) It is not affected by acids

ANS:D

Q.72 Precise control of flow is obtained by which one of the followings?

- (A) Needle valve      (B) Butterfly valve      (C) Gate valve      (D) Globe valve

ANS:A

Q.73 Heat sensitive materials like fruit juice are evaporated in which one of the followings?

- (A) Long tube vertical evaporator  
(B) Calandria type evaporator

# AIIMS DELHI PHARMACIST 2017

(C) Falling film type evaporator

(D) Forced circulation type evaporator

ANS:C

Q.74 Which of the following conditions favor formation of large crystals?

(A) High degree of supersaturation (B) Low nucleation rate

(C) High magma density (D) Rapid cooling of magma

ANS:B

Q.75 Which one of the following properties is characteristic of microemulsions?

(A) These are transparent systems with droplet size less than 1 MICRO METER

(B) These are transparent systems with droplet size less than 10 MICRO METER

(C) These are non-transparent systems with droplet size less than 1 MICRO METER

(D) These are transparent systems with droplet size less than MICRO METER

ANS:A

Q.76 At equal concentrations which one of the following mucilages will possess maximum

viscosity?

(A) Maize starch

(B) Rice starch

(C) Wheat starch

(D) Potato starch

ANS:D

Q.77 The integrity of seals in case of vials and bottles is determined by some tests. Some of them are given below:

[P]:Leaker's test

[Q]:Water hammer test

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[R]: Spark tester probe

Choose the correct answer.

- (A) p & Q      (B) Q&R      (C) P&R      (D) P,Q & R all

ANS:D

Q.78 Read the following statements:

[P] : The surface area measurement using BET approach utilizes argon gas for adsorption

[Q]: Full form of BET is Brunauer, Emmett and Teller

Choose the correct answer.

- (A) P & Q both are correct  
(B) P is correct but Q is incorrect  
(C) Q is correct but P is incorrect  
(D) Both P & Q are incorrect

ANS-C

Q.79 Based on the DLVO theory of force of interaction between colloidal particles, which one of the followings lead to attractive interaction between two particles?

- (A) Solvation forces      (b). Electrostatic forces  
(C) van der Waals forces      (B) Steric forces

ANS -C (MINOR TEST)

Q.80 Read the following statements with regard to viscosity of a polymer solution:

[P]: Specific viscosity of a polymer solution is obtained as relative viscosity+ 1

[Q]: Relative viscosity is the ratio of the viscosity of the solution to the viscosity of pure solvent

[R]: Kinematic viscosity is defined as the viscosity of the liquid at a definite temperature

[S] : The unit for kinematic viscosity is poise or dyne sec cm<sup>2</sup> Indicate the correct combination of statements.

- (A) P & S are correct but Q&R are wrong  
(B) Q & R are correct but P & S are wrong  
(C) P & Q are correct but R & S are wrong  
(D) R & S are correct but P & Q are wrong

# AIIMS DELHI PHARMACIST 2017

ANS:B

Q.81 What negative adsorption would do?

- (A) Decrease the surface free energy as well as the surface tension
- (B) Increase the surface free energy as well as the surface tension
- (C) Decrease the surface free energy but increase the surface tension
- (D) Increase the surface free energy but decrease the surface tension

ANS-B

Q.82 Two statements are given regarding the uniformity of dispersion test (LP.):

[P]: It is evaluated using 6 tablets and 500 ml water

[Q]: It involves measuring the dispersion time of each tablet

Choose the correct set of statements.

- (A) P is correct while Q is incorrect
- (B) P & Q both are correct
- (C) P is incorrect while Q is correct
- (p) Both P & Q are incorrect

ANS-D

Q.83 Read the following statements:

[P] : Caramelization occurs in acidic conditions

[Q]: Caramel is optically inactive glucose

[R] : Caramel is obtained by burning of glucose

[S] : Caramel is obtained by degradation of fructose

Choose the right combination of statements.

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- (A) P & Q are true but R & S are false  
(B) P & S are true but Q & R are false  
(C) Q & R are true but P & S are false  
(D) R & S are true but P & Q are false

ANS:B

Q.84 Find the process by which the conversion of sulfasalazine to sulfapyridine and 5-amino salicylic acid takes place in the colon?

- (A) Hydrolysis      (B) Deamination      (C) Acetylation      (D) Azoreduction

ANS:D

Q.85 How much quantity (in grams) of sodium chloride is needed to make 30 ml of a 2% isotonic drug sodium chloride equivalent 0.20) solution?

- (A) 0.60      B) 0.27      (C) 0.15      (D) 0.12

ANS:C

Q.86 Read the following statements about lyophilization:

[P] : Lyophilization cannot be done in final containers like multiple dose containers.

[Q]: Lyophilized product needs special methods for reconstitution.

[R] : Lyophilization causes protein denaturation in tissues.

[S] : Lyophilization is suitable for drying the thermolabile products.

Choose the correct combination of statements.

- (A) P is true and Q, R & S are false      (B) Q is true and P, R & S are false  
(C) R is true and P, Q & S are false      (D) S is true and P, Q & R are false

ANS:D

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Q.87 A sample of paracetamol tablets claims to contain 500 mg of paracetamol. But, on analysis by Govt. Analyst, it was found to contain 200 mg. As per Drugs and Cosmetics Act, 1940, this product would be categorized as what?

- (A) Misbranded drug (B) Adulterated drug  
(C) Spurious drug (D) Unethical drug

ANS:A

Q.88 Use of which of the following artificial sweeteners is permitted in various dosage forms of Ayurveda, Siddha and Unani proprietary medicines?

- (A) Sucralose (B) Aspartame (C) Saccharin (D) All of them

ANS:D

Q.89 Arrange the following fatty acids in decreasing order of their unsaturation (highest to lowest):

- [P] Stearic [Q] Oleic acid [R] Linolenic acid [S] Linoleic acid

- (A) P > Q > R > S (B) S > R > P > Q (C) R > S > Q > P (D) Q > P > R > S

ANS.C

Q.90 Which of the following mechanisms is NOT related to platelet aggregation inhibitory action?

- (A) ADP receptor antagonism  
(B) Glycoprotein IIb/IIIa receptor antagonism  
(C) Phosphodiesterase inhibition  
(D) Prostacyclin inhibition

ANS.D

Q.91 Which of the following parameters from plasma concentration time profile study

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gives indication of the rate of drug absorption?

- (A)  $C_{max}$                       (B)  $T_{max}$                       (C) AUC                      ( D)  $t_{1/2}$

Ans.B (MAJOR TEST)

Q.92. If  $C$  is the concentration of dissolved drug and  $C_s$  is the saturation concentration. In which case the sink conditions are said to be maintained?

- (A)  $C < 20\%$  of  $C_s$   
(B)  $C > 20\%$  of  $C_s$   
(C)  $C < 10\%$  of  $C_s$   
(D)  $C > 10\%$  of  $C_s$

ANS.C

Q.93 Study the following two statements and choose the correct answer:

[P] Antibodies are serum proteins providing immunity.

[Q] IgG provides immunity to new born babies while IgM is the first generated antibody.

- (A) P is correct and Q is incorrect (B) P is incorrect and Q is correct  
(C) Both P and Q are correct (D) Both P and Q are incorrect

ANS.C

Q.94 Which of the following statements is INCORRECT?

- (A) Chick Martin test uses organic matter in media  
(B) The organism in Rideai-Walker test is *S. typhi*  
(C) Rideai-Walker test uses organic matter in media  
(D) The organism in Chick Martin test is *S. typhi*

Ans.C

Q.95 Which of the following forces contribute to stability of charge-transfer complexes?

- (A) Resonance forces

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- (B) Resonance and London dispersion forces
- (C) Dipole-dipole interactions and London dispersion forces
- (D) Resonance forces and dipole-dipole interactions

ANS.D

Q.96 Which of the following isotherms are produced when the heat of condensation of successive layers is more than the heat of adsorption of first layer?

- (A) Type III and IV
- (B) Type II and V
- (C) Type I and III
- (D) Type III and V

ANS.D

Q.97 Which of the following pumps is used in handling of corrosive liquids?

- (A) Turbine pump
- (B) Volute pump
- (C) Air binding pump
- (D) Peristaltic pump

ANS.D

Q.98 The Reynolds number widely used to classify flow behavior of fluids is the ratio of which one of the followings:

- (A) Inertial forces to gravitational forces
- (B) Inertial forces to viscous forces
- (C) Viscous forces to inertial forces
- (D) Viscous forces to gravitational forces

ANS.B (MINOR TEST)

Q.99 S O S means which one of the followings?

- (A) Take occasionally
- (B) Take immediately

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(C) Take when necessary

(D) Take as directed

ANS.C (MINOR TEST)

Q.100 Which statement is FALSE for Association Colloids?

- (A) They are also called amphiphiles
- (B) They contain aggregated molecules
- (C) They show partial solvation
- (D) They are also called micelles

ANS.C

Q.101 Alkenes show typical electrophilic addition reactions. If an electron withdrawing group is attached to one of the carbons bearing the double bond, what will happen to the mechanism of the addition reaction?

- (A) It remains electrophilic
- (B) It becomes free radical addition
- (C) It becomes pericyclic reaction
- (D) It becomes nucleophilic

ANS-D

Q.102 Five-membered heteroaromatic compounds show a much higher rate of electrophilic aromatic substitution reactions than the six-membered ones. This is due to which one of the following reasons?

- (A) Five-membered heteroaromatic compounds have higher circulating electron density in the ring than the six-membered ones
- (B) Five-membered heteroaromatic compounds have lower circulating electron density in the ring than the six-membered ones
- (C) Five-membered rings are smaller in size than the six membered ones which affects their reaction rates
- (D) Six membered heteroaromatic rings are flat while the five-membered ones are puckered

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ANS.A

Q.103 Pyridine is more basic than pyrrole. This is due to which of the following facts?

- (A) Lone pair of electrons on N in pyrrole is localized
- (B) Lone pair of electrons on N in pyridine is localized
- (C) Nitrogen of pyrrole has one hydrogen atom attached to it while pyridine does not have any
- (D) Pyridine has three double bonds while pyrrole has only two

ANS.B

Q.104 In nucleophilic aliphatic substitution reactions arrange the following leaving groups in decreasing order of their leaving capacity?

- [P] Brosyl                      [Q] Hydroxyl                      [R] Chloro                      [S] Mesyl
- (A)  $S > R > P > Q$
  - (B)  $P > S > R > Q$
  - (C)  $R > Q > S > P$
  - (D)  $R > S > Q > P$

ANS.B

Q.105 Indicators used in complexometric titrations are chelating agents. Choose the correct

statement about them?

- (A) Indicator-metal ion complex should have higher stability than EDTA-Metal ion complex
- (B) Indicator-metal ion complex should have lower stability than EDTA-Metal ion complex
- (C) Indicator-metal ion complex should have equal stability as EDTA-Metal ion complex
- (D) Stability of the indicator-metal ion complex is not an important criterion in

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complexometric titrations

ANS.B

Q.106 In polarography, DME has a number of advantages. One of the advantages is that mercury has large hydrogen over potential. It means which one of the followings?

- (A) Hydrogen ions get easily reduced on the DME
- (B) Hydrogen gas gets easily reduced on the DME
- (C) Hydrogen ions require high potential to be reduced at DME
- (D) Water is difficult to get oxidized at DME

ANS.A

Q.107 A carbocation will NOT show one of the following properties. Choose that.

- (A) Accept an electron to give a carbene
- (B) Eliminate a proton to afford an alkene
- (C) Combine with a negative ion
- (D) Abstract a hydride ion to form an alkane

ANS.A

Q.108 The vitamin essential in tissue culture medium is

- (A) Pyridoxine
- (B) Thiamine
- (C) Nicotinic acid
- (D) Inositol

Ans.B

Q.109 Sildenafil is used for treatment of one of the following disorders :

- (A) Systolic hypertension
- (B) Unstable angina
- (C) Pulmonary hypertension
- (D) Hypertension due to eclampsia

Ans.C

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Q.110 Which one of the following drugs is prescribed for the treatment of Philadelphia chromosome positive patients with Chronic myeloid Leukemia?

- (A) Pentostatin (B) Methotrexate  
(C) Imatinib (D) L-Asparaginase

Ans.C

Q.111 Which one of the following drugs does NOT act through G-Protein coupled receptors?

- (A) Epinephrine (B) Insulin (C) Dopamine (D) TSH

Ans.B

Q.122 An isosteric replacement for carboxylic acid group is

- (A) pyrrole (B) isoxazole (C) phenol (D) tetrazole

Ans.-D

Q.113 A compound will be sensitive towards IR radiation only when one of the following properties undergo transition on

- (A) Polarizability (B) Dielectric constant  
(C) Dipole moment (D) Refractivity

Ans.C

Q.114 X-ray crystallographic analysis of an optically active compound determines its

- (A) Optical rotatory dispersive power (B) Absolute configuration  
(C) Relative configuration (D) Optical purity

Ans.B

Q.115 Which one of the following statements is WRONG?

- (A) A singlet or triplet state may result when one of the electrons from the HOMO is excited to higher energy levels

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(B) In an excited singlet state, the spin of the electron in the higher energy orbital is paired with the electron in the ground state orbital

(C) Triplet excited state is more stable than the singlet excited state

(D) When the electron from the singlet excited state returns to ground state, the molecule always shows fluorescence phenomenon

Ans.C

Q.116 Purity of water can be assessed by determining one of its following properties instrumentally :

(A) pH (B) Refractivity (C) Viscosity (D) Conductivity

Ans.D

Q.117 Which one of the following statements is WRONG?

(A) Carbon NMR is less sensitive than proton NMR  
(B)  $^{12}\text{C}$  nucleus is not magnetically active  
(C) Both  $^{13}\text{C}$  and  $^1\text{H}$  have same spin quantum numbers  
(D) The gyromagnetic ratio of  $^1\text{H}$  is lesser than that of  $^{13}\text{C}$

Ans.D

Q.118 In the TCA cycle, at which of the following enzyme-catalyzed steps, incorporation of elements of water into an intermediate of the cycle takes place :

(A) Citrate synthase (B) Aconitase  
(C) Maleate dehydrogenase (D) Succinyl Co-A synthase

Ans.C

Q.119 Humectants added in cosmetic preparations generally act by

(A) hydrogen bond formation (B) covalent bond formation  
(C) complex formation (D) the action of London forces

Ans.A

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Q.120 In the mixing of thymol and menthol the following type of incompatibility occurs:

- (A) Chemical incompatibility (B) Therapeutic incompatibility  
(C) Physical incompatibility (D) Tolerance incompatibility

Ans.C

Q.121 Bloom strength is used to check the quality of

- (A) Lactose (B) Ampoules  
(C) Hardness of tablets (D) Gelatin

Ans.D

Q.122 The characteristic of non-linear pharmacokinetics include :

- (A) Area under the curve is proportional to the dose  
(B) Elimination half-life remains constant,  
(C) Area under the curve is not proportional to the dose  
(D) Amount of drug excreted through remains constant

Ans.C

Q.123 Thioglycolic acid-like compounds have applications in following type of Cosmetic formulations :

- (A) Depilatory preparations (B) Epilatory preparations  
(C) Vanishing creams (D) Skin tan preparations

Ans.A

Q.124 Which one of the following is a flocculating agent for a negatively charged drug?

- (A) Aluminium chloride (B) Bentonite  
(C) Tragacanth (D) Sodium biphosphate

Ans.A

Q.125 The healing agent used in hand creams is

- (A) soft paraffin (B) urea  
(C) bees wax (D) stearyl alcohol

Ans.A

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Q.126 Which one of the following is the commonly used bulking agent in the formulation of freeze dried low dose drug products?

- (A) Sodium chloride (B) Mannitol  
(C) Starch (D) HPMC

Ans.B

Q.127 The applicability of Noyes-Whitney equation is to describe

- (A) First order kinetics (B) Zero order kinetics  
(C) Mixed order kinetics (D) Dissolution rate

Ans.D

Q.128 What quantities of 95% v/v and 45% v/v alcohols are to be mixed to make 800 mL of 65% v/v alcohol?

- (A) 480 mL of 95% and 320 mL of 45% alcohol  
(B) 320 mL of 95% and 480 mL of 45% alcohol  
(C) 440 mL of 95% and 360 mL of 45% alcohol  
(D) 360 mL of 95% and 440 mL of 45% alcohol

Ans.B

Q.129 Which one of the following drugs is withdrawn from the market due to *torsade de pointes*?

- (A) Chlorpromazine (B) Astemizole  
(C) Haloperidol (D) Domperidone

Ans.B

Q.130 Glass transition temperature is detected through

- (A) X-Ray diffractometry (B) Solution calorimetry

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(C) Differential scanning calorimetry

(D) Thermogravimetric analysis

Ans.C

Q.131 Coulter counter is used in determination of

(A) particle surface area

(B) particle size

(C) particle volume

(D) all of A, B, C

Ans.D

Q.132 Drugs following one compartment open model pharmacokinetics eliminate

(A) bi-exponentially

(B) tri-exponentially

(C) non-exponentially

(D) mono-exponentially

Ans.D

Q.133 The temperature condition for storage of drug products under cold temperature is given as:

(A) temperature between  $2^{\circ}\text{C}$  and  $25^{\circ}\text{C}$

(B) temperature below  $20^{\circ}\text{C}$

(C) temperature at  $0^{\circ}\text{C}$

(D) temperature between  $2^{\circ}\text{C}$  and  $25^{\circ}\text{C}$

Ans.D

Q.134 Drugs in suspensions and semi-solid formulations always degrade by

(A) first order kinetics

(B) second order kinetics

(C) zero order kinetics

(D) non-linear kinetics

Ans.C

Q.135 In nail polish, following polymer is used as a film-former :

(A) Nitrocellulose

(B) Polylactic acid

(C) Hydroxypropylmethylcellulose

(D) Cellulose acetate phthalate

Ans.A

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Q.136 How many ml of a 1:500 w/v stock solution should be used to make 5 liters of 1:2000 w/v solution?

(A) 750 mL

(B) 1000 mL

(C) 1250 mL

(D) 1500 mL

Ans. C

