GATE-2000

Pharmaceutics

1. **Diclofenac tablet coated with cellulose acetate phthalate has been administered to a patient. Where do you expect the drug to be released**
   (a) Stomach (b) Oral cavity
   (c) Small intestine (d) Liver

2. **One of the substances is listed is used as muco adhesive. Identify**
   (a) Acacia (b) SCMC (c) Burnt sugar (d) Saccharin

3. **The dip tube in an aerosol container is made from one of the following. Choose the correct one**
   (a) Polypropylene (b) Glass
   (c) Stainless steel (d) Aluminium

4. **Choose the correct pH of the lachrymal fluid**
   (a) 8.0 (b) 6.2 (c) 7.4 (d) 9.0

5. **In the preparation of multilayer tablets one of the substances listed is used to hydrophilic matrix coating**
   (a) CMC (b) Shellac
   (c) Stearyl alcohol (d) Bees wax

6. **The diameter of the mesh aperture in the I.P disintegration test apparatus is given below. Choose the correct size**
   (a) 2.00 mm (b) 4.00 mm (c) 1.00 mm (d) 1.50 mm

7. **The following prescription is given to the pharmacist by the physician to dispense**
   R_x
   Calciferol solution 0.3 ml
   Water to Q.S 5.0 ml send 25 ml
   Final dosage form of this prescription will be
   (a) Solution (b) Elixir
   (c) Emulsion (d) Suspension

8. **An original license or renewed license to sell drugs remains valid upto**
   (a) 31st March next year in which it is granted
   (b) 30th June of the following year in which it is granted or renewed
   (c) 31st January of the same year in which it is granted
   (d) 31st December of the year following the year in which it is granted or renewed

9. **Taste sensation of some liquid oral formulation are given. Match the compatible flavor used in the formulation**
   1. Salt **[P] Wild cherry**
   2. Sour **[Q] Vanilla**
   [R] Citrus
   [S] Chocolate
   (a) 1-[Q], 2-[R] (b) 1-[R], 2-[S]
   (c) 1-[R], 2-[P] (d) 1-[P], 2-[S]

10. **Excipients used in parenteral products are given. Match them**
    1. Chelating agents **[P] Benzyl akohol**
    2. Local anesthetic **[Q] Phenol**
    [R] Gelatin
    [S] Disodium edetate
    (a) 1-[Q], 2-[S] (b) 1-[R], 2-[S]
    (c) 1-[R], 2-[P] (d) 1-[S], 2-[P]

11. **HLB values are given. Match them with correct surfactant**
    1. 0 – 3 **[P] Solubilizing agent**
    2. 4 – 6 **[Q] Detergent**
    [R] Antifoaming agent
    [S] W/O emulgents
    (a) 1-[Q], 2-[S] (b) 1-[R], 2-[S]
    (c) 1-[R], 2-[P] (d) 1-[P], 2-[S]

12. **Given below are the type of excipients. Match them with the examples**
    1. Disintegrant **[P] Tale**
    2. Glidant **[Q] PVP**
    [R] Lactose
    [S] Acacia
    (a) 1-[Q], 2-[S] (b) 1-[R], 2-[S]
    (c) 1-[R], 2-[P] (d) 1-[S], 2-[P]

13. **Listed below are the Schedules to the Drugs and Cosmetics Act. Match them**
    1. Schedule M **[P] Standard for disinfectant fluids**
    2. Schedule O **[Q] Standard for ophthalmic preparation**
    [R] Requirement of factory premises
    [S] Standard for cosmetics
    (a) 1-[Q], 2-[S] (b) 1-[R], 2-[S]
    (c) 1-[R], 2-[P] (d) 1-[P], 2-[S]

14. **Given below are the Schedules as per D and C Act 1940. Match them with information to be given in the label**
    1. Schedule H **[P] For external use only**
    2. Schedule G **[Q] For therapeutic use only**
    [R] Caution-It is dangerous to take this preparation except under medical supervision
    [S] To be sold by retail on the pre scription of a R.M.P. only
    (a) 1-[Q], 2-[S] (b) 1-[R], 2-[S]
    (c) 1-[S], 2-[R] (d) 1-[P], 2-[S]

Pharmacology

15. **Choose the correct class IV anti-arrhythmic that is primarily indicated for the treatment of supraventricular tachyarrhythmias**

(a) Mexiletine (b) Diltiazem following antiviral
(c) Nifedipine (d) Propranolol

16. One of the following antiviral agents exhibits the greatest selective toxicity for the invadimg virus
(a) Amantadine (b) Zidovudine
(c) Idoxuridine (d) Acyclovir

17. Choose the drug that often causes tachycardia when given in regular doses
(a) Verapamil (b) Guanethidine
(c) Propranolol (d) Isosorbide dinitrate

18. Choose one appropriate therapeutic use for Imipramine
(a) Insomnia (b) Epilepsy
(c) Bed wetting in children (d) Mania

19. Purpose of a combined drug regimen in tuberculosis is to
(a) Delay the emergence of drug resistance
(b) Reduce the duration of active therapy
(c) Schedule the onset of therapy
(d) Promote a placebo effect on the patient

20. The following receptor are associated with drug mentioned. Match them
1. H_1 receptor **[P] Ketanserin**
2. $5HT_3$ receptor **[Q] Cimetidine**
[R] Diphenhydramine
[S] Ondansetron
(a) 1-[Q], 2-[S] (b) 1-[R], 2-[S]
(c) 1-[R], 2-[P] (d) 1-[P], 2-[S]

21. Match the following drug with their receptor sub types
1. Methadone **[P] Agonist of μ & 8 receptor**
2. Enkephalins **[Q] Antagonist of μ, 8 & k receptor**
[R] Agonist of u receptor
[S] Agonist of u, 8 & receptor
(a) 1-[P], 2-[R] (b) 1-[R], 2-[S]
(c) 1-[R], 2-[P] (d) 1-[P], 2-[S]

22. Match the following drug with their mechanism of action
1. Mebendazole **[P] Unknown mechanism**
2. Ivermectin **[Q] Neuromuscular blockade by interaction with nicotinic receptor**
[R] Intensifies GABA mediated neurotransmission in nematode and cause immobilization of parasite
[S] Selectively inhibits microtubule synthesis in nematodes
(a) 1-[S], 2-[R] (b) 1-[R], 2-[S]
(c) 1-[R], 2-[P] (d) 1-[P], 2-[S]

23. Match the following drugs for their mechanism of action
1. Procainamide **[P] Blocks Ca^{++} channel**
2. Verapamil **[Q] Blocks K^+ channel**
[R] Blocks Na^+ channel
[S] Block ß adrenoceptors
(a) 1-[Q], 2-[S] (b) 1-[R], 2-[S]
(c) 1-[R], 2-[P] (d) 1-[P], 2-[S]

24. The metabolic reactions of drugs mentioned in P to S are given. Match them
1. Nitro reduction **[P] Oxprenolol**
2. Deamidation **[Q] Isoniazid**
[R] Chloramphenicol
[S] Lidocaine
(a) 1-[Q], 2-[S] (b) 1-[R], 2-[S]
(c) 1-[R], 2-[P] (d) 1-[P], 2-[S]

25. Drugs given below have the characteristics mentioned in PS. Match them
1. Ibuprofen **[P] An aryl acetic acid**
2. Acetaminophen **[Q] A salicylic acid derivative**
[R] An active metabolite of another drug
[S] Hydrolysed in the blood stream
(a) 1-[P], 2-[R] (b) 1-[R], 2-[S]
(c) 1-[R], 2-[P] (d) 1-[P], 2-[S]

26. Match the following terms with the definitions given
1. Biological half life **[P] Ratio of the median lethal dose to the median effective dose**
2. Therapeutic index **[Q] Dosage used in the treatment**
[R] Elimination of the drug to 50% of its original concentration
[S] Time taken for a drug to be absorbed
(a) 1-[Q], 2-[S] (b) 1-[R], 2-[S]
(c) 1-[R], 2-[P] (d) 1-[P], 2-[S]

27. Given below are two vaccines. Their compositions are mentioned Match them
1. B.C.G **[P] Living attenuated Mycobacterium tuberculosis**
2. Whooping cough **[Q] Experimentally killed and freeze dried polio virus**
[R] Antibodies obtained from the sera of tuberculosis patients
[S] Killed Bordetella pertussis bacteria
(a) 1-[Q], 2-[S] (b) 1-[R], 2-[S]
(c) 1-[R], 2-[P] (d) 1-[P], 2-[S]

Pharmacognosy

28. The oil obtained from Cymbopogon flexuous contains one of the following
(a) Citral
(b) a-terpeniol
(c) a-pinene
(d) Neral

29. In different samples of adulterated Atropa belladonna leaves, following unique characters are noted. Match with adulterants

1. Idioblast observed	[P] Solanum nigrum
2. Lamina is denser, Needle shaped Crystals, Anomocytic stomata, Palisade ratio 2-4	[Q] Phytolacca americana
	[R] Ailanthus glandulosa
	[S] Datura stramonium

(a) 1-[Q], 2-[P] (b) 1-[R], 2-[S]
(c) 1-[R], 2-[P] (d) 1-[P], 2-[S]

30. Match the Digitalis aglycone with appropriate hydroxy cardenolides

1. Gitoxigenin	[P] 3β, 12β, 14β trihydroxy cardenolide
2. Digoxigenin	[Q] 3β, 14β dihydroxy cardenolide
	[R] 3β, 14β, 16β trihydroxy cardenolide
	[S] 3β, 12β, 6β trihydroxy cardenolide

(a) 1-[Q], 2-[S] (b) 1-[R], 2-[S]
(c) 1-[R], 2-[P] (d) 1-[P], 2-[S]

36. The systematic names of the following drugs are given. Match them

1.Tinidazole	[P] 2 -[4- (3-2-trifluoro-methyl pheno selenazine-10-yl) propyl piperazine-1-yl] ethanol
2. Fluphenazine decanoate	[Q] 1 [2-(ethyl sulphonyl) ethyl]-2-methyl-5-nitro imidazole
	[R] 1 -[2- ethyl sulphonyl)-propyl)-2-methyl-5-nitro imidazole
	[S] 2-[4-3-(2-trifluoro-methyl phenothiazin-10-yl) propyl piperazin-1-yl] decanoate

(a) 1-[Q], 2-[S] (b) 1-[R], 2-[S]
(c) 1-[R], 2-[P] (d) 1-[P], 2-[S]

37. Match the heterocyclic system with the drug

1. Aziridine	[P] Thiotepa
2. Pteridine	[Q] Azathioprine
	[R] Atropine
	[S] Methotrexate

(a) 1-[Q], 2-[S] (b) 1-[R], 2-[S]
(c) 1-[R], 2-[P] (d) 1-[P], 2-[S]

Pharmaceutical Chemistry

31. B-phenyl-N-alkyl piperidine moiety is largely responsible for activity in following Choose the correct one

(a) Buprenorphine (b) Pethidine
(c) Cycloserine (d) Amitriptyline

32. Which one of the following is a Histamine H1 receptor antagonist

(a) 4-(S-H) di benzo [a,d] cycloheten-5-ylidene)-1-methyl pyridine hydrochloride
(b) 4-(S-H) di benzo [a,d] cycloheten-5-ylidene)-1-methyl pyrimidine hydrochloride
(c) 4-(5-H di benzo [a,d] cycloheten-5-ylidene)-1-methyl piperidine hydrochloride
(d) 4-(5-H di benzo [a,d] cyclopenten-5-ylidene)-1-methyl piperazine hydrochloride

33. Which one of the following is a Histamine H1 receptor antagonist

(a) 4-Hydroxy propiophenone
(b) 4-amino acetophenone
(c) 4-Chloro butyrophenone
(d) 4-Bromo propiophenone

34. One of the following diuretics has a similar structure as that of antihypertensive age diazoxide

(a) Acetazolamide (b) Chlorothiazide
(c) Spironolactone (d) Furosemide

35. Which one of the following is an antifungal polyene macrolide antibiotics with seven conjugated double bond, an internal ester, a free carboxyl group and a glycoside side chain with primary amino group

(a) Streptomycin (b) Echinocandins
(c) Rifamycin (d) Amphotericin-B

Pharmaceutical Analysis

38. Chunse the correct source of radiation for N.M. from the listed ones

(a) Klystron oscillator (b) Globar source
(c) Radio frequency oscillater (d) Deuterium lamp

39. Choose the correct semi-rigid gel used for exclusion chromatography

(a) Sephadex (b) Gelatin
(c) Cellulose (d) Alumina

40. One the following is measured in amperometric titration

(a) Resistance (b) Conductance
(c) Voltage (d) Current

41. Techniques mentioned n [P] to [S] used for the analysis of the following drugs

1. Sulphamethoxazole	[P] Conductometry LP
2. Piroxicam LP	[Q] HPLC
	[R] Non-aqueous titration
	[S] Dead stop end point

(a) 1-[S], 2-[Q] (b) 1-[R], 2-[S]
(c) 1-[R], 2-[P] (d) 1-[P], 2-[S]

42. Match the correct formula for given terms

1. Molar absorption coefficient	[P] cl/A
2. Frequency	[Q] A/cl
	[R] 1 / λ
	[S] c/ λ

(a) 1-[Q], 2-[S]
(b) 1-[R], 2-[S]
(c) 1-[R], 2-[P]
(d) 1-[P], 2-[S]

43. March the values given with that of 1 and 2

1. Potential of standard hydrogen electrode	**[P] Zero**
2. Base peak in mass spectra	**[Q] 100**
	[R] 1
	[S] 10

(a) 1-[Q], 2-[S] (b) 1-[P], 2-[Q]
(c) 1-[R], 2-[P] (d) 1-[P], 2-[S]

Other Subjects

44. Choose the correct key intermediate for the biosynthesis of C6 –C3 units, which serves as a precursor for the biosynthesis of amino acid

(a) Shikimic acid (b) Pyruvic acid
(c) Dehydroquinic acid (d) Mevalonic acid

45. Match the following Vitamins with their biochemical roles

1. Riboflavin	**[P] Free radical scavenger**
2. Pyridoxal	**[Q] As a coenzyme in redox reactions**
	[R] Essential in the synthesis of rhodopsin
	[S] As a coenzyme for amino acid decarboxylases

(a) 1-[Q], 2-[S] (b) 1-[R], 2-[S]
(c) 1-[R], 2-[P] (d) 1-[P], 2-[S]

46. Match the diseases with their clinical tests

1. Diabetes mellitus	**[P] Decrease in haemoglobin levels**
2. Cystic fibrosis	**[Q] Increase in blood sugar levels**
	[R] DNA diagnosis
	[S] Decreased levels of TSH

(a) 1-[Q], 2-[S] (b) 1-[Q], 2-[R]
(c) 1-[R], 2-[P] (d) 1-[P], 2-[S]

47. Match the correct pathways of the following

1. Glyceraldehyde-3-Phosphate	**[P] Cholesterol synthesis pathway**
2. Arachidonic acid	**[Q] Citric acid cycle**
	[R] Glycolysis
	[S] Prostaglandin synthesis pathway

(a) 1-[Q], 2-[S] (b) 1-[R], 2-[S]
(c) 1-[R], 2-[P] (d) 1-[P], 2-[S]

48. The R - W coefficient test is used to evaluate

(a) Antibiotic activity
(b) Sterility of packaging material
(c) Nature of organism in bacterial infection
(d) Bactericidal activity

49. Match the following diseases with their causative organisms

1. Helminthiasis	**[P] Plasmodium falciparum**
2. Jaundice	**[Q] Taenia solium**
	[R] Hepatitis-A-Virus
	[S] Toxoplasma gondii

(a) 1-[Q], 2-[R] (b) 1-[R], 2-[S]
(c) 1-[R], 2-[P] (d) 1-[P] 2-[S]

50. A microscopic examination of a culture isolate revealed spherical bodies with a smooth outline growing in long chains. Identify the micro organism

(a) Staphylococcus aureus
(b) Streptococcus pyogenes
(c) Rhizopus stolonifer
(d) Bacillus subtilis

Answer Key

PART (SECTION - I)

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

PART (SECTION - II)

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

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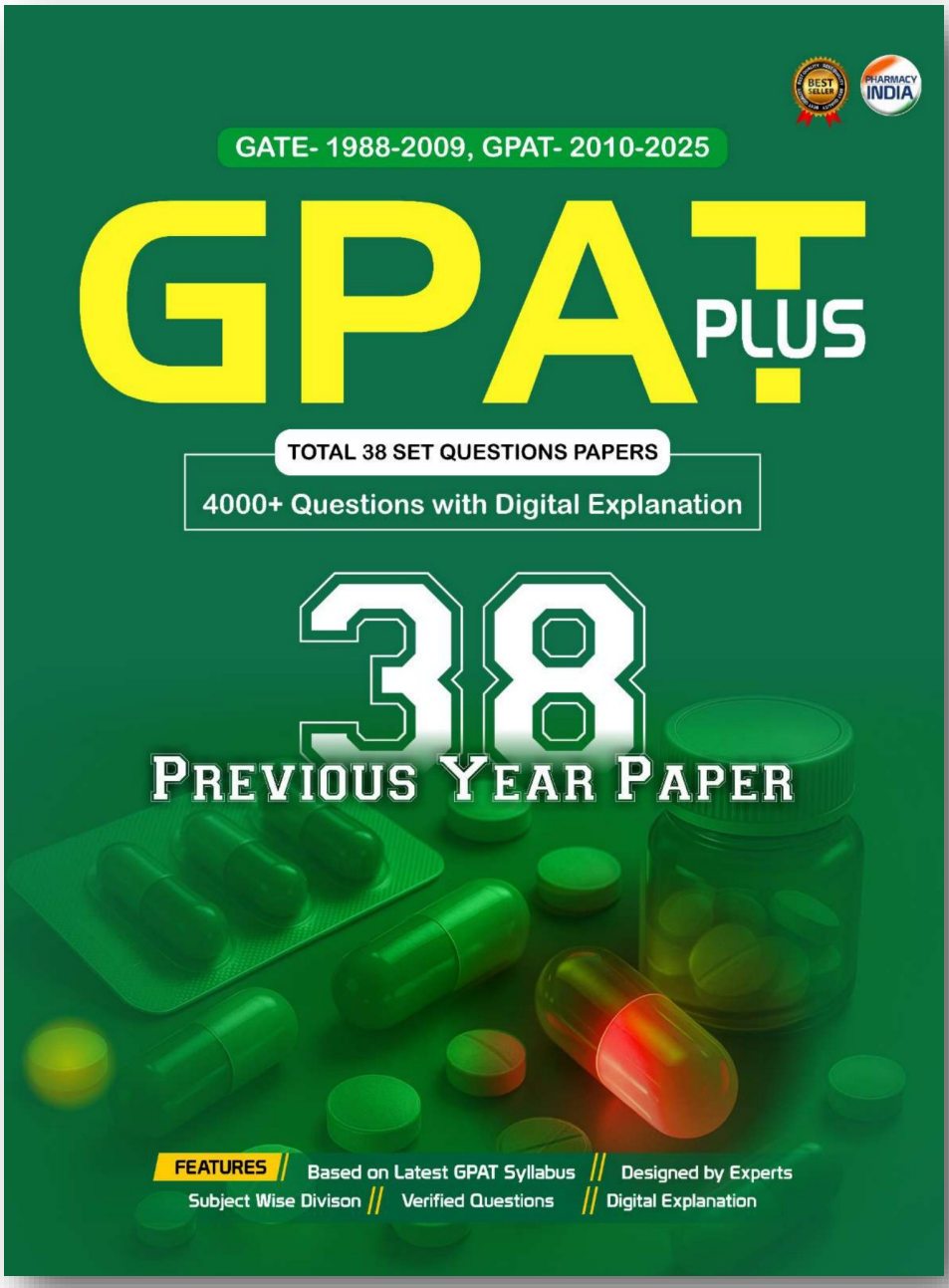

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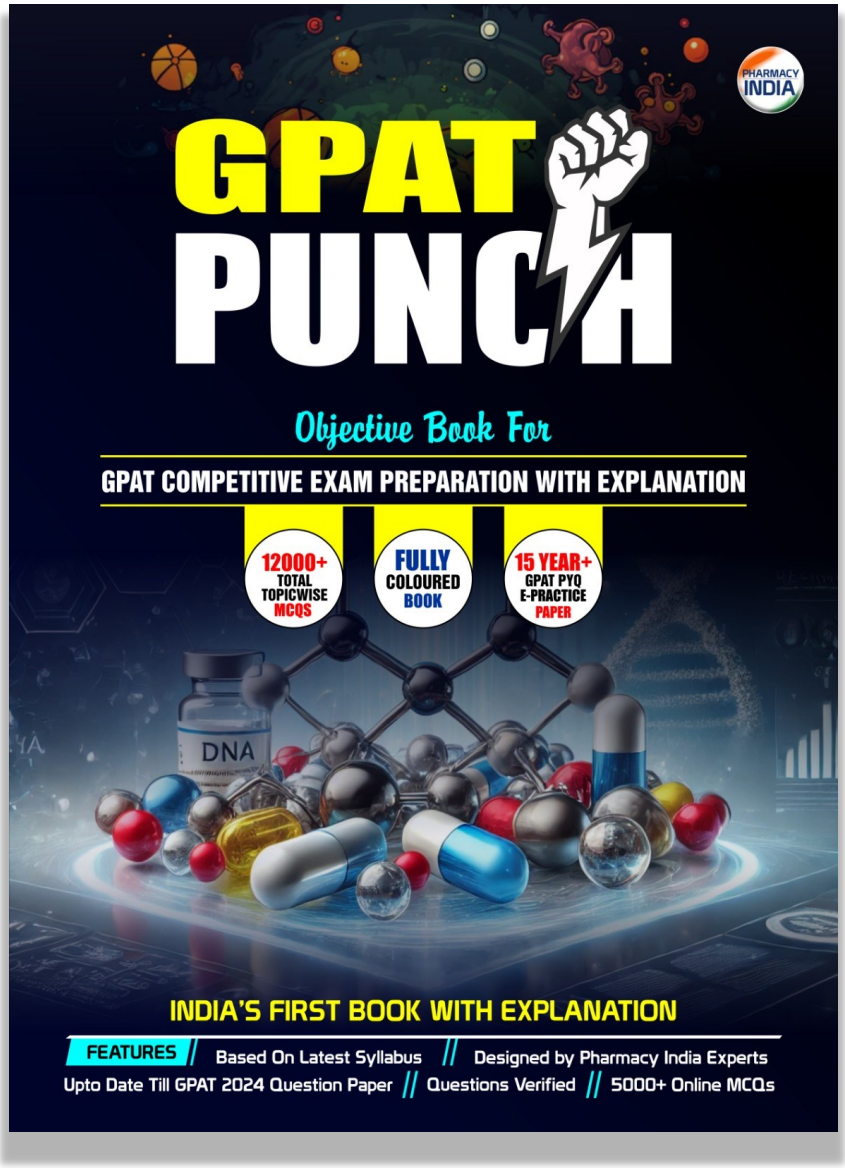

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