

# GATE-2001

## Pharmaceutics

- 1.1 State pharmacy council should have the following number of elected members  
(a) Six      (b) Nine      (c) Five      (d) Seven
- 1.2 Identify the correct non flammable propellant  
(a) Trichloromonofluoromethane  
(b) Dichloromonofluoromethane  
(c) Dimethylther  
(d) Difluoromethane
- 1.3 The loading dose of a drug is usually based on  
(a) Total body clearance of the drug  
(b) Percentage of the drug bound to plasma proteins  
(c) Fraction of drug excreted unchanged in urine  
(d) Apparent volume of distribution and desired drug concentration in plasma
- 1.4 Bulking agent used for parenteral preparation is  
(a) Sodium metabisulphite      (b) Benzyl alcohol  
(c) Carbolic acid      (d) Sorbitol
- 1.5 Elastomer used in rubber stopper formulation is  
(a) Polybutadiene      (b) Butyl Stearate  
(c) Titanium Dioxide      (d) Butylated hydroxytoluene
- 1.6 Schedule D as per D & C Act is concerned with  
(a) List of drugs exempted from the provision of import of drugs  
(b) Diseases or ailments which a drug may not purport to prevent or cure  
(c) Requirements of factory premises  
(d) List of prescription drugs
- 1.7 The shells of soft gelatin capsules made elastic or plastic like, by addition of  
(a) Sorbitol      (b) Povidone      (c) PEG      (d) HPMC
- 1.8 The rate of drug bioavailability is most rapid when the drug is formulated as a  
(a) Controlled release product  
(b) Hard gelatin capsule  
(c) Tablet  
(d) Solution
- 1.9 How many grams of drug should be used in preparing 500 ml of a 1:2500 solution  
(a) 0.2      (b) 0.02      (c) 0.4      (d) 1.25
- 1.10 Choose the correct excipient for enhancing solubility in tablet manufacturing  
(a) PEG  
(b) Microcrystalline cellulose  
(c) Talc  
(d) Lactose

## Pharmacology

- 1.11 A woman has to be treated for upper respiratory tract infection Six years back she was found hypersensitive to Penicillin V. The cultures nos reveal a strain of *Streptococcus pneumoniae* that is sensitive to all of the following drugs. Which one would be the best choice for the patient  
(a) Amoxicillin      (b) Erythromycin  
(c) Cefaclor      (d) Cyclacillin
- 1.12 The mechanism of action for Dactinomycin is  
(a) Inhibits Topoisomerase II  
(b) Cross links DNA  
(c) Inhibits functions of microtubules  
(d) Inhibits DNA Polymerase
- 1.13 Drug combination Warfarin/Vitamin K results in a specific interaction Identify  
(a) Antagonistic  
(b) Increased sedation  
(c) No known interaction  
(d) Harmful only in the presence of oxidizing agent
- 1.14 One of the following is selective serotonin reuptake inhibitor  
(a) Desipramine      (b) Fluoxetine  
(c) Bupropion      (d) Maprotiline
- 1.15 Plasmodial resistance of Chloroquine is due to  
(a) Induction of inactivating enzymes  
(b) Change in receptor structure  
(c) Increase in the activity of DNA repair mechanism  
(d) Decreased carrier mediated drug transport
- 1.16 One of the following actions of opioid analgesic is mediated via kappa receptors  
(a) Cerebral vascular dilation      (b) Euphoria  
(c) Spinal analgesia      (d) Physical dependence
- 1.17 One of the following drugs has activity against Herpes simplex virus type I and is used topically Systematic administration of the same results in bone marrow depression, hepatic dysfunction and nephrotoxicity  
(a) Acyclovir      (b) Amantadine  
(c) Vidarabine      (d) Idoxuridine
- 1.18 The mechanism of Digitalis is  
(a) Decreases intracellular  $\text{Na}^+$  concentration  
(b) Inhibits  $\text{Na}-\text{K}^+$  ATPase  
(c) Activated adenylyl cyclase which produces c-AMP  
(d) Decreased Release of Calcium from Sarcoplasmic reticulum
- 1.19 One of the drugs when coadministered with Terfenadine may lead to life threatening Cardiac dysrhythmia. Identify

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

**1.20 Adverse effects of one of the drug include amenorrhea, bone marrow depression gastrointestinal distress and haemorrhagic distress, Identify**

(a) Cyclizine      (b) Piroxicam  
 (c) Cyclophosphamide      (d) Cimetidine

### Pharmacognosy

**1.21 An alkaloid from *Atropa belladonna* having the molecular formula  $C_{17}H_{23}O_3N$  having  $\alpha D-22^0$  when warmed with ethanolic alkaline solution is converted into**

(a) (-) Hyoscyamine      (b) ( $\pm$ ) Hyoscyamine  
 (c) (+) Hyoscyamine      (d) ( $\pm$ ) Hyoscine

**1.22 Choose the appropriate description for Ergot**

(a) Loosely arranged or in small more or less agglutinated angular mass  
 (b) A pseudoparenchyma formed by the interwoaving closely appressed compact septate hyphae  
 (c) The cystocarps have fallen out leaving corresponding oval perforations in the ramuli  
 (d) Colourless septate hyphae about one quarter the width of the cotton trichome and they become twisted together

**1.23 Reserpine is derived from**

(a) Squalene      (b) Homoserine  
 (c) Tryptophan and Tryptamine      (d) Asparagine

**1.24 Choose the correct trichomes of *Digitalis purpurea***

(a) Numerous covering trichomes and a few glandular trichomes  
 (b) Few covering trichomes  
 (c) Few glandular trichomes and few covering trichomes  
 (d) Few glandular trichomes

**1.25 Panavadiol is a constituent of**

(a) Ginger      (b) Jatamansi  
 (c) Ginseng      (d) Pepper

**1.26 The plant hormone which shows specific effect on the cell division is**

(a) Auxins      (b) Abscisic acid  
 (c) Cytokinins      (d) Ethylene

### Pharmaceutical Chemistry

**2.2 Morphine undergoes microsomal oxidation by**

(a) N dealkylation      (b) Aromatic hydroxylation  
 (c) Oxidative deamination      (d) O-dealkylation

**2.3 Sulfasalazine is a prodrug that is activated in the intestine by bacterial enzyme The enzyme responsible is**

(a) Azo reductase      (b) Cholinesterase  
 (c) Glucuronyl transferase      (d) Amylase

**2.4 In the glucuronidation reaction of Oxazepam the functional group responsible is**

(a) OH      (b) COOH      (c) SH      (d) NH<sub>2</sub>

**2.5 Benzhydryl bromide when treated with 2-dimethyl amino ethanol in presence of K<sub>2</sub>CO<sub>3</sub>, gives one of the following**

(a) 2-diphenyl ethoxy-N, N-di-methyl ethylamine  
 (b) 2-diphenyl methoxy-N, N-di-ethyl-ethylamine  
 (c) 2-diphenyl methoxy-N, N-di-methyl-ethylamine  
 (d) 2-diphenyl methoxy-N, N-di-ethyl-ethylamine

**2.6 Demeclocycline differs from Chertetracycline only by**

(a) Absence of methyl group on C<sub>6</sub>  
 (b) Absence of OH groups on C<sub>6</sub>  
 (c) Absence of dimethylamino group C<sub>4</sub>  
 (d) Absence of OH groups on C<sub>3</sub>

**2.7 Choose the IUPAC name for Carbamazepine**

(a) 5 [3-(dimethylamino) ethyl] 10-11 dihydro-5H dibenz [b,f] azepine  
 (b) 5H dibenz [b,f] azepine 5-carboxamide  
 (c) 5H dibenz[b,f] azepine-5-acid chloride  
 (d) 5 [3-(dimethylamino) propyl] 10 -11 dihydro- 5H dibenz [b,f] azepine

**2.8 Starting material for the synthesis of L-Thyroxine is**

(a) 2-amino-5-chloro-acetophenone  
 (b) Phenylalanine  
 (c) 5-amino-2-chloro acetophenone  
 (d) L-transine

**2.9 One of the following antianxiety agent is an azaspiro-decanedione derivative**

(a) Lorazepam      (b) Cycloheptadiene  
 (c) Mepruhamate      (d) Buspirone

**2.10 Include the following drug Nifedipine under proper classification**

(a) Quinoline derivative      (b) Aryl piperidine  
 (c) Isoquinoline derivative      (d) Pyridine derivative

**2.11 Acetazolamide can be synthesized from one of the following intermediates**

(a) 5-amino-2-mercaptop-1,3-thiazole  
 (b) 5-amino-2-mercaptop-1,3,4-thiadiazole  
 (c) 5-amino-2-mercaptop-1, 2, 1-thiadiazole  
 (d) 5-amino-2-mercaptop-1,3,4-tetrazole

### Pharmaceutical Analysis

**2.12 Official method for the analysis of Ciprofloxacin is by**

(a) Potentiometry      (b) HPLC  
 (c) Gas Chromatography      (d) Non aqueous Titration

**2.13 The radiofrequency radiation is associated with**

(a) Light consisting of one colour only  
 (b) Nuclear Magnetic Resonance  
 (c) Mass Spectrometry  
 (d) ESR

**2.14 The Pyroelectric detector converts electromagnetic radiation into**

(a) Electrical Signal      (b) Fluorescence  
 (c) Electrons      (d) Visible light

**2.15 The units of measurement for conductance is**

(a) Ohms      (b) Ampere      (c) Mhos      (d) Milli volts

**2.16** Two or more ions present together can be determined successfully by polarography even if their half wave potential overlap or interfere by

(a) Titration (b) Complexation  
(c) Filtration (d) Heating

**2.17** One of the following condition is maintained in programmed temperature gas chromatography

(a) Temperature of the whole column is raised during analysis  
(b) Temperature at the Sample injection system is raised  
(c) Temperature at the detector is gradually raised  
(d) Temperature at the recorder alone is raised

**2.18** A Bolometer consist of

(a) Two metals welded together  
(b) A thin blackened platinum strip in an evacuated vessel  
(c) Deuterated triglycine sulphate  
(d) Tungsten wire

**2.19** Characteristic bands observed in the IR spectra of alcohol result from

(a) OH and CO stretching (b) OH stretching  
(c) CO stretching only (d) CH bending only

### Other Subjects

**2.20** Varicella zoster is the causative organism for

(a) Small Pox (b) Dermatophytosis  
(c) Herpes (d) Infectious mononucleosis

**2.21** Browne's tubes are most commonly used chemical indicator for

(a) Ethylene oxide sterilization  
(b) Radiation sterilization  
(c) Heat process sterilization  
(d) Filtration sterilization

**2.22** A specimen obtained from a patient's cerebrospinal fluid, cultured in specialized media for about five weeks showed the presence of bent rod and tested positive with Ziehl Neelsen reagent. Identify the organism

(a) Nesseria meningitidis  
(b) Mycobacterium tuberculosis  
(c) Bacteroides fragilis  
(d) Leptospira interrogans

**2.23** Staphylococcus aureus is used for the I.P. assay of

(a) Doxycycline (b) Bleomycin  
(c) Kanamycin (d) Carbenicillin

**2.24** One of the following is confirmed by DNA diagnosis test

(a) Hyperuricemia (b) Cystic fibrosis  
(c) Acute pancreatitis (d) Hyperlipidemia

**2.25** The conversion of fructose 1,6-biphosphate to glyceraldehyde 3 phosphate is catalysed by

(a) Phosphoglycerate kinase  
(b) Enolase  
(c) Aldolase  
(d) Triose phosphate isomerase

### Answer Key

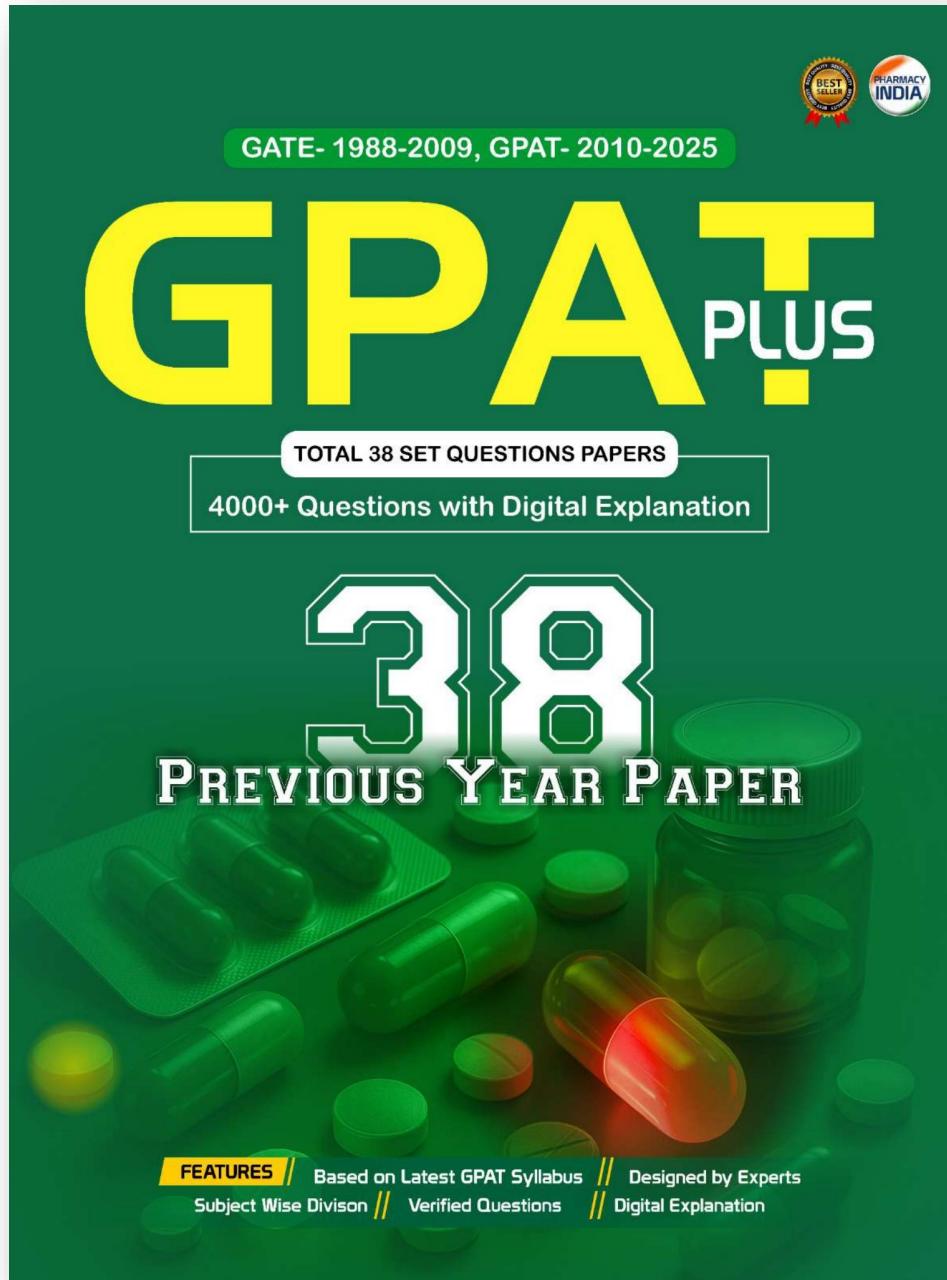
#### PART (Q.1)

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

#### PART (Q.2)

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

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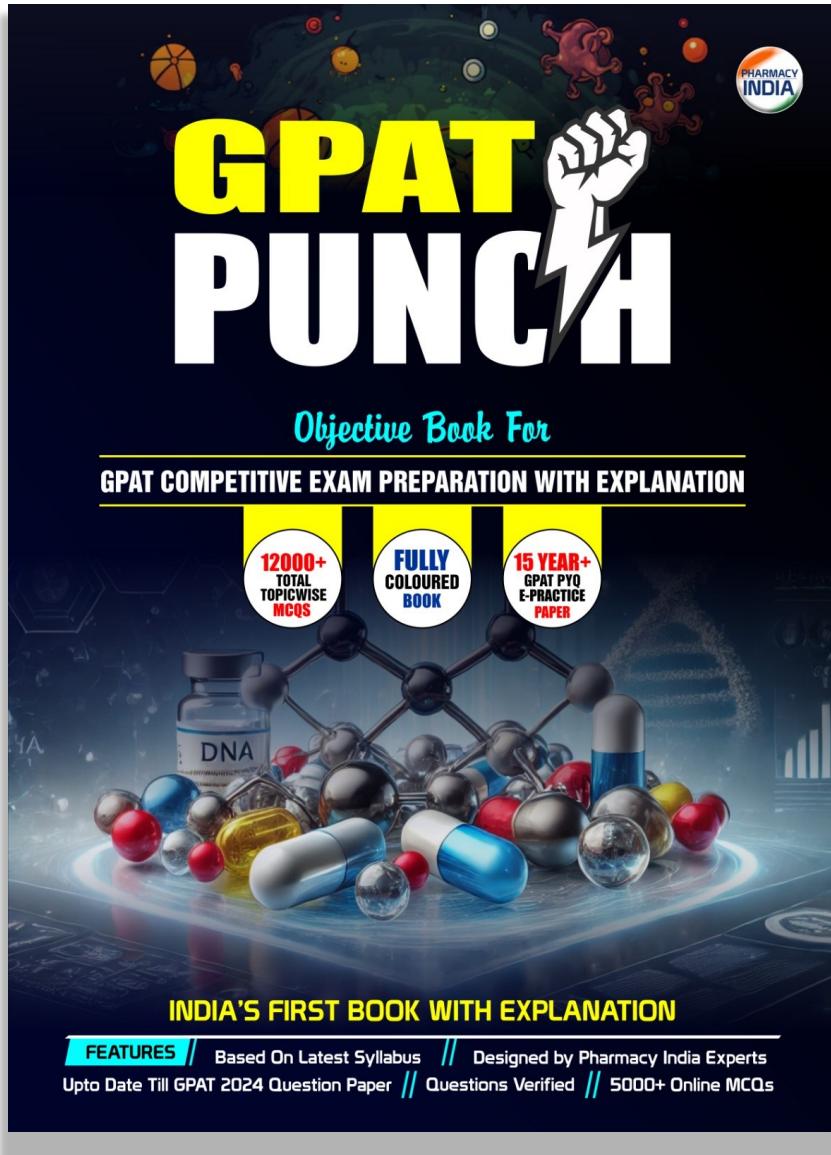
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