GPAT QUESTION PAPER 2006 WITH ANSWER KEY

PHARMACEUTICAL SCIENCE

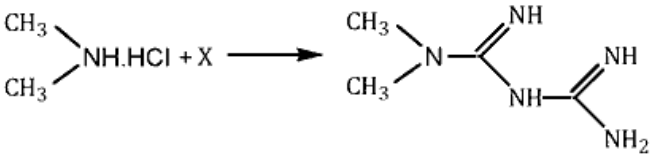
Time : 3 hours **Maximum Marks : 150**

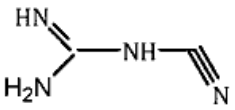
(Q. 1 - 20) CARRY ONE MARK EACH

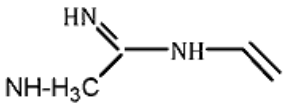
1. 5,6-dimethylene dioxyindole is treated with oxalyl chloride to give a keto acid chloride. The method is useful for introducing a two carbon side chain at

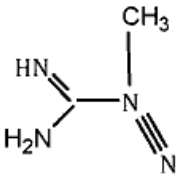
   (a) Dioxy group of indole
   (b) NH-group of indole
   (c) 7-position of indole
   (d) Electron rich 3-position of indole

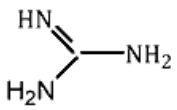
2. Identify X in the following reaction



(A) 

(B) 

(C) 

(D) 

3. An antineoplastic agent methotrexate inhibits the enzyme dihydrofolatereductase. They bind so tightly that their inhibition has been termed "pseudo irreversible"- basis of the binding is due to:

   (a) Free carboxyl group
   (b) N-methyl p- amino benzyl group
   (c) Diamino pyrimidine
   (d) Glutamic acid

4. β lactamase inhibitor clavulanic acid is

   (a) a 1,1-dioxopenicinallinic acid
   (b) Δ^2 carbapenem
   (c) Cephan
   (d) 1-oxopenem structure and has no 6-acyl amino side chain of Penicillin

5. A mixture of 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 air

6. Tesla is a unit to express:

   (a) Frequency
   (b) Pressure
   (c) Voltage
   (d) Magnetic field strength

7. A monochromator is not used in
   (a) UV spectrophotometer (b) FT-IT spectrophotometer
   (c) Spectrofluorimeter (d) IR-spectrometer
8. The properties of solutions containing surface active agents change sharply over a narrowconcentration range is called as
   (a) Critical micellar concentration (b) Ionic concentration
   (c) Hydrogen ion concentration (d) Surface tension
9. Certain suspensions with a high percentage of dispersed solids exhibit a 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
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
11. Metered dose inhalers documentation records shall show one of the information in addition to the GMP:
   (a) Portable stirrer
   (b) Records of rejection during on line check weighing
   (c) Water distillation unit deionizer
   (d) Electrically operate mixer
12. A drug which inhibits mycobacterial RNA polymerase and is very useful in treating *Mycobacterium avium*complex is:
   (a) Isoniazid (b) Ethionamine (c) Capreomycin (d) Rifabutin
13. A 80 years old lady suffering from osteoarthritis of hip and knee joints is given diclofenac 50 mg thrice daily and paracetamol 1 gm asrequire. She complains of passing black stools. This symptom is due to
   (a) Paracetamol causing the black stool
   (b) Change in food habits
   (c) Upper gastrointestinal bleeding due to diclofenac
   (d) Age related decrease in gastrointestinal motility
14. Terazosin, an antihypertensive drug acts by:
   (a) Blocking β adrenoreceptors (b) Blocking α_1 adrenoreceptors
   (c) Diuretic action (d) Inhibition of ACE
15. An imidazole aromatase inhibitor which is effective in reducing estrogen level is
   (a) Anastrazole (b) Exemestane
   (c) Mitotane (d) Dexamethasone
16. The main constituent in the dried ripe seeds of *Colchicuin luteum* and *Colchicum automnale Linn*. is derived from
   (a) Tyrosine, phenylalalnine and dihydroxyphenylalanine
   (b) Tryptophan and pryptamine
   (c) Ornithine
   (d) Lysine

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

18. While performing chemomicroscopy of a drug lignified trichomes were observe. Probable drug is

(a) Buchu
(b) Lobelia
(c) Nuxvomica
(d) Mint leaves

19. A common organism that causes meningitis belongs to the genus

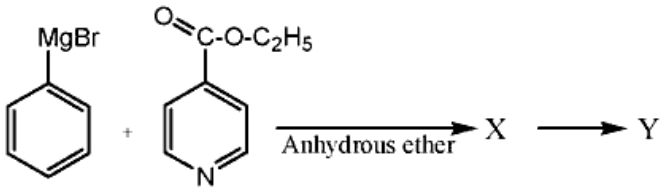
(a) Candida
(b) Neisseria
(c) Pseudomonas
(d) Clostridium

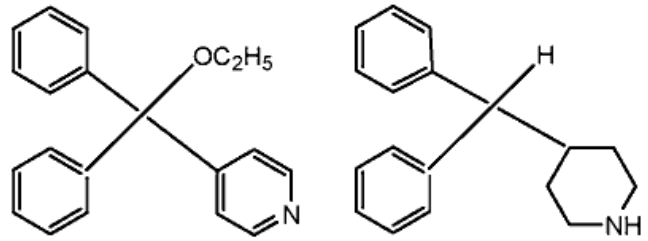
20. Bradykinin is

(a) A steroidal hormone
(b) A serotonin derivative
(c) Anonapeptide
(d) A lipoprotein

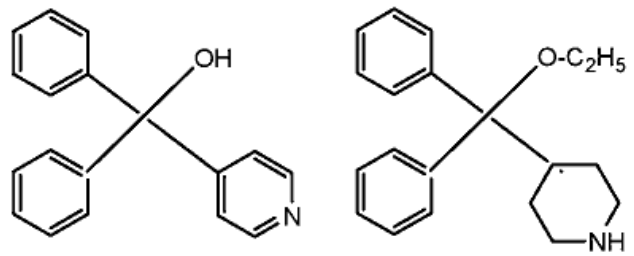
(Q. 21 - 75) CARRY TWO MARK EACH

21. Identify the correct combination of the intermediate X and the product Y.

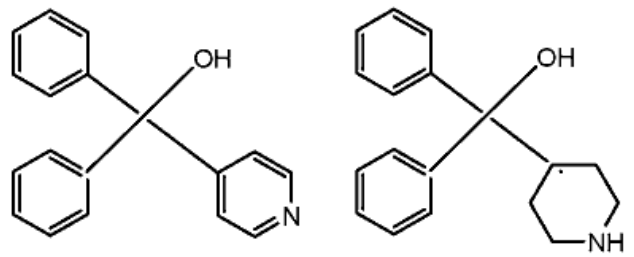


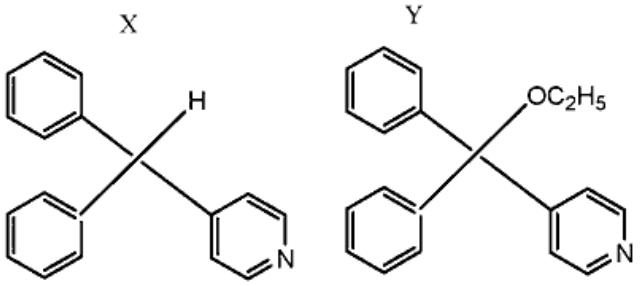
(a)


X Y

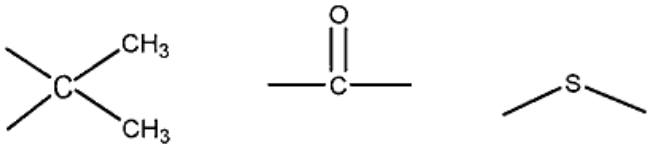
(b)


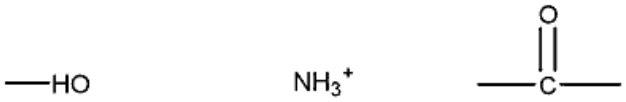
X Y

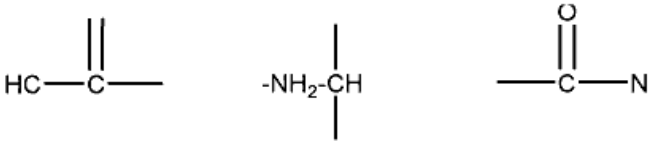
(c)


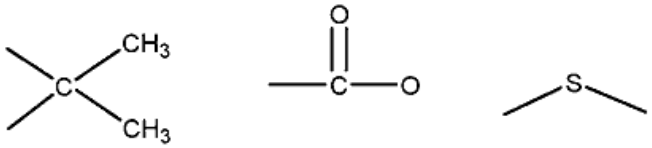
(d) 

22. Amoxycillin, a polyfunctional drug has different pKa values such as 9.6, 7.4 and 2.4, atphysiological pH. Groups responsible respectively are

(a) 

(b) 

(c) 

(d) 

23. A drug which has potent peripheral vasodilatory properties inhibits the voltage dependent calcium channel in vascular smooth muscle is
    (a) Diethyl 1,4-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- Pyrazine carboxylate
    (d) Dimethyl 1,4-dihydro-2,6-dimethyl – 4 – (2-nitrophenyl)-3,5- Pyridine carboxylate
24. In the Bragg's equation $n\lambda = 2d \sin\theta$, 2θ is the angle between
    (a) The direction between the incident beam and the refracted beam
    (b) The surface of the crystal and the incident fluorescent beam
    (c) The direction if the incident and that of the diffracted beam
    (d) Two incident beams
25. The colour which the human eye perceives is not the colour corresponding to the wavelength of the light
    (a) Reflected (b) Absorbed (c) Refracted (d) Diffracted
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

27. The integrated rate euation 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) $x = kt$

28. Which of the following is used as a local anesthetic in the formulation of parenteral products

(a) Acetic acid (b) Benzyl alcohol

(c) Ethyl alcohol (d) Sorbitol

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 capsulable mixture when mixed with 1 gm of solid

(b) The number of ml of liquid base required to produce a capsulable mixture when mixed with 1 gm of Solid

(c) The number of grams of solid base required to produce a capsulable mixture when mixed with 1 gm of solid

(d) The number of mgs of liuid base required to produce a capsulable mixture when mixed with 10 gms of solid

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

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

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

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 cysteine (d) Adenosyl mono phosphate

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

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 for Tay-Sach's disease

35. Diagnostic strips such as Diastrix/Clinistix, used commonly to monitor diabetes, work of 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 oxidixed leading to the release of hydrogen peroxide, the latter in turnoxidises to 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, epimerize resulting in 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 its blue colour.

36. Chemotaxis is a phenomenon that refers to

(a) Directed movement in response to a chemical stimulus

(b) Taxonomic classification of biochemical

(c) Large in-flux of a chemical molecule within bacterial cells

(d) Adherence of bacterial proteins to host cells

37. The usefulness of 5-fluorouracil as an antitumour agent can be attributed to one of the following mechanisms

(a) It inhibits hypoxanthine guanine phophoribosyltransferase directly

(b) It is a prodrug that gets converted to fluoro-2'-deoxy uridylic acid, which is a suicide substarte for thymidylate synthase

(c) It gets incorporated into RNA leading to faulty transcription and translation into non-standard Aminoacids

(d) It gets converted into tetrafluorouridylate, whichinhibitspurin nucleoside phosphorylase

38. Gossypol, a compound which ahas received major attention as a male contraceptive:

(P) Is a hydroxylatedbinapthalene 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

39. Acetylated benzylamine upon chlorosulfonation, amidation and hydrolysis results in a product which is used as an acetate:

(P) Is Mafenide

(Q) Is N-sulfanilylacetamide

(R) For Opthalmic infections

(S) Is 4-amino phenyl benzene sulfonamide and not a true sulfonamide

Identify the correct statements.

(a) P, S (b) Q, R (c) Q, S (d) P, R

40. Two of the following compounds give 3 signals in NMR spectroscopy. Choose the correct Combination

(P) CH_3-COOH (Q) CH_3-CH_2-NH_2

(R) CH_3-OH (S) CH_3-CH_2-CH_2Cl

Identify the correct statements:

(a) P, Q (b) Q, S (c) Q, R (d) P, R

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

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

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

44. Abrasive and humectant compounds usedin 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

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

46. GABA, an important transmitter in the brain

(P) Is an inhibitory transmitter (Q) Is an excitatory transmitter

(R) Increases chloride conductance (S) Is antagonized by Naloxone

Identify the correct statements

(a) P, Q (b) Q, R (c) P, R (d) R, S

47. Atraquine when combined wih 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

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 a phagocytic acivity 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

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 and containing lignifiedreticulate 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

50. Two of the following attributes are characteristic to a natural drug obtained from *Syzygium aromaticum*

(P) Qadrangular stalked portion- the hypanthium, surmounted by four divergent lobes of sepals which surround a globular head
(Q) Powdered drug shows fragments of hypantium 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, consisits of perisperm and endosperm
(S) Tubular epidermal cells, followed by thin walled parenchymatous hypodermis with rectangular stone Cells. Pericarp and perisperm containing oil glands, abundant starch grains

Identify the correct statements

(a) Q, R (b) P, Q (c) R, S (d) P, S

51. Two metabolites that could transiently accumulate as aaresult of inhibiton of sualene synthase are

(P) Dimethylallyl pyrophosphate
(Q) Cholesterol
(R) Fernesylpyrophosphate
(S) Prednisolone

Identify the correct statements

(a) P, R (b) P, S (c) Q, R (d) P, Q

52. Two possible targets against which inhibitors can be designed for use in diabetes treatment are

(P) Carbonic anhydrase (Q) Insuin

(R) Glycogenphosphoryase (S) Glucose-6-phosphatase

Identify the correct statements:

(a) Q, S (b) R, S (c) P, R (d) Q, R

53. Two important advantages of using micro-organisms for bio-transformations 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 with high purity

Identify the correct statements:

(a) P, Q (b) Q, R (c) P, S (d) R, S

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. 55-70) ARE MATCHING EXERCISES

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 bemzene is treated with acetyl chloride and anhydrous $AlCl_3$	(2) Michael condensation
(R) Pregnelone acetate is saponified and then treated with an aluminium alcoholate to yield progesterone	(3) Friedel-Crafts acylation
(S) Benzelacetone and 4-hydroxy coumarin in presence of pyridine	(4) Oppenauer oxidation

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

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

56. N-substitution of 4-phenylpiperidine4-ethyl-carboxylate derivatives results in nalgesics with varying activities. Match the substitutions with activities

GROUP I

Substitution at N

(P) $-CH_3$

(Q) $-CH_2-CH_2-(C_6H_4)-NH_2$

(R) $-CH_2-CH_2-C-(C_6H_5)_2-CN$

(S) $-CH_2-CH_2-C_6H_5$

GROUP II

Analgesics

(1) Fentanyl

(2) Diphenoxylate

(3) Pethidine

(4) Anileridine

(a) P-3, Q-1,R-4, S-2

(b) P-4, Q-2,R-3, S-1

(c) P-1, Q-2,R-3, S-4

(d) P-3, Q-4,R-2, S-1

57. **GROUP I**

Drugs

(P) Colestipolehydrochloride

(Q) Clebopride

(R) Cilazapril

(S) Mentone

GROUP II

Nature and Function

(1) Piradizino-diazepine derivative, angiotensin Converting enzyme inhibitor

(2) Bnzylpeperidine derivative, antiemetic

(3) Benzophenone derivative, topical sun screening Substance

(4) Granular copolymer of tetra ethylene and Epichlorohydrin, hypolipedemic

(a) P-4, Q-2,R-3, S-1

(b) P-1, Q-3,R-4, S-2

(b) P-2, Q-3,R-4, S-1

(d) P-4, Q-2,R-1, S-3

58. **GROUP I**

Principle involved

(P) Excitation of electrons

(Q) Electron impact bombardment

(R) Molecular vibration

(S) Splitting of electron's magnetic energy

GROUP II

Instrument used

(1) ESR spectrometer

(2) IR spectrometer

(3) Mass spectrometer

(4) UV spectrometer

(a) P-2, Q-1, R-3, S-4

(b) P-3, Q-4,R-1, S-2

(b) P-4, Q-3,R-2, S-1

(d) P-1, Q-2,R-4, S-3

59. **GROUP I**

Drug

(P) Albendazole

(Q) Isoniazid

(R) Sulfacetamide sodium

(S) Paracetamol

GROUP II

Reagent for Assay

(1) Cerric ammonium sulphate

(2) Sodium nitrite

(3) Per chloric acid

(4) Potassium bromate

(a) P-1, Q-3, R-4, S-2

(c) P-1, Q-2,R-3, S-4

(b) P-2, Q-4,R-1, S-3

(d) P-3, Q-4,R-2, S-1

60. **GROUP I** — Method adopted

(P) Gas chromatography
(Q) Infra-red
(R) HPLC
(S) X-Ray diffraction

GROUP II — Physical state of sample used

(1) Solution
(2) Crystal
(3) Solid, liquid or gas
(4) Liquid or gas

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

61. **GROUP I** — Film defects

(P) Orange peel effect
(Q) Blistering
(R) Cracking
(S) Bloom

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 film
(3) Occurs due to processing temperature used is too high for Aparticular formulation
(4) Occurs if internal stress in the film exceed the tensile Strength of the film

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

62. **Group-I (term)**

(P) Hydrophilic suppository Base
(Q) Polymorphism
(R) Film former used in the Formation of nail lacquer
(S) Opaquant extender

Group-II (example)

(1) Nitrocellulose
(2) Titanium dioxide
(3) Cocoa butter
(4) Polyethylene glycol

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

63. **Group-I (Drug)**

(P) Toremifene
(Q) Flutamide
(R) Ketaconazole
(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) P-2, Q-3, R-1, S-4
(b) P-3, Q-2, R-1, S-4
(c) P-4, Q-3, R-1, S-1
(d) P-1, Q-4, R-2, S-3

64. The activities of certain object drugs are increased by certain precipitant drug choose the correct combination

Group I

Object drug

(P) Amines in foods

(Q) Alcohol

(R) Cefoxitin

(S) Azathioprine

Group II

Precipitant Drugs

(1) Allopurinol

(2) MAO inhibitor

(3) Disulfiram

(4) Probenecid

(a) P-2, Q-1, R-3, S-4

(b) P-3, Q-3, R-4, S-1

(c) P-4, Q-1, R-2, S-3

(d) P-4, Q-3, R-1, S-2

65. **Group I**

Drug

(P) Amines in foods

(Q) Alcohol

(R) Cefoxitin

(S) Azathioprine

Group II

Mechanism

(1) Allopurinol

(2) MAO inhibitor

(3) Disulfiram

(4) Probencid

(a) P-2, Q-1, R-3, S-4

(b) P-2, Q-3, R-4, S-1

(c) P-4, Q-1, R-2, S-3

(d) P-4, Q-3, R-1, S-2

66. **Group I**

Plant Hormone Type

(P) Auxin

(Q) Gibberellin

(R) Cytokinin

(S) Growth inhibitor

Group II

Chemical Substance

(1) Absicic acid

(2) NAA

(3) GA3

(4) 6-furfuryl amine

(a) P-4, Q-3, R-1, S-2

(b) P-4, Q-3, R-2, S-1

(c) P-3, Q-2, R-1, S-4

(d) P-2, Q-3, R-4, S-1

67. **Group I**

(Crude Drugs)

(P) Etoposide

(Q) Sumatra bensoin

(R) Ergot Powar

(S) Papaverine

Group II

(Chemical Test)

(1) Add a solution of potassium permanganate and warm; yield an odour of benzaldehyde

(2) To an alcoholic solution, add a solution of p-dimethylamino Benzaldehyde

(3) A solution in HCl acid when treated with k- ferriccyanide; Yield and yellow color

(4) Alcoholic solution of the drug is treated with strong copper Solution; gives a brown pripitate

(a) P-4, Q-1, R-2, S-3

(b) P-1, Q-2, R-3, S-4

(c) P-4, Q-3, R-1, S-2

(d) P-3, Q-4, R-2, S-1

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

(a) P-3, Q-4, R-2, S-1

(c) P-2, Q-3, R-4, S-1

Group II

Chemical nature of constituents

(1) Curare alkaloids

(2) Tropane alkaloids

(3) Quinoline alkaloids

(4) Phenylethylamine alkaloids

(b) P-1, Q-4, R-2, S-3

(d) P-4, Q-1, R-3, S-2

69. **Group I**

Aberrant protein

(P) Glucose-6-phosphate dehydrogenase

(Q) Prion

(R) β-Submit of haemoglobin

(S) Phenylalanine hydroxylase

(a) P-3, Q-1, R-2, S-4

(c) P-1, Q-4, R-2, S-3

Group II

Disease

(1) Haemolytic anaermia

(2) β-Thalassemia

(3) Scrapie

(4) Phenylketonuria

(b) P-1, Q-3, R-2, S-4

(d) P-2, Q-4, R-3, S-1

70. **Group I**

Antibiotic

(P) Gentamicine

(Q) Tetracyline

(R) Streptomycine

(S) Bacitracine

(a) P-1, Q-2, R-3, S-4

(c) P-2, Q-3, R-1, S-4

Group II

Tesi organism for microbiological assay I.P.

(1) Bacillus cereus

(2) Bacillus subtils

(3) Micrococcus luteus

(4) Staphylococcus epidermis

(b) P-3, Q-1, R-4, S-2

(d) P-4, Q-1, R-2, S-3

Common data for (Q. 71 - 73)

All anthracycline antibiotic doxorubicin, is an important anticancer drug

71. Doxorubicin in isolated from

(a) *Streptococcus pyogenes*

(b) *Staphylococcus aureus*

(c) *Clastridium difficile*

(d) *Streotourvces neucetius varcaesius*

72. Doxorubicin acts by

(a) Inhibiting asparaginase

(b) Inhibiting topisemrase II

(c) Inhibiting adenosine deaminase

(d) Inhibiting functions of microtubules

73. A significant adverse action of dosorubicin in

(a) A potentially irreversible cumulative dose related cardiac toxicity

(b) Hematuria

(c) Sedation

(d) Fluid retention

Common data for (Q. 74 - 75)

An antidiabetic drug is 1-[4-[2][5-chloro-2-methoxybenzamido) ethyl]-phenyl]-3-cu;cpjexulrea

74. The generic name of the antidiabetic drug is

(a) Glibenclamide (b) Gliciazide

(c) Glipizide (d) Gliquidone

75. Official assay for the drug is by throtion using a standard solution of

(a) Sodium nitrite (b) Iodine

(c) Potassium permanganate (d) Sodium hydroxide

Linked answer Questions: (Q. 76 - 85)

Statement for linked answer Questions 76 and 77

Imidazole is treated with w-bromo-2, 4 dichloracetophenone. The resulting product on reaction with Na BH_4 gives and intermediate X, X is then treated with NaH followed by 2,4 dichlorobenzyl bromide to get an antifungal drug.

76. The intermediate compound X is

(a) 1-(2,4 Dicholoro phenyl)-2-(1-imidazolyl)-methanol

(b) 1-(2,4 Dicholoro batyl)-2-(2-imidazolyl)-ethanol

(c) 1-(2,4 Dicholoro acetophenyl)-2-(1-imidazolyl)-ethanol

(d) 1-(2,4 Dicholoro phenyl)-2-(1-imidazolyl)-ethanol

77. The antifungal drug obtained is

(a) Miconazole (b) Lanaconazole

(c) Sapcrconazole (d) Butenafine

Statement for linked Answer Question 78 and 790

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

78. The base value (in nm) is

(a) 215 (b) 210 (c) 217 (d) 205

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

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

81. Half life of the drug solution under these condition 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

82. An example of a short acting antidepressant drug is

(a) Fluoxetine (b) Valproate (c) Etorphine (d) Moclobemide

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 frangrans belongs to the family Myristicacese

84. A part of the fruit of Myristica franrans Houtt is

(a) Testa (b) Plumule (c) Mace (d) Anther

85. The substance present in that part selected above, which produces a red color with iodine, is

(a) Myristicin (b) Safrole (c) Elimicin (d) Amylodextrin

End of paper

ANSWER KEY GATE 2006

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