
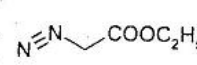

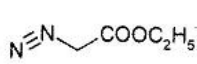

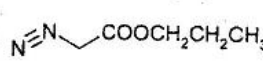

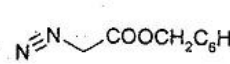
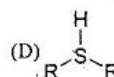
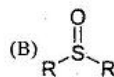
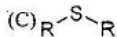
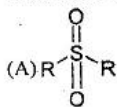


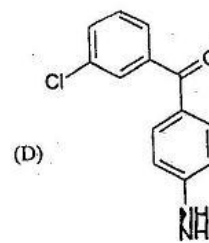
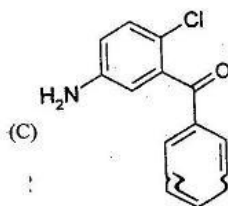
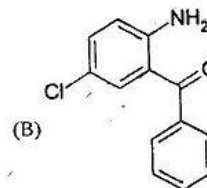
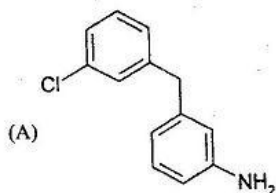
## Q. 1—Q. 20 carry one mark each.

- Q. 1. The characteristic odour of onion bulbs is attributed to  
 (A) quercetin glycosides (B) furostanol glycosides  
 (C) heterogeneous sulphated polysaccharides (D) alkyl or alkenyl disulphides
- Q. 2. The chief constituent of the seeds of *Strophanthus gratus* or wood of *Acokanthera schimperi* belonging to the family Apocynaceae is G-strophanthin. On hydrolysis, it gives  
 (A) scillarenin (B) ouabagenin  
 (C) cannogenin (D) diosgenin
- Q. 3. The duration of action of a sublingual nitroglycerin tablet is  
 (A) 8 – 10 hours (B) 4 – 8 hours  
 (C) 10 – 30 minutes (D) 3 – 5 minutes
- Q. 4. Identify the adrenergic receptor, whose agonists can be misused by sportsmen for anabolic effects  
 (A)  $\alpha_1$  (B)  $\alpha_2$   
 (C)  $\beta_1$  (D)  $\beta_2$
- Q. 5. When the urinary pH becomes 8.0, significant increase in the excretion of one of the drugs takes place  
 (A) Mepyramine (B) Aspirin  
 (C) Morphine (D) Mecamylamine
- Q. 6. Condensation of 6-Hydroxy-2,4,5-triaminopyrimidine with 1,1,3-trichloro acetone and N-(4-aminobenzoyl) glutamic acid at pH 4 to 5, in the presence of sodium bisulphite gives  
 (A) Pteroyl glutamic acid (B) Amethopterin  
 (C) Triamterene (D) Aciclovir
- Q. 7. The common structural feature of iodoxamic acid, iotalamic acid, diatrizoic acid and iocarmic acid is  
 (A) sulphonaphthalein (B) 2,4,6-tri-iodo benzoic acid  
 (C) tri-iodo triphenyl methanoic acid (D) tri-iodo diphenyl methanoic acid
- Q. 8. Tranylcypromine, a psychoanaleptic and antidepressant drug is synthesized from  
 (A)  +   
 (B)  +   
 (C)  +   
 (D)  + 
- Q. 9. List of diseases and ailments which a drug may not purport to prevent or cure or make claims to prevent or cure under the Drugs and Cosmetics Rule 1945 is given under  
 (A) Schedule J (B) Schedule K  
 (C) Schedule M (D) Schedule P
- Q. 10. Annatto consists of the dried seeds of *Bixa orellana*, L. Family Bixaceae. The chief constituent is  
 (A) triterpene alcohol (B) crocin and crocetin  
 (C) capsanthin (D) carotenoid
- Q. 11. 'Cresol with soap solution' is a preparation, in which soap is incorporated to  
 (A) impart detergent property  
 (B) improve mutual miscibility of cresol and water by reducing critical solution temperature of cresol-water system  
 (C) sustain the germicidal action of cresol  
 (D) improve the stability of cresol
- Q. 12. When stoichiometric amount of  $\text{CaCl}_2$  is added to an emulsion stabilized with sodium-alginate, it will  
 (A) crack immediately  
 (B) change the nature from w/o to o/w  
 (C) change the nature from o/w to w/o  
 (D) accelerate the phenomenon of Ostwald ripening.
- Q. 13. Chlorine or Bromine substitution in aromatic compounds  
 (A) enhances fluorescence (B) does not change the fluorescence  
 (C) quenches the fluorescence (D) removes the fluorescence
- Q. 14. Solvent programming, also called gradient elution, involves  
 (A) changing the column length  
 (B) changing the mobile phase composition  
 (C) using the mobile phase unchanged  
 (D) successive injection of sample.

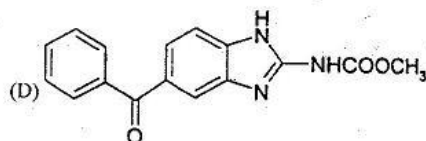
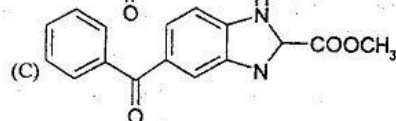
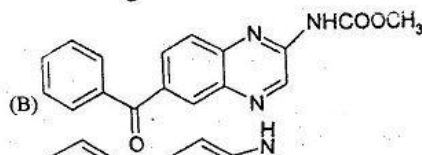
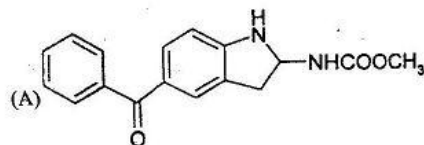
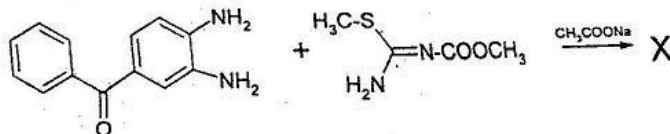
- Q. 15. Calibration of the cell constant of a conductance cell is carried out by using a solution of  
 (A) 0.1 M NaCl (B) 0.1 M CaCl<sub>2</sub>  
 (C) 0.1 M KCl (D) 0.1 M AlCl<sub>3</sub>
- Q. 16. Hybridoma technology is widely used for producing  
 (A) callus cultures (B) organ cultures  
 (C) monoclonal antibodies (D) attenuated micro-organisms
- Q. 17. 'Gene therapy' refers to the process of:  
 (A) identifying disease causing genes and activating them for therapeutic benefit.  
 (B) increasing the expression levels of the set of genes involved in a given disease in affected cells through selective modulating agents.  
 (C) transfer of new genetic material to the cells of an individual for therapeutic benefit.  
 (D) removal of the proteins corresponding to the disease causing genes from the cells of the affected individual.
- Q. 18. A technician is attempting to sterilize a plug of cotton in hermetically sealed condition in a glass bottle by autoclaving. Which of the following statements is correct?  
 (A) It should be sterilized at 115-118° C for 30 minutes.  
 (B) It should be sterilized at 121 to 124° C for 15 minutes at 15 lbs/sq. inch pressure.  
 (C) Sterilization cannot be achieved.  
 (D) It should be autoclaved at 126-129° C with saturated steam for 10 minutes.
- Q.19. Hyperuricaemia is associated with the abnormal metabolism of  
 (A) pyrimidine (B) purine  
 (C) riboflavin (D) thiamme
- Q.20. What is the concentration of NaCl required to make 1% solution of cocaine HCl isotonic with blood plasma? Freezing point of 1% w/v solution of NaCl is -0.576° C and freezing point of 1% w/v cocaine HCl is -0.09° C.  
 (A) 0.746% w/v (B) 0.9% w/v  
 (C) 0.5 w/v (D) 0.373% w/v
- Q. 21 to Q. 75 carry two marks each**
- Q.21. Arillode is  
 (A) warty out-growth from micropyle, e.g., castor  
 (B) succulent growth from hilum covering the entire seeds, e.g., nutmeg  
 (C) outgrowth originating from micropyle and covering the seeds, e.g., cardamom  
 (D) enlarged funicle, e.g., colchicum seed.
- Q. 22. Cinnamon consists of the dried inner bark of the shoots of coppiced trees of *Cinnamomum zeylanicum* Nees. The typical microscopic characters of the bark are  
 (A) biseriate medullary rays, secretory cavities containing volatile oil and mucilage and few starch grains in cortical parenchyma and calcium oxalate in parenchymatous cells.  
 (B) 2-5 layers of cork cells containing oil globules. Presence of schizogenous canal  
 (C) medullary rays multiseriate, the periderm portion cork has both tangentially and radially elongated cells, stone cells present and no phloem fibres  
 (D) ex-foliated cork, non-lignified with 2-4 layers of phellogen. 15-20 rows of phellogen. Prominent vascular tissue.
- Q.23. An essential ingredient in the general preparation of plant tissue culture media is  
 (A) auxin or naphthalene acetic acid (B) sucrose or glucose  
 (C) gibberlin G<sub>1</sub> or gibberlin G<sub>2</sub> (D) pyridoxine HCl.
- Q.24. The drugs mefloquine, proguanil and primaquine can be effectively used in diseases produced by  
 (A) Mycoplasma (B) Dermatophytes  
 (C) Protozoa (D) Spirchaetes
- Q.25. Identify the receptor which demonstrates the fastest onset of response, when stimulated.  
 (A) Nuclear receptors (B) Ionotropic receptors  
 (C) G-protein coupled receptors (D) Insulin receptor
- Q.26. One of the following drugs is converted to the corresponding deoxy nucleotide, which shows cytotoxicity  
 (A) Dactinomycin (B) Lomustine  
 (C) Vincristine (D) 5-Fluorouracil
- Q.27. The compounds 2-Methyl-3-phytyl-1, 4-naphthoquinone and 2-methyl-3-all-trans-farnesylgeranylgeranyl-1, 4-naphthoquinone are commonly known as  
 (A) Vitamin D<sub>2</sub> and D<sub>3</sub> (B) Vitamin A<sub>1</sub> and A<sub>2</sub>  
 (C) Vitamin K<sub>1</sub> and K<sub>2</sub> (D) Vitamin B<sub>1</sub> and B<sub>2</sub>
- Q.28. (Z)-5-Fluoro-2-methyl-1-[[P-(methyl-sulphinyl) phenyl] methylene]-IH indene-3-acetic acid, reaches peak blood levels within 2-4 hours and undergoes a complicated reversible metabolism to become active. Active metabolite has the group



Q.29. An intermediate for the synthesis of benzodiazepine derivatives can be prepared by treating 4-chloro aniline with benzoyl chloride in the presence of zinc chloride as a catalyst. Identify the intermediate



Q.30. Find the product X in the reaction



Q.31. In the preparation of ointments, macrogols are used as

- (A) water soluble base (B) hydrocarbon base  
(C) absorption base (D) oleogenous base

Q.32. An antioxidant commonly used in the formulation of a non-aqueous parenteral preparation is

- (A) thioglycollic acid (B) ascorbic acid  
(C) sodium metabisulphite (D) butylated hydroxy toluene

Q.33. Phosphatidic acid and its derivatives form liposomes because

- (A) in a fully hydrated condition, they are conical in shape  
(B) in a fully hydrated condition they are cylindrical in shape  
(C) they contain only non-polar moieties in their structures  
(D) their saponification values are unusually low.

Q.34. With regard to the standards for Sterile Water for Injection, IP, the 'residue on evaporation' limit is

- (A) higher than Water for Injection, IP (C) same as that of the Water for Injection IP  
(B) lower than Water for Injection, IP (D) no such standard is prescribed in the monograph



- Q.35. The number of peaks given by the  $^1\text{H NMR}$  spectrum of 2-methyl-1-pentene is  
 (A) 4 (B) 5  
 (C) 6 (D) 3
- Q.36. In HPLC, the analytical performance improves when  
 (A) particle diameter is increased (B) particle diameter is reduced  
 (C) coarser particles are paired with shorter columns (D) low temperature is used
- Q.37. Increase in the extent of conjugation of a double bonded system results in  
 (A) hyperchromic shift (B) hypochromic shift  
 (C) hypsochromic shift (D) bathochromic shift

**Q. 38-54 are multiple selection items. P, Q, R, S are the options. Two of these options are correct. Choose the correct combination among A, B, C and D.**

- Q.38. Alkaloids derived from ornithine are  
 (P) cocaine  
 (Q) colchicine  
 (R) hyoscyamine  
 (S) emetine  
 (A) Q, S (B) P, R  
 (C) S, R (D) P, Q
- Q.39. *Aloe barbadensis* has two of the following characters  
 (P) The drug obtained is white in colour and has a bitter taste  
 (Q) The drug is opaque, yellowish brown to chocolate, brown in colour and breaks with a waxy fracture  
 (R) The drug has a pungent odour and is amorphous under the microscope  
 (S) Under the microscope, acicular crystals are visible  
 (A) P, R (B) P, S  
 (C) Q, S (D) Q, R
- Q.40. *Tacrolimus* is a macrolide antibiotic, which bears the following attributes  
 (P) produced from *Streptomyces hygroscopicus* and is chemically related to cyclosporine  
 (Q) binds with cytoplasmic peptidyl-propyl-isomerase and can be useful in liver and kidney transplants  
 (R) produced from *Streptomyces tsukubaensis* and is chemically unrelated to cyclosporine  
 (S) an inhibitor of pyrimidine synthesis, used in rheumatoid arthritis  
 (A) P, Q (B) P, S  
 (C) Q, R (D) Q, S
- Q.41. *Metformin* acts by two mechanisms  
 (P) Increasing insulin secretion  
 (Q) Inhibiting  $\alpha$ -glucosidase  
 (R) Decreasing hepatic glucose production  
 (S) Increasing insulin action in muscle and fat  
 (A) P, Q (B) R, S  
 (C) P, R (D) Q, S
- Q.42. Metabolic oxidation of carbon-nitrogen, carbon-oxygen and carbon-sulphur systems principally involves two basic types of bio-transformation processes.  
 (P) Hydroxylation of the  $\alpha$ -carbon atom attached directly to the heteroatom  
 (Q) Mixed function oxidase system also oxidizes carbon atom adjacent to carbonyl and imino functions  
 (R) Hydroxylation or oxidation of the hetero-atom only  
 (S) Microsomal hydroxylation at allylic carbon atom  
 (A) P, R (B) P, S  
 (C) Q, R (D) R, S
- Q.43. The silver salt of sulphadiazine, SILVADENE, is an effective topical antimicrobial agent in burns because of its two important attributes  
 (P) Broad spectrum of activity  
 (Q) Active against *Pseudomonas* spp.  
 (R) The salt is only very slightly soluble and it does not penetrate the cell wall, instead it acts on the external cell structure  
 (S) The salt is highly soluble and hence it is rapidly absorbed  
 (A) P, Q (B) R, S  
 (C) Q, R (D) P, S
- Q.44. In the synthesis of chlorpheniramine, two important ingredients required are  
 (P) 4-chloro benzyl cyanide  
 (Q) 4-chloro pyridine  
 (R) 2-chloro benzyl cyanide  
 (S) 2-chloro pyridine  
 (A) P, Q (B) P, S  
 (C) Q, R (D) R, S

- Q.45.** *Zeta potential*  
 (P) is the difference in potential between the surface of the tightly bound layer and the electroneutral region  
 (Q) is the potential at the solid surface of the suspended particle  
 (R) can be positive, zero or negative  
 (S) is the electrothermodynamic potential  
 (A) P, R (B) P, S  
 (C) Q, R (D) P, Q
- Q.46.** *Two of the official standards for uncoated tablets as per IP are*  
 (P) shape  
 (Q) friability  
 (R) disintegration time  
 (S) uniformity of weight  
 (A) P, Q (B) P, S  
 (C) Q, R (D) R, S
- Q.47.** *As per Schedule 'O' of the Drugs and Cosmetics Rules 1945, the minimum Rideal Walker Coefficients for Grade 1 and Grade 3 Black disinfectant fluids are*  
 (P) 18  
 (Q) 10  
 (R) 5  
 (S) 14  
 (A) P, R (B) Q, S  
 (C) P, S (D) R, S
- Q.48.** *The IR spectrum of an organic liquid can be taken by placing it between a pair of polished plates made of*  
 (P) NaCl (Q) FeSO<sub>4</sub>  
 (R) KBr (S) AlCl<sub>3</sub>  
 (A) P, Q (B) P, S  
 (C) R, S (D) P, R
- Q.49.** *In gas chromatography, derivatisation is desirable to*  
 (P) improve the thermal stability of compounds  
 (Q) enable interaction with carrier gas  
 (R) introduce a detector oriented tag into the molecule  
 (S) remove contaminants  
 (A) P, Q (B) Q, R  
 (C) P, R (D) P, S
- Q.50.** *Neutral thioaliphatic amino acids found in proteins are*  
 (P) Methionine  
 (Q) Valine  
 (R) Cysteine  
 (S) Leucine  
 (A) P, Q (B) P, R  
 (C) P, S (D) R, S
- Q.51.** *Diazoxide, a benzothiazide derivative produces*  
 (P) vasoconstriction by activating ATP sensitive K<sup>+</sup> channel  
 (Q) vasodilatation by activating ATP sensitive K<sup>+</sup> channel  
 (R) inhibition of insulin secretion  
 (S) stimulation of insulin secretion  
 (A) P, R (B) Q, R  
 (C) P, S (D) Q, S
- Q.52.** *The principle of ELISA is based on these two observations*  
 (P) Antibodies and antigens can attach to solid-phase supports and still maintain their full immunological capabilities  
 (Q) Antibodies complex with enzymes allowing full separation of antigen molecules  
 (R) Antigens and antibodies can be bonded to enzymes and resulting complexes are still fully functional both immunologically and enzymatically  
 (S) Enzymatic action is crucial for converting the antigens to render them suitable for binding to antibodies  
 (A) P, Q (B) P, R  
 (C) Q, R (D) Q, S
- Q.53.** *Which of the following are likely to be good targets for designing antihypertensive drugs?*  
 (P) H<sub>2</sub> histamine receptor  
 (Q) Proton pump  
 (R) Calcium channel protein  
 (S) α<sub>2</sub>-adrenergic receptor  
 (A) P, Q (B) R, S  
 (C) P, R (D) Q, S

- Q. 54. *The characteristics of the Sabin vaccine administered orally for prevention of polio*  
 (P) It consists of live attenuated strains of three immunological types of the poliovirus  
 (Q) It is generally not used in infants below 9 months of age  
 (R) It contains serum antibodies that are active against specific strains of polioviruses  
 (S) It has the risk of occasionally reverting back to virulent strains, resulting in vaccine-associated paralytic poliomyelitis

**Q. 55-70 are Matching Exercises**

**Match Group I with Group II and identify the correct combination**

- Q. 55. *Mucilages are plant products formed at different parts of the plant*

**Group-I (Plant part from which it is formed)**

- (P) Cell wall of seed epidermis  
 (Q) Endodermis  
 (R) Epidermis of leaf  
 (S) Special secretory cells

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

**Group-II (Example)**

- (1) Fenugreek  
 (2) Senna  
 (3) Squill  
 (4) Linseed

- Q. 56. **Group-I (Crude Drugs)**

- (P) Ergot  
 (Q) Jaborandi  
 (R) Kurchi  
 (S) Pterocarpus

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

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

- (1) Imidazole alkaloids  
 (2) Steroidal compounds  
 (3) Indole alkaloids  
 (4) Condensed tannins

- Q. 57. **Group-I (Common reagents used in pharmacognosy)** **Group-II (Uses)**

- (P) 5% aqueous chlor-zinc-iodine solution  
 (Q) phloroglucinol and hydrochloric acid solution  
 (R) a mixture of equal parts of ether and ethanol  
 (S) a mixture of equal parts of chromic acid and nitric acid

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

- (1) disintegration of sclerenchymatous tissue  
 (2) staining lignified walls pink or red  
 (3) removal of fixed oils and fats  
 (4) staining cellulose walls blue

- Q. 58. **Group-I (Reactions)**

- (P) n-propyl-m-tolyl ketone is converted to m-(n-butyl) toluene using  $\text{NH}_2\text{-NH}_2$  and a base at  $200^\circ\text{C}$   
 (Q) phenol is treated with chloroform and aqueous sodium hydroxide by which, salicylaldehyde is formed  
 (R) benzophenone and methylene triphenyl phosphorane are treated and the product formed is 1,1 diphenyl ethene  
 (S) benzaldehyde is treated with acetic anhydride in the presence of sodium acetate, 3 phenyl-propenoic acid is formed

**Group-II (Names)**

- (1) Perkin condensation

- (2) Wolff-Kishner reduction

- (3) Wittigs reaction

- (4) Reimer-Tiemann reaction

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

- Q. 59. **Group-I (Name of the enzyme)**

- (P) Sutilains

- (Q) Urökinase

- (R) Alteplase

- (S) Bromelains

- (4) A proteolytic enzyme obtained from cultures of *Bacillus subtilis* used to dissolve necrotic tissue in burns, bed sores and ulcerated wounds.

**Group-II (Description)**

- (1) Mixture of proteolytic enzymes obtained from the pineapple plant used for soft tissue inflammation and oedema

- (2) It is a tissue plasminogen activator produced by recombinant DNA technology

- (3) Obtained from tissue culture of human kidneys and is a glycosylated serine protease consisting of two polypeptide chains connected by a single disulphide bond

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



- Q. 60. Group-I (Physical form of substances)**  
 (P) Castor oil  
 (Q) Concentrated flocculated suspension  
 (R) Liquid dispersion of methyl cellulose  
 (S) Pastes of small deflocculated particles
- |     |     |     |     |
|-----|-----|-----|-----|
| (a) | (b) | (c) | (d) |
| P-4 | P-3 | P-2 | P-1 |
| Q-1 | Q-2 | Q-3 | Q-4 |
| R-2 | R-1 | R-4 | R-3 |
| S-3 | S-4 | S-1 | S-2 |

- Q. 61. Group-I**  
 (P) Crystal growth  
 (Q) pH scale  
 (R) HLB scale  
 (S) Interparticular force
- |     |     |     |     |
|-----|-----|-----|-----|
| (a) | (b) | (c) | (d) |
| P-4 | P-3 | P-2 | P-1 |
| Q-2 | Q-1 | Q-4 | Q-3 |
| R-1 | R-2 | R-3 | R-4 |
| S-3 | S-4 | S-1 | S-2 |

- Q. 62. Group-I (Method of purification)**  
 (P) Entrainment preventive distillation  
 (Q) Simple distillation  
 (R) Reverse osmosis  
 (S) Ion-exchange

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

- Q. 63. Group-I (Drug)**  
 (P) Rifabutin  
 (Q) Penciclovir  
 (R) Imiquimod  
 (S) Amprenavir
- |     |     |     |     |
|-----|-----|-----|-----|
| (a) | (b) | (c) | (d) |
| P-1 | P-3 | P-2 | P-4 |
| Q-2 | Q-4 | Q-1 | Q-3 |
| R-4 | R-1 | R-4 | R-2 |
| S-3 | S-2 | S-3 | S-1 |

- Q. 64. Group-I (Responses/Incidents)**  
 (P) False transmitter  
 (Q) St. Antony's fire  
 (R) Triple response  
 (S) Straub phenomenon
- |     |     |     |     |
|-----|-----|-----|-----|
| (a) | (b) | (c) | (d) |
| P-2 | P-1 | P-3 | P-4 |
| Q-4 | Q-4 | Q-2 | Q-3 |
| R-1 | R-3 | R-1 | R-2 |
| S-3 | S-2 | S-4 | S-1 |

- Q. 65. Group-I (Adverse effects)**  
 (P) Reye's syndrome  
 (Q) Hypertrichosis  
 (R) Grey baby syndrome  
 (S) Pinpoint pupil

- Q. 66. Group-I (Technique Used)**

- (P) Polarography  
 (Q) Potentiometry  
 (R) Conductometry  
 (S) Amperometry

- Group-II (Rheological properties)**

- (1) Plastic flow  
 (2) Pseudoplastic flow  
 (3) Dilatant flow  
 (4) Newtonian flow

- Group-II**

- (1) Griffin  
 (2) Sorensen  
 (3) DLVO theory  
 (4) Ostwald ripening

- Group-II (Effect on water quality)**

- (1) CPU value and endotoxin content usually increases  
 (2) Pyrogen free water  
 (3) Endotoxins and pyrogens are not removed  
 (4) Small organic molecules (mol. wt., approximately less than 200) are not removed

- Group-II (Mechanism)**

- (1) Inhibition of viral DNA synthesis  
 (2) Inhibition of mycobacterial RNA polymerase  
 (3) Inhibition of HIV protease  
 (4) Immunomodulation

- Group-II (Bioactive substances)**

- (1) Histamine  
 (2) Methyldopa  
 (3) Morphine  
 (4) Ergot alkaloid

- Group-II (Drugs)**
- |                     |     |     |     |     |
|---------------------|-----|-----|-----|-----|
| (1) Chloramphenicol | (a) | (b) | (c) | (d) |
| (2) Morphine        | P-1 | P-3 | P-4 | P-4 |
| (3) Aspirin         | Q-2 | Q-4 | Q-1 | Q-3 |
| (4) Minoxidil       | R-4 | R-1 | R-2 | R-2 |
|                     | S-3 | S-2 | S-3 | S-1 |

- Group-II (Analytical method of evaluation)**

- |                              |     |     |     |     |
|------------------------------|-----|-----|-----|-----|
| (1) Potential-volume curve   | (a) | (b) | (c) | (d) |
| (2) Current-potential curve  | P-1 | P-2 | P-3 | P-4 |
| (3) Conductance-volume curve | Q-3 | Q-1 | Q-2 | Q-1 |
| (4) Current-volume curve     | R-2 | R-3 | R-4 | R-2 |
|                              | S-4 | S-4 | S-1 | S-3 |

## Q. 67. Group-I (Type of Radiation)

- (P) Radio frequency  
(Q) UV  
(R) X-ray  
(S) Mid-IR

## Group-II (Wavelength)

- |                   |     |     |     |     |
|-------------------|-----|-----|-----|-----|
| (1) > 100mm       | (a) | (b) | (c) | (d) |
| (2) 200 – 380 nm  | P-1 | P-3 | P-1 | P-2 |
| (3) 10 pm – 10 nm | Q-4 | Q-2 | Q-2 | Q-1 |
| (4) 2.5 – 50 μm   | R-3 | R-1 | R-3 | R-4 |
|                   | S-2 | S-4 | S-4 | S-3 |

## Q. 68. Group-I (Spraying reagents used in chromatographic methods)

- (P)  $SbCl_3$  in  $CHCl_3$   
(Q) Bromocresol green  
(R) Aniline phthalate  
(S) 2,4 dinitrophenyl hydrazine

## Group-II (Type of substance)

- |                        |     |     |     |     |
|------------------------|-----|-----|-----|-----|
| (1) Carboxylic acid    | (a) | (b) | (c) | (d) |
| (2) Aldehyde or Ketone | P-2 | P-3 | P-1 | P-4 |
| (3) Steroid            | Q-1 | Q-1 | Q-3 | Q-1 |
| (4) Sugar              | R-4 | R-4 | R-2 | R-2 |
|                        | S-3 | S-2 | S-4 | S-3 |

## Q. 69. Group-I (Antibiotics)

- (P) Erythromycin  
(Q) Doxycycline  
(R) Carbenicillin  
(S) Amphotericin B

## Group-II (Test organism for microbiological assay IP)

- |                              |     |     |     |     |
|------------------------------|-----|-----|-----|-----|
| (1) Staphylococcus aureus    |     |     |     |     |
| (2) Pseudomonas aeruginosa   | (a) | (b) | (c) | (d) |
| (3) Saccharomyces cerevisiae | P-4 | P-3 | P-1 | P-2 |
| (4) Micrococcus luteus       | Q-1 | Q-2 | Q-2 | Q-4 |
|                              | R-2 | R-1 | R-4 | R-3 |
|                              | S-3 | S-4 | S-3 | S-1 |

## Q. 70. Group-I (Hormone)

- (P) Vasopressin  
(Q) Oxytocin  
(R) Bradykinin

## Group-II (Action)

- |               |     |     |     |     |
|---------------|-----|-----|-----|-----|
| (S) Prolactin | (a) | (b) | (c) | (d) |
|               | P-2 | P-1 | P-4 | P-3 |
|               | Q-4 | Q-2 | Q-3 | Q-1 |
|               | R-1 | R-3 | R-2 | R-4 |
|               | S-3 | S-4 | S-1 | S-2 |
- (1) Modulates extensive vasodilation  
(2) Helper hormone to corticotrophin releasing hormone  
(3) Stimulates synthesis of components of milk  
(4) Responds to suckling reflex and estradiol

## Common data for Questions 71 and 72

Since ancient times, the coca leaves rich in cocaine, a psychostimulant, have been used by the South Americans as a masticatory agent.

## Q. 71. The alkaloid concentration in coca leaves vary from

- (A) 3-4 %  
(B) 0.7-1.5%  
(C) 0.01 -0.02%  
(D) 9- 11 %

## Q. 72. Cocaine, the alkaloid derived from coca leaves acts by

- (A) increasing noradrenaline synthesis  
(B) inhibiting monoamine oxidase  
(C) inhibiting catechol-O-methyl transferase  
(D) inhibiting noradrenaline re-uptake

## Common data for Questions

Chlorambucil IP is a cytotoxic agent

## Q. 73. Chlorambucil is a derivative of

- (A) amino phenyl butyric acid  
(B) amino phenyl caproic acid  
(C) amino phenyl glycine  
(D) diamino diphenyl

## Q. 74. Identification test prescribed in IP is: 0.4 g of the drug is extracted with 10 ml quantities of 2 M hydrochloric acid three times. To 10 ml quantity of the extract, 0.5 ml of potassium mercuric iodide solution is added, which yields

- (A) yellow coloured precipitate  
(B) yellow coloured solution  
(C) buff coloured precipitate  
(D) red coloured precipitate

## Q. 75. Chlorambucil is assayed as per IP by titrating a dilute acetone solution of the drug with

- (A) 0.1 M sodium hydroxide  
(B) 0.1 M hydrochloric acid  
(C) 0.2 M perchloric acid  
(D) 0.1 M silver nitrate

## Statement for linked Answer Questions 76 and 77

Dried stigma of Crocus sativus contains several constituents.

## Q. 76. One of the important constituents is

- (A) Picrocrocin  
(B) Picroside I  
(C) Picrasmin  
(D) Gynmemic acid

## Q. 77. On hydrolysis, the above gives a product which is responsible for the characteristic odour

- (A) Crocetin  
(B) Saffranal  
(C) Quercetin  
(D) Crotonic acid



**Statement for Linked Answer Questions 78 & 79**

A glycosaminoglycan is found in the granules of mast cells.

- Q.78. An anticoagulant glycosaminoglycan is  
 (A) Warfarin (B) Heparin  
 (C) Vitamin K (D) Aspirin
- Q.79. The anticoagulant selected above acts by  
 (A) lowering the affinity for free plasminogen  
 (B) degrading fibrin and fibrinogen  
 (C) binding to antithrombin III  
 (D) antagonizing co-factor functions of vitamin K

**Statement for Linked Answer Questions 80 & 81**

Prazosin, an antihypertensive drug, is prepared as follows: 2,4-dihydroxy-6, 7-dimethoxy quinazoline is treated with  $\text{POCl}_3 / \text{PCl}_5$ , followed by amidation. The product X is treated with a reagent Y to get Prazosin.

- Q.80. The product X is  
 (A) 4-Amino-3-chloro 6, 7-dimethoxy quinazoline  
 (B) 2-Chloro-4-amino 6, 7-dimethoxy quinazoline  
 (C) 4-Amino-2-chlor 6, 7-dimethoxy quinazoline  
 (D) 4-Amino-6-chlor 2, 7-dimethoxy quinazoline
- Q.81. The reagent Y is  
 (A) 1-(2-Furoyl)-pyridine (B) 1-(2-Furoyl)-piperazine  
 (C) 1-(2-Pyridyl)-piperazine (D) 1-(2-Furoyl)-pyrimidine

**Statement for Linked Answer Questions 82 & 83**

The powder of a viscosity builder is dispersed with high shear in 1/5 to 1/3 of the required amount of water pre-heated to 80°C to 90°C. Once the powder is finely dispersed, the volume is made up with ice cold water or ice. Moderate stirring causes prompt dissolution.

- Q.82. The powder is  
 (A) bentonite (B) sodium carboxymethyl cellulose  
 (C) veegum (D) methyl cellulose
- Q.83. For obtaining maximum clarity, hydration and viscosity, the above solution should be cooled for about an hour to  
 (A) 0°C to 10°C (B) 25°C  
 (C) 50°C (D) 35°C

**Statement for Linked Answer Questions 84 & 85**

$\epsilon$  and  $A_{1\text{cm}}^{1\%}$  can be interconverted using a formula, from which its molar absorptivity or absorbance can be calculated.

- Q.84. The formula is  
 (A)  $\epsilon = A_{1\text{cm}}^{1\%} \times \text{mol. wt}/1000$  (B)  $\epsilon = A_{1\text{cm}}^{1\%} \times \text{mol. wt}/10$   
 (C)  $\epsilon = A_{1\text{cm}}^{1\%} \times \text{eq. wt}/1000$  (D)  $\epsilon = A_{1\text{cm}}^{1\%} \times \text{eq. wt}/100$
- Q.85. A compound has a molecular weight of 297; an equivalent weight of 148.5 and an  $A_{1\text{cm}}^{1\%}$  of 742 at 309 nm. Its molar absorptivity is  
 (A) 220.37 (B) 1101.87  
 (C) 110.18 (D) 22037.4

**ANSWER Key –GATE-2007 Pharmaceutical Sciences**

1	2	3	4	5	6	7	8	9	10
D	B	C	D	B	C	B	B	A	A
11	12	13	14	15	16	17	18	19	20
B	C	C	B	C	C	C	B	B	A
21	22	23	24	25	26	27	28	29	30
B	A	B	C	B	D	D	B	B	D
31	32	33	34	35	36	37	38	39	40
A	D	B	B	B	B	D	B	C	C
41	42	43	44	45	46	47	48	49	50
B	C	C	A	A	D	A	D	C	B
51	52	53	54	55	56	57	58	59	60
D	B	B	C	A	B	A	A	D	A
61	62	63	64	65	66	67	68	69	70
A	C	C	A	B	B	C	B	A	A
71	72	73	74	75	76	77	78	79	80
B	D	A	C	A	A	B	B	C	C
81	82	83	84	85					
B	D	C	B	D					