

GATE-2002

Pharmaceutics

1.1 The pKa of Lidocaine is 7.9, if the pH of the infected is 89, the fraction of the drug in the ionized form will be
(a) 1% (b) 10% (c) 90% (d) 99%

1.2 Schedule FF contains the list of the following
(a) Drug which can be marketed under generic names only
(b) Drug which are habit forming
(c) Standards for ophthalmic preparation
(d) Drug which are exempted from certain provisions applicable to manufacturing

1.3 One of the following equations is used to predict the stability of a drug product at room temperature from experiments at accelerated temperature
(a) Stokes equation (b) Arrhenius equation
(c) Young's equation (d) Michaelis-Menten equation

1.4 One of the following apparatus is used to determine the particle size by the gravity sedimentation method
(a) Pycnometer (b) Ostwall viscometer
(c) Andreasen apparatus (d) Friabilator

1.5 One of the following mills works on both the principles of attrition and impact
(a) Cutter mill (b) Hammer mill
(c) Roller mill (d) Fluid energy mill

1.6 A commonly used antioxidant for all system is
(a) Butylated hydroxyl toluene (b) Ascorbic acid
(c) Sodium metabisulfite (d) Thioglycol

1.7 The instrument used to measure particle volume is
(a) Coulter Counter (b) Microscope
(c) Hempel Burette (d) Helium Densitometer

1.8 The purpose of seal coating in sugar coating process for tablets is
(a) To prevent moisture penetration into the tablet core
(b) To round the edges and build up the tablet weight
(c) To impart the desired color to the tablet
(d) To give luster to the tablet

1.9 The phenomenon of increasing the solubility of weak electrolytes and non polar molecules by the addition of water miscible solvent in which the drug has good solubility is called
(a) Complexation (b) Cosolvency
(c) Solubilization (d) Hydrotropy

1.10 HLB system is used to classify
(a) Surfactants (b) Preservatives
(c) Antioxidants (d) Sequestering agents

1.11 The statement "Store in a cool place" as per IP means
(a) Store at room temperature
(b) Store between 2°C to 8°C

(c) Store at any temperature between 8°C to 25°C
(d) Store at 0°C

1.12 Durability of a tablet to combined effects of shock and abrasion is evaluated by using
(a) Hardness tester
(b) Disintegration test apparatus
(c) Friabilator
(d) Screw Gauge

Pharmacology

1.13 One of the following is selective β2- stimulant
(a) Caffeine (b) Salbutamol
(c) Propranolol (d) Betahistine

1.14 The drug regimen useful in the treatment of both intestinal and extra-intestinal symptoms of amoebiasis orally is
(a) Diloxanide and Iodoquinol
(b) Paromomycin and Mefloquine
(c) Metronidazole and Diloxanide
(d) Chloroquine alone

1.15 One of the following opioid peptides is released from pro opiomelanocortin (POMC)
(a) Somatostatin (b) Beta-endorphin
(c) Leu-enkephalin (d) Dynorphin

1.16 Metoprolol is sometimes preferred to Propranolol because
(a) It has both alpha and beta adrenergic blocker
(b) It has both vasodilator properties and beta adrenergic blocker
(c) It is a β, selective antagonist and it does not enter the brain
(d) It is a β selective antagonist

1.17 One of the following drug interrupts the synthesis of thyroid hormones by preventing iodine incorporation into the tyrosyl residue of thyroglobulin
(a) Levothyroxine (b) Liothyronine
(c) Propyl thiouracil (d) Triiodo thyronine

1.18 Macrolide antibiotics exert their action by
(a) Inhibiting transcription
(b) Altering the genetic code
(c) Terminating protein synthesis prematurely
(d) Post-translational modification

1.19 Which of the following pairs has an interaction beneficial for routine clinical use
(a) Pseudoephedrine and Aluminum hydroxide gel
(b) Tetracyclines and Milk of magnesia
(c) MAO inhibitors and Tyramine
(d) Chloramphenicol and Tolbutamide

1.20 Measurement of which of the following two of the constituents of human plasma is of great value in the differential diagnosis of rheumatoid diseases

- (a) Rheumatoid factor and immunoglobulin G
- (b) Rheumatoid factor and C-reactive Protein
- (c) HL-A antigen and C-reactive protein
- (d) Immunoglobulin and bradykinin

Pharmacognosy

1.21 Volatile oil from Lemon peels contains d-limonen which is

- (a) Phenyl propane derivative
- (b) Bicyclic monoterpene derivative
- (c) Monocyclic monoterpene derivative
- (d) Acyclic sesquiterpene derivative

1.22 In Digitalis glycoside C, position of the steroid ring is substituted by

- (a) α - β unsaturated five membered hetone ring
- (b) α - β unsaturated six membered lactone ring
- (c) α - β unsaturated six membered ring
- (d) α - β unsaturated five membered lactam ring

1.23 In case of Digitalis purpurea, the cardiac activity is maximum with

- (a) Odbroside-H
- (b) Digoxin
- (c) Digitoxin
- (d) Purpurea glycoside - A

1.24 Dragendorff's reagent does not give positive test with

- (a) Emetine
- (b) Morphine
- (c) Caffeine
- (d) Codeine

1.25 Cascarioside A is an example of

- (a) O-Glycoside
- (b) C- Glycoside
- (c) N and S-Glycoside
- (d) O and C-Glycoside

2.1 Precursor of the biosynthesis of tropane group of alkaloids is

- (a) Leucine
- (b) Lysine
- (c) Ornithine
- (d) Tyrosine

2.2 The extraction of steroid saponins on commercial scale is from

- (a) Dioscorea
- (b) Digitalis
- (c) Datura
- (d) Trigonella

2.3 Rauwolfia serpentina Benth, can be distinguished from other adulterants/substitutes of Rauwolfia spp. by

- (a) Presence of starch grains
- (b) Presence of calcium oxalate crystal
- (c) Presence of trichomes
- (d) Presence of sclereids

Pharmaceutical Chemistry

2.4 The drug Nifedipine can be synthesized from

- (a) O-nitro benzaldehyde methyl acetoacetate and Ammonia
- (b) P-nitro benzaldehyde methyl acetoacetate and Ammonia
- (c) O-nitro benzaldehyde ethyl acetoacetate and Methylamine
- (d) P-nitro benzaldehyde methyl acetoacetate and Methylamine

2.5 The major product formed by the condensation of 2-4 methys phenothiazi with sodamide and 1-(achbro-copyl 4-methyl piperazine)

- (a) Trifluperidol
- (b) Trifluperazine
- (c) Triflupromazine
- (d) Trifluo phenothiazine

2.6 One of the following statements is characteristic for natural Estrogens

- (a) Aromatic ring with phenolic group and an estrane nucleus
- (b) Aromatic ring with an alcoholic group and a pregnane nucleus
- (c) Reduced ring system belonging to the class estrane
- (d) Reduced ring system belonging to the class pregnane

2.7 An antineoplastic agent acting by folate antagonism and having a Pteridine ring is

- (a) Trimethoprim
- (b) Mercaptopurine
- (c) Methotrexate
- (d) Folic acid

2.8 One of the following drugs has 1,4-dihydropyridine structure, tertiary amino group in the side chain and Ca^{++} channel antagonist action

- (a) Nitrendipine
- (b) Nicardipine
- (c) Verapamil
- (d) Captopril

2.9 IUPAC name for one of the steroid anti-inflammatory agent is 9 α -For-11 β 16 α , 17 α , 21-tetrahydroxy-1, 4-Pregnadiene-3, 20-dione

- (a) Prednisolone
- (b) Betamethasone
- (c) Triamcinolone
- (d) Dexamethasone

2.10 Clofazimine belongs to a class of

- (a) Riminophenazines
- (b) Aryl piperazines
- (c) Phenothiazines
- (d) Benzyl piperazines

2.11 One of the drug is odd one in terms of its biological action

- (a) Diethyl stilbesterol
- (b) Tamoxifen
- (c) Ethinyl estradiol
- (d) Mestranol

2.12 The key intermediates for the synthesis of Timolol are

- (a) 3, 4-dichloro-1, 2, 5-thiadiazole and Morpholine
- (b) 3, 4-dichloro-1, 2, 5-thiadiazole and Piperazine
- (c) 3,4-dibromo-1, 2, 5-thiadiazole and Piperazine
- (d) 3-chloro-1, 2, 5-thiadiazole and Morpholine

2.13 The ultra short-acting Barbiturates have brief duration of action due to

- (a) High degree of binding to plasma protein
- (b) Low lipid solubility resulting in a minimal concentration in the brain
- (c) Metabolism is slow in the liver
- (d) Rapid rate of redistribution from the brain due to its high liposolubility

Pharmaceutical Analysis

2.14 Derivatization is done in GC

- (a) To convert a less polar compound to a more polar compound
- (b) To make the compound non-volatile
- (c) To convert a polar compound to a less polar compound
- (d) To liquefy a solid

2.15 Qualicune analysis by pokrogrphy is leased on

(a) Electrode potential (b) Half wave potential
(c) Migration current (d) Limiting current

2.16 The stationary phase used in gel permeation chromatography is

(a) Alumina (b) Charcoal
(c) Squalene (d) Styrene divinyl benzyl co-polymer

2.17 A conductivity cell consists of

(a) Two platinized platinum electrode stem
(b) A platinum calomel electrode system
(c) A platinum tungsten electrode system
(d) A glue calomel electrode system

2.18 Ion exchange capacity of a resin is dependent on

(a) The total molecular weight of the resin
(b) The total number of fun active groups
(c) Length of ion exchange resin
(d) Solubility of the ion exchange resins

2.19 In mass spectra, the most intense peak is the

(a) Base peak (b) Metastable ion peak
(c) Fragment ion peak (d) Rearrangement ion peak

2.20 Chemical shift is expressed in one of the following units

(a) cm^{-1} (b) Ampere
(c) Parts per million (d) mm/ml

2.21 Xenon are lamp is the source of light in

(a) Spectrofluorimeter (b) IR Spectrophotometer
(c) Flame photometer (d) Calorimeter

Other Subjects**2.22 Which of the following is valid comparison of live attenuated vaccines versus killed inactivated vaccines**

(a) Hypersensitivity reactions are uncommon among inactivated vaccines
(b) Live attenuated vaccines are more effective in children
(c) Live attenuated vaccines are not suitable for paediatrics use
(d) Replication of the organisms in a live attenuated vaccine increases the stimulation of the immune system thereby requiring a lower dose

2.23 A specimen isolated form a patient suffering from septicemia was found to be a strict aerobe. Its culture vial had a characteristic grape like odour and it was susceptible to Carbenicillin. Identify the organism

(a) Pseudomonas fluorescens
(b) Salmonella typhi
(c) Staphylococcus aureus
(d) Pseudomonas aeruginosa

2.24 Methyl malonyl CoA mutase which catalyzes the conversion of propionyl CoA to succinyl CoA utilizes the prosthetic group derived from

(a) Cyanocobalamin (b) Pyridoxine
(c) Thiamine (d) Nicotinamide

2.25 A typical example of exotoxin is

(a) Lipid-A (b) Cytokine
(c) Tetanospasmin (d) Tuberculin

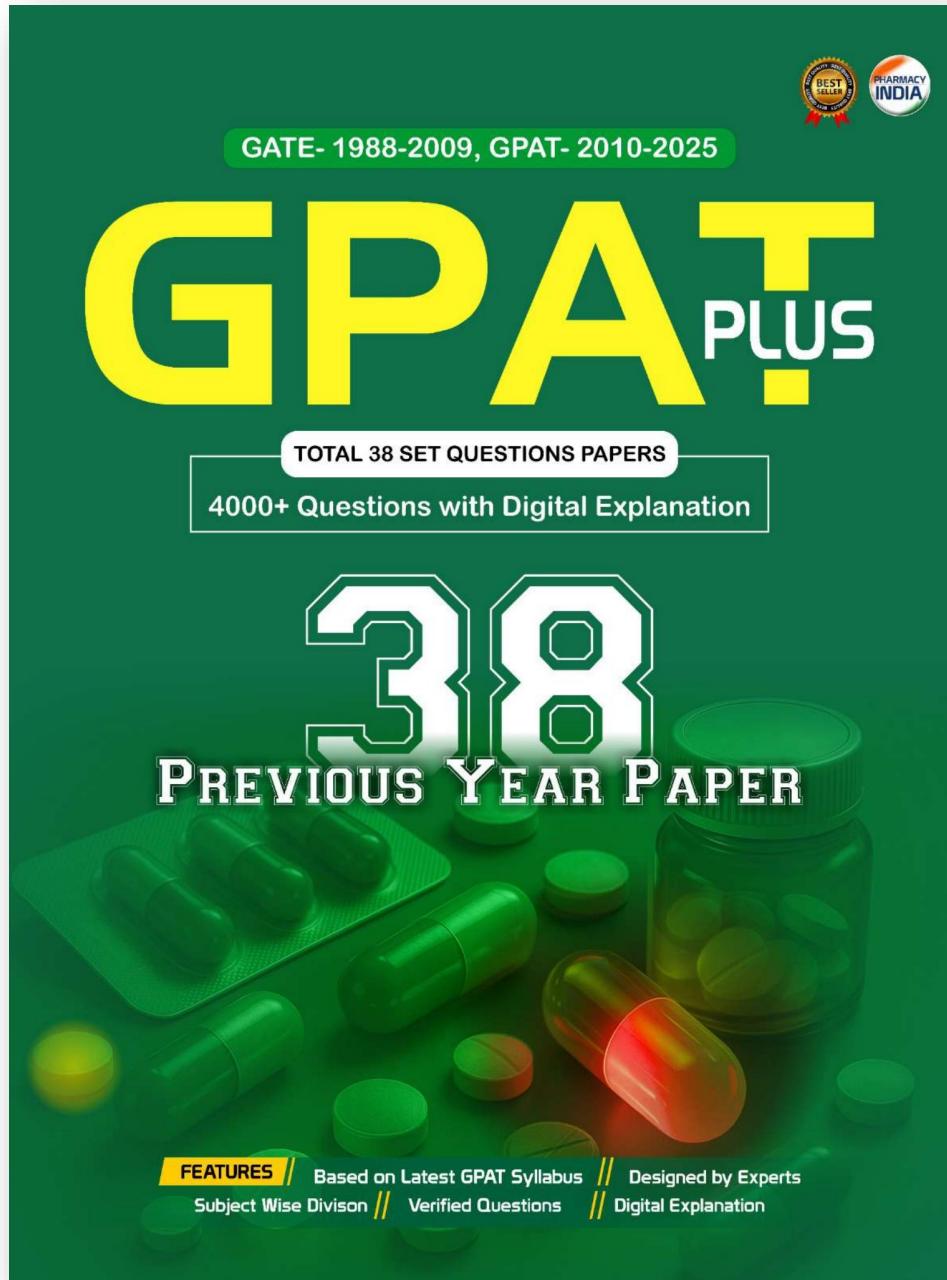
Answer Key**PART (Q.1)**

1.1 - c	1.2 - c	1.3 - b	1.4 - c	1.5 - d	1.6 - a	1.7 - a	1.8 - a	1.9 - b	1.10 - a
1.11 - c	1.12 - c	1.13 - b	1.14 - c	1.15 - b	1.16 - c	1.17 - c	1.18 - c	1.19 - a	1.20 - a
1.21 - c	1.22 - a	1.23 - d	1.24 - c	1.25 - d					

PART (Q.2)

2.1 - c	2.2 - a	2.3 - d	2.4 - a	2.5 - b	2.6 - a	2.7 - c	2.8 - b	2.9 - c	2.10 - a
2.11 - b	2.12 - a	2.13 - d	2.14 - c	2.15 - b	2.16 - d	2.17 - a	2.18 - b	2.19 - a	2.20 - c
2.21 - a	2.22 - b	2.23 - d	2.24 - a	2.25 - c					

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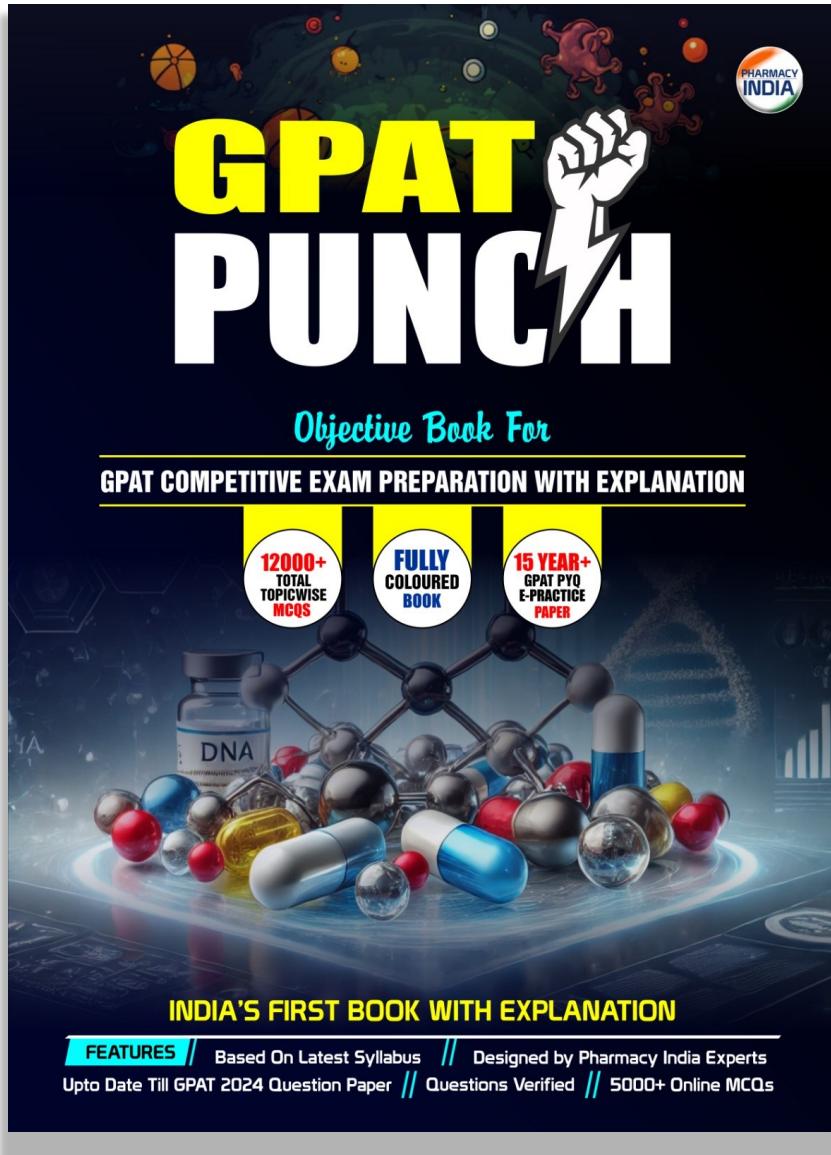
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