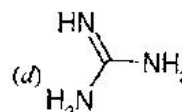
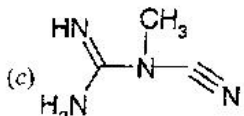
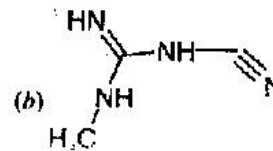
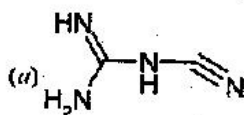
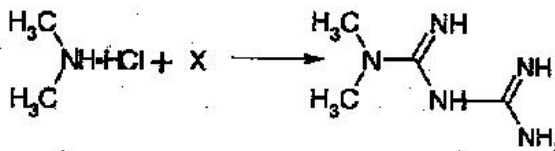


Q. 1—Q. 20 carry one mark each

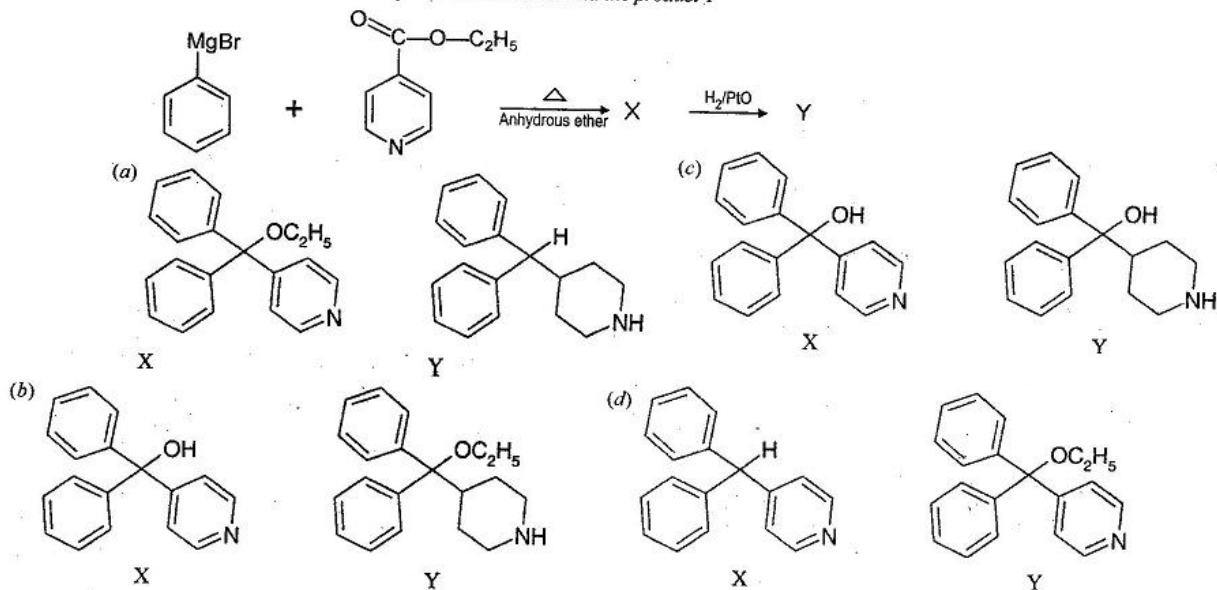
- Q. 1.** 5,6-methylene dioxyindole is treated with oxalyl chloride to give a keto acid chloride. This method is useful for introducing a two carbon side chain at
 (a) dioxy group of indole (b) NH-group of indole
 (c) 7-position of indole (d) electron rich 3-position of indole

- Q. 2.** Identify X in the following reaction

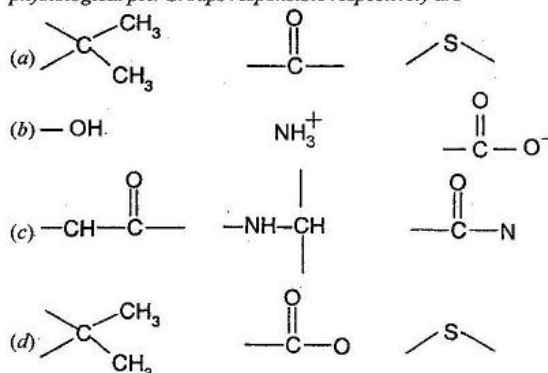


- Q. 3.** An antineoplastic agent methotrexate inhibits the enzyme dihydrofolate reductase. They bind so tightly that their inhibition has been termed "Pseudo irreversible" - basis of this binding is due to
 (a) Free carboxyl group (b) N-methyl p-amino benzyl group
 (c) Diamino pyrimidine (d) Glutamic acid
- Q. 4.** β lactamase inhibitor clavulanic acid is
 (a) a 1, 1-dioxo penicillanic acid
 (b) Δ^2 carbapenem
 (c) Cepham
 (d) 1-oxopenam structure and has no 6-acylamino side chain of penicillin
- Q. 5.** A mixture of the following gases can be used in flame photometry to get a temperature of 2045°C
 (a) Hydrogen and nitrous oxide (b) Acetylene and oxygen
 (c) Hydrogen and air (d) Hydrogen and oxygen
- Q. 6.** Tesla is a unit used to express
 (a) Frequency (b) Pressure
 (c) Voltage (d) Magnetic field strength
- Q. 7.** A monochromator is not used in
 (a) UV spectrometer (b) FT-IR spectrometer
 (c) Spectrofluorimeter (d) IR spectrometer
- Q. 8.** The properties of solutions containing surface active agents change sharply over a narrow concentration range and is called as
 (a) Critical micelle concentration (b) Ionic concentration
 (c) Hydrogen ion concentration (d) Surface tension
- Q. 9.** Certain suspensions with a high percentage of dispersed solids exhibit an increase in resistance to flow with increasing rates of shear. Such systems actually increase in volume when sheared and are termed as
 (a) Thixotropic (b) Dilatant
 (c) Plastic (d) Newtonian
- Q. 10.** In the process of sugar coating of tablets the colorants are added in one of the following steps
 (a) Syrup coating (b) Polishing
 (c) Sub coating (d) Seal coating
- Q. 11.** Metered-dose inhaler's documentation records shall show one of the information in addition to the general GMP (b) Records of rejection during on line check weighing
 (a) Portable stirrer (c) Water distillation unit deionizer (d) Electrically operated mixer

- Q. 12. A drug which inhibits mycobacterial RNA polymerase and is very useful in treating *Mycobacterium avium* complex is
 (a) Isoniazid (b) Ethionamide
 (c) Capreomycin (d) Rifabutin
- Q. 13. An 80 year old lady suffering from osteoarthritis of hip and knee joints is given diclofenac 50 mg thrice daily and paracetamol 1 g as required. She complains of passing black stools. This symptom is due to
 (a) Paracetamol causing the black stools
 (b) Change in food habits
 (c) Upper gastrointestinal bleeding due to diclofenac
 (d) Age related decrease in gastrointestinal motility
- Q. 14. Terazosin, an anti-hypertensive drug, acts by
 (a) blocking β adrenoceptors (b) blocking α_1 adrenoceptors
 (c) diuretic action (d) inhibition of ACE
- Q. 15. An imidazole aromatase inhibitor which is effective in reducing estrogen level is
 (a) Anastrozole (b) Exemestane
 (c) Mitotane (d) Dexamethasone
- Q. 16. The main constituent in the dried ripe seeds of *Colchicum luteum* Baker and *Colchicum autumnale* Linn. is derived from
 (a) Tyrosine, phenyl alanine and dihydroxy phenyl alanine
 (b) Tryptophan and Tryptamine
 (c) Ornithine
 (d) Lysine
- Q. 17. Formation of somatic embryos or embryogenic tissue directly from the explant without the formation of an intermediate callus phase is
 (a) Somatic embryogenic response (b) Callus formation
 (c) Direct somatic embryogenesis (d) Premature germination
- Q. 18. While performing the chemomicroscopy of a drug lignified trichomes were observed. Probable drug is
 (a) Buchu (b) Lobelia
 (c) Nux vomica (d) Mint leaves
- Q. 19. A common organism that causes meningitis belongs to the genus
 (a) Candida (b) Neisseria
 (c) Pseudomonas (d) Clostridium
- Q. 20. Bradykinin is
 (a) a steroidal hormone (b) serotonin derivative
 (c) a nonapeptide (d) a lipoprotein
- Q. 21. Identify the correct combination of the intermediate X and the product Y



Q. 22. Amoxicillin, a polyfunctional drug has different pKa values such as 9.6, 7.4 and 2.4, at physiological pH. Groups responsible respectively are



Q. 23. A drug which has potent peripheral vasodilatory properties inhibits the voltage dependent calcium channel in vascular smooth muscle is

- (a) Diethyl 4,4-dihydro-2,6-dimethyl-4-(2-nitrophenyl)-3,5-Pyridine carboxylate
 (b) Dimethyl 1,4-dihydro-2,6-diethyl-4-(2-nitrophenyl)-3,5-Pyridine carboxylate
 (c) Dimethyl 1,4-dihydro-2,6-dimethyl-4-(2-nitrophenyl)-3,5-Pyridine carboxylate
 (d) Dimethyl 1,4-dihydro-2,6-dimethyl-4-(2-nitrophenyl)-3,5-Pyridine carboxylate

Q. 24. In the Bragg's equation $n\lambda = 2d \sin\theta$, 2θ is the angle between

- (a) the direction of the incident beam and the refracted beam
 (b) the surface of the crystal and the incident fluorescent beam
 (c) the direction of the incident and that of the diffracted beam.
 (d) two incident beams

Q. 25. The color which human eye perceives is not the color corresponding to the wavelength of the light

- (a) reflected (b) absorbed
 (c) refracted (d) diffracted

Q. 26. During compression of moisture-critical granules a hygroscopic substance used to maintain a proper moisture level is

- (a) Sorbitol (b) Talc
 (c) Acacia (d) Tragacanth

Q. 27. The integrated rate equation for a First order reaction is

- (a) $x/a(a-x) = kt$ (b) $\log a/(a-x) = 2.303/t$
 (c) $\log a/(a-x) = kt/2.303$ (d) $x = kt$

Q. 28. Which one of the following is used as a local anaesthetic in the formulation of parenteral product ?

- (a) Acetic acid (b) Benzyl alcohol
 (c) Ethyl alcohol (d) Sorbitol

Q. 29. In the formulation of suspensions for soft gelatin encapsulation base adsorption of the solid to be suspended is expressed as

- (a) the number of grams of liquid base required to produce a capsulatable mixture when mixed with 1 gm of solid
 (b) the number of ml of liquid base required to produce a capsulatable mixture when mixed with 1 gm of solid
 (c) the number of grams of solid base required to produce a capsulatable mixture when mixed with 1 gm of solid
 (d) the number of mgs of liquid base required to produce a capsulatable mixture when mixed with 10 gms of solid

Q. 30. The drug that binds to AT_1 receptor with high affinity is

- (a) Pinacidil (b) Valsartan
 (c) Moexipril (d) Ranolazine

Q. 31. A person taking nitroglycerine consumes alcohol. The drug interacts with alcohol and the effect seen is

- (a) Severe hypotension and collapse (b) Drowsiness
 (c) Anticoagulant effect (d) Hypertension

Q. 32. The biogenetic origin of methyl substitution at N_1 , N_3 and N_7 in caffeine molecule is

- (a) S-adenosyl methionine (b) S-methyl cysteine
 (c) S-methyl cystine (d) Adenosyl mono phosphate

Q. 33. In WHO guidelines for the herbal drugs contaminants include

- (a) Purines and Pyrimidine bases
 (b) Amino acids
 (c) Pentoses
 (d) Pesticidal residues, arsenic heavy metals, microbial load

- Q. 34. *The ratio of lecithin to sphingomyelin in amniotic fluid is measured*
 (a) to obtain neonatal lipid profile
 (b) to assess fetal maturity and respiratory distress syndrome
 (c) to obtain age of the fetus
 (d) as a diagnostic marker of Tay-Sach's disease
- Q. 35. *Diagnostic strips such as Diastix/Clinistix, used commonly to monitor diabetes, work on which of the following principles*
 (a) the strips are coated with glucose oxidase, peroxidase and o-toluidine. Any glucose in the test solution, when exposed to the strips, gets oxidized leading to the release of hydrogen peroxide, the latter in turn oxidizes o-toluidine to yield a blue colour
 (b) the strips are coated with phenolphthalein analogue, which when exposed to acidic glucose solution, yield a blue colour
 (c) the strips are coated with glucose epimerase and thymol blue, which when exposed to glucose, epimerise resulting in a blue colour
 (d) the strips are coated with leucine synthase and ninhydrin. Glucose, if any in the test solution gets converted into amino acids, which in turn react with ninhydrin to yield a blue colour
- Q. 36. *Chemotaxis is a phenomenon that refers to*
 (a) directed movement in response to a chemical stimulus
 (b) taxonomic classification of biochemicals
 (c) large in-flux of a chemical molecule within bacterial cells
 (d) adherence of bacterial proteins to host cells
- Q. 37. *The usefulness of 5-fluorouracil as an antitumour agent can be attributed to one of the following mechanisms*
 (a) It inhibits hypo-xanthine-guanine phosphoribosyl transferase directly
 (b) It is a pro-drug that gets converted into fluoro-2'-deoxy uridylic acid, which is a suicide substrate for thymidylate synthase
 (c) It gets incorporated into RNA leading to faulty transcription and translation into non-standard amino acids
 (d) It gets converted into tetrafluoro uridylate, which inhibits purine nucleoside phosphorylase
- Q. 38. *Gossypol, a compound which has received major attention as a male contraceptive*
 (P) is a hydroxylated binaphthalene derivative found in cotton seed oil
 (Q) is an orizanol ester, found in rice bran oil
 (R) exhibits toxicity such as hypokalemic induced paralysis
 (S) acts as an androgen antagonist
 Identify the correct statements.
 (a) Q, R (b) P, S
 (c) Q, S (d) P, R
- Q. 39. *Acetylated benzylamine upon chloro sulfonation, amidation and hydrolysis results in a product, which is used as an acetate*
 (P) is Mafenide
 (Q) is N-sulfanilyl acetamide
 (R) for Ophthalmic infections
 (S) is 4-aminomethyl benzene sulfonamide and not a true sulfanilamide
 Identify the correct statements.
 (a) P, S (b) Q, R
 (c) Q, S (d) P, R
- Q. 40. *Two of the following compounds give 3 signals in NMR spectroscopy. Choose the correct combination*
 (P) $\text{CH}_3\text{---COOH}$ (Q) $\text{CH}_3\text{---CH}_2\text{---NH}_2$
 (R) $\text{CH}_3\text{---OH}$ (S) $\text{CH}_3\text{---CH}_2\text{---CH}_2\text{Cl}$
 Identify the correct statements.
 (a) P, Q (b) Q, S
 (c) Q, R (d) P, R
- Q. 41. *Conductance cells for conductivity measurements can be made from two of the following metals*
 (P) Mercury (Q) Sodium
 (R) Platinum (S) Stainless Steel
 Identify the correct statements.
 (a) P, R (b) Q, S
 (c) R, S (d) P, Q
- Q. 42. *In Aldehydes, the ---C=O stretch and the ---C---H stretch are approximately*
 (P) 1725 cm^{-1} (Q) 1660 cm^{-1}
 (R) 2750 cm^{-1} (S) 3300 cm^{-1}
 Identify the correct statements.
 (a) Q, S (b) Q, R
 (c) P, R (d) P, S

- Q. 43.** *Schedule 'C' and Schedule 'N' as per the Drugs and Cosmetics Act deal with the following:*
 (P) Standards for cosmetics
 (Q) Biological and special products
 (R) Life period of drugs
 (S) List of minimum equipments for the efficient running of a pharmacy
 Identify the correct statements.
 (a) P, Q (b) Q, S
 (c) R, S (d) P, R
- Q. 44.** *Abrasive and humectant compounds used in the formulation of toothpaste are*
 (P) Dicalcium phosphate (Q) Sodium lauryl sulphate
 (R) Sorbitol syrup (S) Tragacanth
 Identify the correct statements.
 (a) P, R (b) Q, S
 (c) P, Q (d) R, S
- Q. 45.** *Two of the following types of techniques are used for depot formulation*
 (P) Dissolution controlled (Q) Encapsulation type
 (R) Solubilization (S) Parenteral suspensions
 Identify the correct statements.
 (a) P, Q (b) Q, R
 (c) P, S (d) P, R
- Q. 46.** *GABA, an important transmitter in the brain*
 (P) is an inhibitory transmitter (Q) is an excitatory transmitter
 (R) increase chloride conductance (S) is antagonized by naloxone
 Identify the correct statements.
 (a) P, Q (b) Q, R
 (c) P, R (d) R, S
- Q. 47.** *Atarakuine when combined with proguanil*
 (P) is highly effective and well tolerated (Q) is not well tolerated
 (R) antagonism is observed (S) resistance is reduced
 Identify the correct statements.
 (a) P, Q (b) P, S
 (c) R, S (d) Q, R
- Q. 48.** *G-CSF a myeloid growth factor*
 (P) exhibits action similar to that of folic acid
 (Q) has a remarkable ability to mobilize hemopoietic stem cells
 (R) is activated by t-PA
 (S) activates the phagocytic activity of mature neutrophils and prolongs their survival of circulation
 Identify the correct statements.
 (a) Q, S (b) P, Q
 (c) Q, R (d) R, S
- Q. 49.** *Microscopical characters of cardamom are*
 (P) very thin membranous arillus enveloping the seed and composed of several layers of collapsed cells, yellow in colour containing oil
 (Q) presence of anomocytic stomata on the epidermis of pericarp and mesocarp containing lignified and reticulate parenchyma
 (R) Vittae, the secretory canals contain volatile oil and are brown in colour
 (S) inner epidermis of the pericarp are made up of polygonal tubular cells. Mesocarp includes few brown to yellow coloured resinous cells
 Identify the correct statements.
 (a) Q, R (b) Q, S
 (c) P, S (d) P, R
- Q. 50.** *Two of the following attributes are characteristic of a natural drug obtained from *Syzygium aromaticum**
 (P) quadrangular stalked portion — the hypanthium, surmounted by four divergent lobes of sepals which surround a globular head
 (Q) powdered drug shows fragments of hypanthium showing the epidermis and the parenchyma containing large oil glands, singly occurring short fibres, cluster crystals of calcium oxalate
 (R) aromatic, pungent, globular berries, remains of stigma at the apex. Kernel white and hollow at the centre, consists of perisperm and endosperm
 (S) tubular epidermal cells, followed by thin walled parenchymatous hypodermis with rectangular stone cells. Pericarp and perisperm contains oil glands, abundant starch grains
 Identify the correct statements.
 (a) Q, R (b) P, Q
 (c) R, S (d) P, S

- Q. 51.** Two metabolites that could transiently accumulate as a result of inhibition of squalene synthase are
 (P) dimethyl allyl pyrophosphate (Q) cholesterol
 (R) farnesyl pyrophosphate (S) prednisolone
 Identify the correct statements.
 (a) P, R (b) P, S
 (c) Q, R (d) P, Q
- Q. 52.** Two possible targets against which inhibitors can be designed for use in diabetes treatment are
 (P) Carbonic anhydrase (Q) Insulin
 (R) Glycogen phosphorylase (S) Glucose-6-phosphatase
 Identify the correct statements.
 (a) Q, S (b) R, S
 (c) P, R (d) Q, R
- Q. 53.** Two important advantages of using micro-organisms for bio-transformation in drug synthesis are
 (P) having been produced from micro-organisms, they are certain to have antibacterial properties
 (Q) they are abundant in nature and hence reduce the processing cost significantly
 (R) they produce the specific stereoisomer only
 (S) they are highly selective and therefore yield products and high purity
 Identify the correct statements.
 (a) P, Q (b) Q, R
 (c) P, S (d) R, S
- Q. 54.** Aminotransferases are directly involved in the biosynthesis of
 (P) Aspartate (Q) Alanine
 (R) Oleate (S) 3-phosphoglycerate
 Identify the correct statements.
 (a) Q, S (b) P, Q
 (c) P, R (d) Q, R

Q. 55 to 70 are Matching Exercises

Match Group I with Group II and identify the correct combination

- Q. 55.** **Group-I (Reactions)** **Group-II (Names)**
 (P) p-nitrobenzaldehyde and acetone to form 1-(4-nitrophenyl-3-oxo-butene) (1) Claisen-Schmidt condensation
 (Q) Isobutyl benzene is treated with acetyl chloride and anhydrous $AlCl_3$ (2) Michael condensation
 (R) regnenolone acetate is saponified and then treated with an aluminium alcoholate to yield progesterone (3) Friedel-Crafts acylation
 (S) Benzalacetone and 4-hydroxy coumarin in presence of pyridine (4) Oppenauer oxidation
- | | | | |
|-----|-----|-----|-----|
| (a) | (b) | (c) | (d) |
| P-2 | P-1 | P-3 | P-4 |
| Q-4 | Q-3 | Q-1 | Q-1 |
| R-1 | R-4 | R-2 | R-2 |
| S-3 | S-2 | S-4 | S-3 |
- Q. 56.** N-Substitution of 4-phenylpiperidine-4-ethyl-carboxylate derivatives results in analgesics with varying activities. Match the substitutions with analgesics
Group-I (Substitution at N) **Group-II (Analgesic)**
 (P) $-CH_3$ (1) Fentanyl
 (Q) $-CH_2-CH_2-(C_6H_4)-NH_2$ (2) Diphenoxylate
 (R) $-CH_2-CH_2-C-(C_6H_5)_2-CN$ (3) Pethidine
 (S) $-CH_2-CH_2-C_6H_5$ (4) Anileridine
- | | | | |
|-----|-----|-----|-----|
| (a) | (b) | (c) | (d) |
| P-3 | P-4 | P-1 | P-3 |
| Q-1 | Q-2 | Q-2 | Q-4 |
| R-4 | R-3 | R-3 | R-2 |
| S-2 | S-1 | S-4 | S-1 |
- Q. 57.** **Group-I (Drugs)** **Group-II (Nature and function)**
 (P) Colestipole hydrochloride (1) Piradazino-diazepine derivative, angiotensin converting enzyme inhibitor
 (Q) Clebopride (2) Benzyl piperidine derivative, antiemetic (a) (b) (c) (d)
 (R) Cilazapril (3) Benzophenone derivative-topical sun screening substance P-4 P-2 P-1 P-4
 (S) Mexenone (4) Granular copolymer of tetraethylene and epichlorohydrin, hypolipidaemic R-3 R-4 R-3 R-1
 S-1 S-1 S-2 S-3

- Q. 58. Group-I (Principle involved)**
 (P) Excitation of electrons
 (Q) Electron impact bombardment
 (R) Molecular vibration
 (S) Splitting of electron's magnetic energy
- | | | | |
|-----|-----|-----|-----|
| (a) | (b) | (c) | (d) |
| P-2 | P-4 | P-3 | P-1 |
| Q-1 | Q-3 | Q-4 | Q-2 |
| R-3 | R-2 | R-1 | R-4 |
| S-4 | S-1 | S-2 | S-3 |
- Group-II (Instrument used)**
 (1) ESR Spectrometer
 (2) IR Spectrometer
 (3) Mass Spectrometer
 (4) UV Spectrometer
- Q. 59. Group-I (Drugs)**
 (P) Albendazole
 (Q) Isoniazid
 (R) Sulphacetamide sodium
 (S) Paracetamol
- | | | | |
|-----|-----|-----|-----|
| (a) | (b) | (c) | (d) |
| P-1 | P-2 | P-1 | P-3 |
| Q-3 | Q-4 | Q-2 | Q-4 |
| R-4 | R-1 | R-3 | R-2 |
| S-2 | S-3 | S-4 | S-1 |
- Group-II (Reagent for Assay)**
 (1) Cerric ammonium sulphate
 (2) Sodium nitrite
 (3) Perchloric acid
 (4) Potassium bromate
- Q. 60. Group-I (Method adopted)**
 (P) Gas Chromatography
 (Q) Infra-red
 (R) HPLC
 (S) X-ray diffraction
- | | | | |
|-----|-----|-----|-----|
| (a) | (b) | (c) | (d) |
| P-1 | P-2 | P-3 | P-4 |
| Q-4 | Q-3 | Q-4 | Q-3 |
| R-3 | R-1 | R-2 | R-1 |
| S-2 | S-4 | S-1 | S-2 |
- Group-II (Physical state of the sample used)**
 (1) Solution
 (2) Crystal
 (3) Solid, liquid or gas
 (4) Liquid or gas
- Q. 61. Group-I (Film defects)**
 (P) Orange peel effect
 (Q) Blistering
 (R) Cracking
 (S) Bloom
- | | | | |
|-----|-----|-----|-----|
| (a) | (b) | (c) | (d) |
| P-1 | P-2 | P-3 | P-4 |
| Q-2 | Q-3 | Q-4 | Q-1 |
| R-4 | R-1 | R-2 | R-3 |
| S-3 | S-4 | S-1 | S-2 |
- Group-II (Explanation)**
 (1) Inadequate spreading of the coating solution before drying causes a bumping effect on the coating
 (2) It is the result of drying coated tablets in ovens, due to, too rapid evaporation of the solvent from the core and the effect of high temperature on the strength, elasticity and adhesion of the film
 (3) Occurs when the processing temperature used is too high for a particular formulation
 (4) Occurs if internal stresses in the film exceed the tensile strength of the film
- Q. 62. Group-I (Term)**
 (P) Hydrophilic suppository base
 (Q) Polymorphism
 (R) Film former used in the formation of nail lacquer
 (S) Opaquant extender
- | | | | |
|-----|-----|-----|-----|
| (a) | (b) | (c) | (d) |
| P-1 | P-2 | P-3 | P-4 |
| Q-2 | Q-1 | Q-4 | Q-3 |
| R-3 | R-3 | R-2 | R-1 |
| S-4 | S-4 | S-1 | S-2 |
- Group-II (Example)**
 (1) Nitrocellulose
 (2) Titanium dioxide
 (3) Cocoa butter
 (4) Polyethylene glycol
- Q. 63. Group-I (Drug)**
 (P) Toremifene
 (Q) Flutamide
 (R) Ketoconazole
 (S) Miglitol
- Group-II (Type of action)**
 (1) Inhibitor of adrenal and gonadal steroidogenesis
 (2) α -glucosidase inhibitor
 (3) Androgen receptor antagonist
 (4) Selective estrogen receptor modulator
- | | | | |
|-----|-----|-----|-----|
| (a) | (b) | (c) | (d) |
| P-2 | P-3 | P-4 | P-1 |
| Q-3 | Q-2 | Q-3 | Q-4 |
| R-1 | R-1 | R-1 | R-2 |
| S-4 | S-4 | S-2 | S-3 |

Q. 64. The activities of the certain object drugs are increased by certain precipitant drugs. Choose the correct combination

Group-I (Object drug)

- (P) Amines in foods
(Q) Alcohol
(R) Cefoxitin
(S) Azathioprine

Group-II (Precipitant drug)

- | | | | | |
|--------------------|-----|-----|-----|-----|
| (1) Allopurinol | (a) | (b) | (c) | (d) |
| (2) MAO inhibitors | P-2 | P-2 | P-4 | P-4 |
| (3) Disulfiram | Q-1 | Q-3 | Q-1 | Q-3 |
| (4) Probenecid | R-3 | R-4 | R-2 | R-1 |
| | S-4 | S-1 | S-3 | S-2 |

Q. 65. **Group-I (Drug)**

- (P) Cinoxacin
(Q) Amikacin
(R) Nevirapine
(S) Crisantaspase

Group-II (Mechanism)

- | | | | | |
|--|-----|-----|-----|-----|
| (1) Abnormal codon incorporation | | | | |
| (2) Inhibition of DNA gyrase | | | | |
| (3) Deaminates asparagine | (a) | (b) | (c) | (d) |
| (4) Non-nucleoside reverse transcriptase inhibitor | P-2 | P-3 | P-4 | P-1 |
| | Q-1 | Q-2 | Q-3 | Q-2 |
| | R-4 | R-1 | R-1 | R-3 |
| | S-3 | S-4 | S-2 | S-4 |

Q. 66. **Group-I (Plant hormone type)**

- (P) Auxin
(Q) Gibberlin
(R) Cytokinin
(S) Growth inhibitor

- | | | | |
|-----|-----|-----|-----|
| (a) | (b) | (c) | (d) |
| P-4 | P-4 | P-3 | P-2 |
| Q-3 | Q-3 | Q-2 | Q-3 |
| R-1 | R-2 | R-1 | R-4 |
| S-2 | S-1 | S-4 | S-1 |

Group-II (Chemical Substance)

- (1) Abscisic acid
(2) NAA
(3) GA₃
(4) 6-furfuryl adenine

Q. 67. **Group-I (Crude drugs)**

- (P) Etoposide

- (Q) Sumatra Benzoin

- (R) Ergot powder

- (S) Papaverine

- | | | |
|-----|-----|-----|
| (a) | (b) | (c) |
| P-4 | P-1 | P-4 |
| Q-1 | Q-2 | Q-3 |
| R-2 | R-3 | R-1 |
| S-3 | S-4 | S-2 |

Group-II (Chemical test)

- (1) Add a solution of potassium permanganate and warm; yields an odour of benzaldehyde
(2) to an alcoholic solution, add a solution of p-dimethyl-amino-benzaldehyde; yields a blue colour
(3) A solution in hydrochloric acid when treated with potassium ferricyanide; yields a yellow colour
(4) Alcoholic solution of the drug is treated with strong copper acetate solution: gives a brown precipitate
- | | | | |
|-----|-----|-----|-----|
| (a) | (b) | (c) | (d) |
| P-3 | P-3 | P-4 | P-3 |
| Q-4 | Q-4 | Q-3 | Q-4 |
| R-2 | R-2 | R-1 | R-2 |
| S-1 | S-1 | S-2 | S-1 |

Q. 68. **Group-I**

(Synonyms of crude drugs)

- (P) Jesuits bark or Peruvian bark
(Q) Ma-huang
(R) Deadly night-shade leaf
(S) South American arrow poison

- | | | | |
|-----|-----|-----|-----|
| (a) | (b) | (c) | (d) |
| P-3 | P-1 | P-2 | P-4 |
| Q-4 | Q-4 | Q-3 | Q-1 |
| R-2 | R-2 | R-4 | R-3 |
| S-1 | S-3 | S-1 | S-2 |

Group-II**(Chemical nature of constituents)**

- (1) Curare alkaloids
(2) Tropane alkaloids
(3) Quinoline alkaloids
(4) Phenylethylamine alkaloids

Q. 69. **Group-I (Aberrant protein)**

- (P) Glucose-6-phosphate dehydrogenase
(Q) Prion
(R) β -subunit of haemoglobin
(S) Phenylalanine hydroxylase

Group-II (Disease)

- | | | | | |
|--------------------------|-----|-----|-----|-----|
| (1) Haemolytic anemia | (a) | (b) | (c) | (d) |
| (2) β -Thalassemia | P-3 | P-1 | P-1 | P-2 |
| (3) Scrapie | Q-1 | Q-3 | Q-4 | Q-4 |
| (4) Phenylketonuria | R-2 | R-2 | R-2 | R-3 |
| | S-4 | S-4 | S-3 | S-1 |

Q. 70. **Group-I (Antibiotic)**

- (P) Gentamicin
(Q) Tetracycline
(R) Streptomycin
(S) Bacitracin

Group-II**(Test Organism for microbiological assay I.P.)**

- (1) *Bacillus cereus*
(2) *Bacillus subtilis*
(3) *Micrococcus luteus*
(4) *Staphylococcus epidermidis*
- | | | | |
|-----|-----|-----|-----|
| (a) | (b) | (c) | (d) |
| P-1 | P-3 | P-2 | P-4 |
| Q-2 | Q-1 | Q-3 | Q-1 |
| R-3 | R-4 | R-1 | R-2 |
| S-4 | S-2 | S-4 | S-3 |

- An anthracycline antibiotic doxorubicin, is an important anticancer drug.
- Q. 71. Doxorubicin is isolated from
 (a) *Streptococcus pyogenes* (b) *Staphylococcus aureus*
 (c) *Clostridium difficile* (d) *Streptomyces neocetrus* var *caesius*
- Q. 72. Doxorubicin acts by
 (a) inhibiting asparaginase (b) inhibiting topoisomerase II
 (c) inhibiting adenosine deaminase (d) inhibiting functions of microtubules
- Q. 73. A significant adverse action of doxorubicin is
 (a) A potentially irreversible cumulative dose related cardiac toxicity
 (b) Hematuria
 (c) Sedation
 (d) Fluid retention

Common Data for Questions 74, 75

An antidiabetic drug is 1-[4-[2-(5-chloro-2-methoxybenzamido) ethyl]-phenylsulfonyl]-3-cyclohexylurea.

- Q. 74. The generic name of the antidiabetic drug is
 (a) Glibenclamide (b) Gliclazide
 (c) Glipizide (d) Gliquidone
- Q. 75. Official assay for the drug is by titration using a standard solution of
 (a) Sodium nitrite (b) Iodine
 (c) Potassium permanganate (d) Sodium hydroxide

Linked Answer Questions : Q. 76 to Q. 85 carry two marks each.

Statement for Linked Answer Questions 76 and 77

Imidazole is treated with ω -bromo-2,4-dichloroacetophenone. The resulting product on reaction with NaBH_4 gives an intermediate X. X is then treated with NaH followed by 2,4-dichloro benzylbromide to get an antifungal drug.

- Q. 76. The intermediate compound X is
 (a) 1-(2,4 Dichloro phenyl)-2-(1-imidazolyl)-methanol
 (b) 1-(2,4 Dichloro butyl)-2-(1-imidazolyl)-ethanol
 (c) 1-(2,4 Dichloro acetophenyl)-2-(2-imidazolyl)-ethanol
 (d) 1-(2,4-Dichloro phenyl)-2-(1-imidazolyl)-ethanol
- Q. 77. The antifungal drug obtained is
 (a) Miconazole (b) Lanaconazole
 (c) Saperconazole (d) Butenafine

Statement for Linked Answer Questions 78 and 79 :

The calculated λ_{max} for 2,4 pentadiene is 222 nm. Choose the correct base value and increment due to the substituent.

- Q. 78. The base value (in nm) is
 (a) 215 (b) 210
 (c) 217 (d) 205
- Q. 79. The increment due to the substituent (in nm) is
 (a) 7 (b) 12
 (c) 17 (d) 5

Statement for Linked Answer Questions 80 and 81 :

A solution of the drug was freshly prepared at a concentration of 600 mg/ml. After 30 days of storage at 25°C, the drug concentration in the solution was found to be 150 mg/ml. The drug can be assumed to undergo zero order kinetics.

- Q. 80. The rate constant is
 (a) 15 mg/ml/day (b) 1.5 mg/ml/day
 (c) 0.15 mg/ml/day (d) 7.5 mg/ml/day
- Q. 81. Half life of the drug solution under these conditions is
 (a) 2 days (b) 20 days
 (c) 10 days (d) 100 days

Statement for Linked Answer Questions 82 and 83 :

There are many types of antidepressant drugs and many of them are long acting, while some are short acting.

- Q. 82. An example of a short acting antidepressant drug is
 (a) Fluoxetine (b) Valproate
 (c) Etorphine (d) Moclobemide
- Q. 83. The drug selected above, acts by
 (a) inhibiting MAO-A (b) inhibiting Na/5HT reuptake
 (c) blocking 5-HT₃ receptors (d) inhibiting ACE

Statement for Linked Answer Questions 84 and 85 :

Myristica fragrans belongs to the family Myristicaceae.

- Q. 84. A part of the fruit of *Myristica fragrans* Houtt is
 (a) Testa (b) Plumule
 (c) Mace (d) Anther
- Q. 85. The substance present in that part selected above, which produces a red colour with iodine, is
 (a) Myristicin (b) Safrole
 (c) Elemicin (d) Amylodextrin