GATE - 2003

PHARMACEUTICAL SCIENCE

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

Read the following instruction carefully.

1. *This question paper contains 90 objective questions. Q. 1-30 carry 1 mark each and Q. 31-90 carry two marks each.*
2. *Answer all the questions.*
3. *Questions must be answered on special machine gradable Objective Response Sheet (ORS) by darken-ing the appropriate bubble (marked A, B, C, D) using HB pencil against the question number on the left hand side of the ORS. Each question has only one correct answer. In case you wish to change an answer, erase the old answer completely using a good soft eraser.*
4. *There will be NEGATIVE marking. For each wrong answer, 0.25 mark for Q. 1-30 and 0.5 mark for Q. 31-90 will be deducted. More than one answer marked against a question will be deemed as an incorrect response and will be negative marked.*
5. *Write your registration number, name and name of the Centre at the specified locations on the right half of the ORS.*
6. *Using HB pencil, darken the appropriate bubble under each digit of your registration number.*
7. *Using HB pencil, darken the appropriate bubble under the letters corresponding to your paper code.*
8. *No charts or tables are provided in the examination hall.*
9. *Use the blank pages given at the end of the question paper for rough work.*
10. *This question paper contains 20 pages. Please report, if there is any discrepancy.*

(Q. 1 - 30) CARRY ONE MARK EACH

1. Colchicine is biogenetically derived from one of the following

   (a) Tyrosine and Phenylalanine
   (b) Tryptophan and phenylalanine
   (c) Ornithine and Tryptophan
   (d) Ornithine and phenylalanine

2. The diagnostic character for the microscopically identification of Kurchi bark is

   (a) Fibers with Y-shaped pits
   (b) Horse shoe shaped stone cells
   (c) Steroids containing calcium oxalate crystals
   (d) Stratified cork

3. It is possible to initiate the development of complete plants from callus cellCultures by suitable manipulation of the medium with respect to

(a) Minerals (b) Vitamins
(c) Carbohydrates (d) Hormones

4. Polyploidy is defined as

(a) Addition of one chromosome (b) Multification of entire chromosome set
(c) Submicroscopic change in DNA material (d) Gross structural change

5. The starting material for the synthesis of ALPRAZOLAM is

(a) 3-amino-5-bromoactophenone (b) 2-amino-5-chloroactophenone
(c) 2-amino-5-chlorobenzophenone (d) 3-amino-5-chlorobenzophenone

6. Simplification of Morphinan system gave one BENZOMORPHAN derivative

(a) Pentazocin (b) Pethidine
(c) Levorphanol (d) Buprenorphine

7. A metabolite of SPIRONOLACTONE is

(a) Aldosterone (b) Canrenone
(c) Corticosterone (d) Pregnenolone

8. The IUPAC name for NAPROXEN is

(a) (S)-2-(6-ethoxy-2-naphthyl)-acetic acid (b) (S)-2-(6-methoxy-2-naphthyl)-aceticacid
(c) (S)-2-(6-ethoxy-2-naphthyl)-propionic acid (d) (S)-2-(6-methoxy-2-naphthyl)-propionic acid

9. The metabolic function of Riboflavin involves the following

(a) FMN and FAD (b) NADP and NADPH
(c) AMP and ATP (d) Retin and Retinine

10. X-ray spectral lines Ká doublet arises from transition of electrons from

(a) M shell to K shell (b) L shell to K shell
(c) L shell to M shell (d) M shell to K shell

11. The method of expressing magnetic field strength

(a) Cycles/sec (b) Pulses/sec (c) Debye units (d) Gauss

12. A solvent used in NMR

(a) Chloroform (b) Acetone
(c) Carbon tetrachloride (d) Methanol

13. A widely accepted detector electrode for pH measurement is

(a) Platinum wire (b) Glass electrode
(c) Ag-AgCl electrode (d) Lanthanum fluoride

14. Commercial production of citric acid is carried out by the microbial culture of

(a) *Fusarium moniliformi* (b) *Rhizopus nigrican*

(c) *Aspergillus Niger* (d) *Candida utilis*

15. For thermophilic micro-organisms, the minimum growth temperature required is

(a) 20°C (b) 37°C (c) 45°C (d) 65°C

16. Obligatory anaerobes

(a) Can tolerate oxygen and grow better in its presence

(b) Do not tolerate oxygen and die in its presence

(c) Can grow in oxygen levels below normal

(d) Can grow in presence of atmospheric oxygen

17. Plasmid is a

(a) Macromolecule involved in the protein synthesis

(b) Circular piece of duplex DNA

(c) A hybrid DNA that is formed by joining pieces of DNA

(d) Endogenous substancesecreted by one type of cell

18. Lactose intolerance is because of the lack of

(a) Acid phosphates (b) Lactate dehydrogenase

(c) Galactose-1-phosphate-uridyl transferase (d) Amylase

19. Synthesis of UREA takes place exclusive in

(a) Kidney (b) Liver

(c) Gall bladder (d) Urinary bladder

20. A term which describes a cofactor that is finally bound to an enzyme

(a) Holoenzyme (b) Prosthetic

(c) Coenzyme (d) Transferase

21. How many parts of 10 % ointment be mixed with 2 parts of 15 % ointment to get 12% ointment

(a) 2 (b) 3 (c) 5 (d) 6

22. The correct non-ionic surfactant used as a penetration enhancer in the preparation of mucoadhasives

(a) Oleic acid (b) Tween-80

(c) Glycerol (d) Propylene glycol

23. One of the ex-officio member of the Pharmacy Council of India is

(a) Director General of Health Services (b) Government Analyst

(c) Registrar of theState Pharmacy Council (d) Director General of veterinary Research Institute

24. The Schedule in Drugs and Cosmetics Act that deals with the requirements andguidelines for clinical trials, import and manufacture of new drugs is

(a) Schedule 'O' (b) Schedule 'M' (c) Schedule 'F' (d) Schedule 'Y'

25. A retardant material that forms a hydrophilic matrix in the formulation of matrix tablets is

(a) H.P.M.C (b) C.A.P (c) Polyethylene (d) Carnauba wax

26. A drug which causes pink to brownish skin pigmentation within a weeks of theinitiation of the therapy is

(a) Itraconazole (b) Clofazimine (c) Lomefloxacin (d) Neomycin

27. The risk of Digitalis toxicity is significantly increased by concomitant administration of

(a) Triamterene (b) Lidocaine
(c) Captopril (d) Hydrochlorothiazide

28. An agent used in Prinzmetal angina has spasmolytic action which increasescoronary blood supply is

(a) Nitroglycerine (b) Nifedipine
(c) Timolol (d) Isosorbide mononitrate

29. An organism which has been implicated as a possible cause of chronic gastritis andpeptic ulcer is

(a) *Campylobacter Jejuni* (b) *Escherichia Coli*
(c) *Helicobacter pylori* (d) *Giardia lambia*

30. A $5HT_{1D}$ receptor agonist useful in migraine is

(a) Sumatriptan (b) Ketanserin (c) Ergotamine (d) Methysergide

(Q.31-90) CARRY TWO MARK EACH

31. At present, different species of Papaver such as *P. Orientale* are being cultivated instead of *P. somniferum* because they contain

(a) More of morphine (b) Less of morphine (c) Only codeine (d) Only thebaine

32. Guggulipid, a resin is

(a) A hypolipidemic agent obtained from cotton plants containing multifunctional compound (±) Gossypol
(b) A lipid obtained from Arctium lappa, Asteracese traditionally used for the treatment of dermatoses
(c) Cathartic glucoresin obtained from Ipmoea orizabensis and used since ancient time
(d) A hypolipidemic agent obtained from Commiphora mukul consisting of mixture of sterols including Z-pregna-(20)-diene-3, 16-diene

33. In nitrofuantion synthesis, 5-nitrifurfuraldehyde diacetate is treated with one of the following intermediate in presence of $CH_2COOH+H_2SO_4+C_2H_2OH$

(a) Hydantoin (b) 1-5-diamino hydantoin
(c) 1-3-diamino hydantoin (d) 1-amino-hydantoin

34. 4-hydroxy-3-hydroxymethyl benzaldehyde is treated with acetic anhydride and then kept with other solvent, t-butyl cyanide and acetic acid for ten days. Resulting compound is reduced with $LiAlH_4$ in tetra hydrofuran. The final product is

(a) Isoprenaline (b) Dobutamine (c) Salbutamol (d) Orciprenaline

35. 2-iminothiazolidine is treated with phenyl oxirane to get a drug used in roundworm infection

(a) Piperazine (b) Tetramisole (c) Thiabendazole (d) Levamisole

36. Thiamine hydrochloride on treatment with alkaline potassium ferricyanide gives

(a) Thymochrome with fluorescence
(b) Oxythiamine with golden yellow color
(c) Neopyrithiamine with orange yellow color
(d) Thiochrome with blue fluorescence

37. A new drug delivery system which is composed of phospholipids that spontaneously form a multiamellar, concentric bilayer vesicles with layers of aqueous media separating the lipid layers is

(a) Prodrugs (b) Liposomes (c) Osmotic pumps (d) Nanoparticles

38. Unless otherwise stated in the individual monograph of the pharmacopeia, in the disintegration test for enteric coated tablets, first the dissolution is carried out in

(a) 0.1 MHCI (b) Phosphate buffer (c) Water (d) 0.1 MH_2SO_4

39. What us the proportion of NaCl required to render a 1.5% solution of drug isotonic with blood plasma? The freezing point of 1% w/v solution of drug is -0.122^0C and that of NaCl is -0.576^0C

(a) 0.65% (b) 0.585% (c) 0.9% (d) 0.5%

40. IR Spectra appear as dips in the curve rather than maxima as in UV-Visible spectra because it is a plot of

(a) % Absorbance against wave no.
(b) % Transmittance against concentration
(c) % Absorbance against Concentration
(d) % Transmittance against wave no

41. ESR is applied to only those substances showing para magnetism which is due to the magnetic moments of

(a) Neutrons (b) Protons (c) Paired electrons (d) Unpaired electron

42. Rotation of electrons about the proton generates a secondary magnetic field which may oppose the applied magnetic field. The proton is then said to be

(a) Shielded (b) Shifted (c) Hydrogen (d) Deshielded

43. The analyte is used in the form of a solution flame photometry because it should undergo

(a) Evaporation (b) Condensation (c) Nebulization (d) Precipitation

44. The mechanism of antiparasitic action of Mebendazole and thiabendazole involves

(a) Stimulation of acetylcholine receptors at neuromuscular junctions
(b) Inhibition of dihydropolate reductase
(c) Interference with microtubule synthesis and assembly
(d) Block thiamine transport

45. Isoniazid is a primary anti-tubercular agent that
   (a) Requires pyridoxine supplementation
   (b) Causes ocular complication that are reversible if the drug is discontinued
   (c) Is ototoxic and nephrotoxic
   (d) Should never be used due to its hepatotoxicity potential

46. Decreased risk of Atherosclerosis is associated with increase in
   (a) Very-low-density lipoproteins
   (b) Low-density lipoproteins
   (c) Cholesterol
   (d) High-density lipoproteins

47. The mechanism of action of Paclitaxel is
   (a) Bing to DNA through intercalation between specific bases and block the synthesis of new RNA or DNA, cause DNA strand scission
   (b) Mitotic spindle poison through the enhancement of tubulin polymerization
   (c) Competitive partial agonist-inhibitor of estrogen and binds to estrogen receptors
   (d) S-Phase specific antimetabolite that is converted by deoxy kinase to the 5'-mononucleotide

48. Lycopodium spore method can be used to find out percentage purity of crude drug which contain
   (a) Multi-layered tissues or cells
   (b) Well defined particles which can be counted
   (c) Oil globules
   (d) Characteristic particles of irregular thickness the length of which can measured

49. The microscopical character flower buds of *Eugenia caryophyllus* is
   (a) Collenchymatous parenchyma containing in its outer part numerous ellipsoidal schizolysigenous oil glands
   (b) Small translucent endosperm containing aleurone grains
   (c) Wide parenchymatous starchy cortex, the endosperm containing volatile oil
   (d) Outer surface consisting of external perisperm, rough, dark brown with reticulate furrows

50. In protein blosynthesis, each amino acid
   (a) Recognises its own codon by a direct interaction with the m-RNA template
   (b) Is added in its proper place to a growing peptide chain through "adaptor" function of t-RNA
   (c) Is first attached to an anti codon specific for the amino acid
   (d) Undergoes fidelity translation which is assured by the presence of traces of DNA on the ribosome

51. Rabies Antiserum I. P. is
   (a) A freeze dried preparation containing antitoxic
   (b) A preparation containing specific globulin or its derivatives obtained by purification of hyper immune

serum or plasma of healthy horses

(c) A sterile preparation containing antitoxic globulin

(d) A sterile preparation containing antioxic globulin obtained by purification of hyper immune serum of horses

Q. 52-58 are multiple selection items. P, Q, R, S are the options. Two of these options are correct. Choose the correct combination from among the alternatives A, B, C and D.

52. Total ash value in case of crude drug signifies

(P) Organic content of the drug

(Q) Mineral matter in the drug

(R) Addition of extraneous matter such as stand stone etc

(S) Woody matters present in the drug

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

53. The compounds listed below contain α, β and η electrons

(P) Acetaldehyde (Q) Butadiene

(R) Formaldehyde (S) Benzene

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

54. A 60 year old patient presents with glaucoma. Therapy should include

(P) Topical atropine (Q) Topical pilocarpine

(R) Oral acetazolamide (S) Oral pilocarpine

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

55. Measurement of particle size in pharmaceutical Aerosols is by

(P) Cascade impactor (Q) Light scatter decay

(R) Karl-Fischer method (S) IR spectrophotometry

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

56. The common attributes of ascorbic acid, an antiscorbutic vitamin, are

(P) Exit in nature in both reduced and oxidized form and in a state of reversible equilibrium

(Q) Has keto-enol system in the molecule

(R) Has an aldehyde group since it gives positive Shiff's reaction

(S) Salt forming properties are due to the presence of the free carboxyl group

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

57. Two properties of Radiopharmaceuticals are

(P) Slow localization in target issue

(Q) Very long half-life to minimize radiation exposure yet long enough to get imaging information

(R) Short half-life to minimize radiation exposure yet long enough to get imaging information

(S) Rapid localization in target tissue and quick clearance from non-target organs

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

58. Two correct statements concerning vitamin D are

(P) The active molecule 1,25-dihydroxy cholecalciferol binds to intracellular receptor proteins

(Q) Cholecalciferol is found in vegetables

(R) 1,25-dihydroxy-D_3 is the potent vitamin D metabolite

(S) It is required in the diet of individuals exposed to sunlight

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

Q. 59-65 are "Matching" exercises. Match Group I with Group II. Choose the correct combination from among the alternatives A,B,C and D.

59.

Group I (Tablet Additives)	Group II (Examples)
(P) Binder	1. Acacia
(Q) Insoluble lubricant	2. Light mineral oil
(R) Film coating material	3. Hydroxy ethyl cellulose
(S) Direct compression diluents	4. Microcrystalline cellulose

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

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

60.

Group I (IR Detectors)	Group II (Composition)
(P) Themocouple	1. Oxides of Mn, Co and Ni
(Q) Pyroelectric Detector	2. Bi-Sb
(R) Golay cells	3. Xenon
(S) Thermistor	4. Triglycine sulphate

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

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

61.

Group I (Alkaloid)	Group II (Ring system)
(P) Coniine	1. Isoquinoline
(Q) Papaverine	2. Pyridine-Piperdine
(R) Anabasine	3. Yohimbane

(S) Reserpine

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

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

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

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

62. Group I (Immunoglobulins[Ig])

(P) IgG

(Q) IgA

(R) IgM

(S) IgE

Group II (Actions)

1. Agglutination and cytolysis
2. Antiallergic
3. Neutralises toxins
4. Antimicrobial

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

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

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

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

63. Group I (Antibiotics)

(P) Streptomycin

(Q) Erythromycin

(R) Gentamycin

(S) Tetracycline

Group II (Microrganism used in the I.P. assay)

1. Bacillus cereus
2. Staphylococcus
3. Klebsiella pneumoniac
4. Micrococcus luteus

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

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

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

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

64. Group I (Synthetic estrogenic drug)

(P) Ethinyl Estradiol

(Q) Dienoestrol

(R) Chlorotrainisine

(S) Stilboestrol

Group II (Methods of synthesis)

1. 4'4, Dimethoxy of benxophenone is treated with 4 - methoxy benzoly chloride + Mg, resulting product is treated with PTS followed by Cl_2+CCl_4
2. Deoxy anisoin is alkylated and product subjected to Grignard reaction, the resulting tertiary alcohol is dehydrated and demethylated with alcoholic KOH
3. By pinacol reduction of p-hydroxy propiophenone and subsequent removal of water
4. From Estrone by the action of Potassium acetylide

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

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

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

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

65. Group I (Immunosuppressants) — Group II (Mechanism of action)

(P) Azathioprine
(Q) Tacrolimus
(R) Glucocorticoids
(S) Cyclophosphamide

1. Destroys proliferating lymphoid cells
2. Prodrug transformed to mercaptopurine which on further conversion inhibits purine metabolism
3. Inhibits the cytoplasmic phosphatase Calcineurin
4. Interferes with the cell cycle of activated lymphoid cells

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

Data for Q. 66-90 are based on the statement/problem. Choose the correct answer for each question from the option A,B,C,D.

Data for (Q.66 - 68)

Leaves of Digitalis Purpurea were subjected to morphological, microscopical and chemical screening

66. Morphological character with respect to the leaf is

(a) Ovate lanceolate with entire margin
(b) Ovate lanceotlate with crenate margin
(c) Linear lanceolate with serrate margin
(d) Linear laceolate with sinuate margin

67. Morphological character with respect to the leaf is

(a) Ovate lanceolate with entire margin
(b) Ovate lanceolate with crenate margin
(c) Linear lanceolate with serrate margin
(d) Linear lanceolate with sinuate margin

68. The drug gives positive

(a) Borntrager's test
(b) Murexide test
(c) Legal's test
(d) Thaleoquin test

Data for (Q.69-70)

In a synthetic procedure –chloro-2,4 diamino sulfomyl aniline is treated with P to obtain 7-amino sulfomyl 6-chloro-3-chloro-methyl-2H-1,2,4-benzothiadiazin-1:1 dioxide. Subsequently it is refluxed with C_6H_5-CH_2-SH+NaOH+DMF to yield Y

69. Select the reagent **P**

(a) Chloroacetyldehyde
(b) Formaldehyde
(c) Formic acid
(d) Acetaldehyde

70. The final product **Y** is

(a) 3-benzyl methyl-6-chloro-2H-1, 2, 4-benzothiadiazine-7-sulphonamide-1, 1-dioxide

(b) 3-benzyl thiomethyl-6-chloro-2H-1, 2, 4-benzothiadiazine-7-sulphonamide1, 1-dioxide

(c) 3-benzyl thiomethyl-5-chloro-2H-1, 2, 3-benzothiadiazine-7-sulphonamide1, 1-dioxide

(d) 3-benzyl thiomethyl-6-chloro-2H-1, 2, 4-benzothiadiazine-7-sulphonamide1, 1-dioxide

Data for (Q.71-73)

Proguanil is synthesized by diazotization of p-chloroaniline and treating with dicynamide to yield p-chlorophenyl dicyandiamide which is converted to proguanil by reaction with an aliphatic amine. Proguanil is metabolized to a triazine derivative which is an active metabolite.

71. What is the reagent used for diazotization

(a) $NaNO_2$ + dilute HCl

(b) KNO_3 + dilute H_2SO_4

(c) Zn + dilute H_2SO_4

(d) Tin + H_2SO_4

72. Name the aliphatic amine used

(a) Dimethylamine

(b) Isopropylamine

(c) Isobutylamine

(d) Diethylamine

73. Name the metabolite

(a) Thioguanil

(b) Diguanil

(c) Cycloguanil

(d) P-chlorphenyl biguanide

Data for (Q.74-76)

Calculate the λ max for the following compounds. Base value for Benzaldehydein ethanol is 250nm.

74. λ max of p-bromobenzaldehyde in nm is

(a) 265 (b) 255 (c) 275 (d) 260

75. λ max of p-hydroxy benzaldehyde in nm is

(a) 253 (b) 275 (c) 261 (d) 270

76. λ max of o-chlorobenzaldehyde in nm is

(a) 275 (b) 265 (c) 255 (d) 250

Data for (Q.77-78)

In the assay of Folic acid I.P., a weighed quantity is dissolved in 0.1 M NaOH solution and subsequently treated with Zn and HCl. The resulting product is mixed with ammonium sulphate,kept for 2 minutes and a reagent is added to get final colored product whose absorbance is measured.

77. Select the product obtained when folic acid is heated with Zn + HCl

(a) Benzoic acid (b) P-aminobenzoic (c) Glutamic (d) Succinic acid

78. Select the reagent used for the development of color

(a) N-1-napthyl ethylene diamine dihydrochloride (b) Ninhydrin reagent

(c) P-dimethyl amino benzaldehyde (d) Phloroglucinol

Data for (Q.79-80)

Parkinsonism is a common neurological movement disorder. Signs include rigidity of skeletal muscle,akinesia,flat faces and tremors at rest. Both L-DOPA and carbidopa are used.

79. Carbidopa is used because

(a) It crosses blood brain barrier

(b) It inhibits aromatic L-amino acid decarboxylase

(c) It inhibits MAO type A

(d) It inhibits MAO type B

80. Select the specific unwanted effect of L-DOPA

(a) Dementia (b) Hypertension (c) Dyskinesia (d) Excitotoxicity

Data for (Q.81-82)

The decomposition of a drug in aqueous acid solution was found to follow first order reaction. The initial concentration was found to be 0.056 M. The concentration after a period of 12 hours was 4.10×10^{-2} ***moles/liter. The reaction rate constant is 0.02599*** hr^{-1}.

81. What is the quantity of drug remaining undecomposed after 8 hours.

(a) 0.455 moles/liter (b) 0.25 moles/liter

(c) 0.0455 moles/liter (d) 0.10 moles/liter

82. What is the amount of drug deteriorated during the period of 24 hours.

(a) 0.026 moles/liter (b) 0.0026 moles/liter

(c) 0.03 moles/liter (d) 0.053 moles/liter

Data for (Q.83-85)

In a formulation development laboratory, you have to formulate an oral dosage form containing olive oil,Vitamin A and water.

83. Suggest a suitable dosage form

(a) Solution (b) Suspension (c) Emulsion (d) Capsule

84. Suggest a substance to be incorporated into the formulation

(a) Glycerin (b) Acacia (c) Cetrimide (d) Alcohol

85. Select one of the appropriate labeling directions

(a) Keep in the refrigerator (b) No-preservatives

(c) Schedule 'G' (d) Shake well before use

Data for (Q.86-87)

Successive solvent extraction of a crude drug with petroleum ether,benzene, chloroform, ethyl alcohol and water performed. Qualitative chemical testing of petroleum ether extract gave positive keller-killani and salkowski's reaction. Ethyl alcohol and aqueous extract gave positive $FeCl_3$ reaction and aqueous axtract gave foamy solution.

86. What constituents are present in the petroleum ether/benzene extract?

(a) Plant sterols (b) Tropane slkaloids

(c) Sesquiterpenoids (d) Purines

87. What constituents are present in the ethyl alcohol and aqueous extracts?

(a) Plant lipids (b) Anthraquinone glycosides

(c) Alkaloids (d) Plant phenols and saponins

Data for (Q.88-90)

A business executive while playing tennis complained of chest pain and was brought to emergency room. He has history of mild hypertension and elevates bood cholesterol. ECG changes confirmed the diagnosis of myocardial infarction. The decision is made to open his occluded artery by using thrombolytic agent and also use aspirin later.

88. The thrombolytic agent used is

(a) Heparin (b) Warfarin (c) Anistreptase (d) Vit. K

89. Mechanism of action of aspirin is

(a) Inhibit vitamin K absorption (b) Antithrombin activity

(c) Inhabit metabolism of heparin (d) Inhibit platelet aggregation

90. Mechanism of action of antithrombic agent is

(a) Conversion of plasminogen to plasmin (b) Activation of clotting factors

(c) Inhibit platelet aggregation (d) Agonist of vitamin K

End of paper

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ANSWER KEY GATE 2003

1- a	2 – b	3 – d	4 – b	5 – b	6 – a
7 – b	8 – d	9 – a	10 – b	11 – d	12 – c
13 – c	14 – c	15 – d	16 – b	17 – c	18 – b
19 – b	20 – c	21 – b	22 – d	23 – a	24 – d
25 – a	26 – b	27 – d	28 – d	29 – c	30 – a
31 – d	32 – d	33 – d	34 – c	35 – a	36 – a
37 – b	38 – a	39 – c	40 – d	41 – d	42 – a
43 – c	44 – c	45 – a	46 – d	47 – b	48 – b
49 – a	50 – b	51 – b	52 – b	53 – c	54 – b
55 – a	56 – d	57 – c	58 – c	59 – d	60 – d
61 – c	62 – b	63 – b	64 – a	65 – b	66 – b
67 – c	68 – c	69 – a	70 – a	71 – a	72 – b
73 – c	74 – c	75 - a	76 – b	77 – c	78 – b
79 – b	80 – c	81 – c	82 – a	83 – c	84 – b
85 – d	86 – a	87 – d	88 – c	89 – d	90 – a

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