

GPAT-2019

Pharmaceutics

1. Which of the following is NOT a mechanism for achieving gastroretention
(a) Osmosis (b) Floating
(c) Mucoadhesion (d) Swelling
2. Which of the following oxide is not used for achieving Amber color to glass
(a) Manganese (b) Iron (c) Cobalt (d) Carbon
3. Theories of emulsification are characterized by one of the following EXCEPT
(a) Film formation
(b) Phase inversion
(c) Monomolecular adsorption
(d) Solid particle adsorption
4. Movement of charged particle through a liquid under the influence of an applied potential difference is known as
(a) Sedimentation Potential (b) Streaming Potential
(c) Electrophoresis (d) Electroosmosis
5. As per US FDA, NDA's for new chemical entities are classified as either
(a) 'P' for product review or 'S' for standard review
(b) 'P' for priority review or 'S' for standard review
(c) 'P' for product review or 'S' for safety review
(d) 'P' for priority review or 'S' for safety review
6. In tablet, hydroxy propyl methyl cellulose is used as
(a) Diluent (b) Film former
(c) Disintegrant (d) Binder
7. Which one of the following is the property of micro-emulsion
(a) They have particle size more than 1 micron
(b) They have poor stability
(c) They exhibit a viscoelastic gel phase, when internal phase is added in excess
(d) They have milky yellow colour
8. 21 CFR part 211 of USFDA describes
(a) Current good clinical practice
(b) Current good packaging practice
(c) Current good manufacturing practice
(d) Current good laboratory practice
9. "Shake well" label must be placed on the containers of
(a) Ophthalmic suspension (b) Ocuserts
(c) Ophthalmic solution (d) Ophthalmic gels
10. In case of Aerosol testing valve delivering acceptance criteria for a volume of 54 ml or
(a) $\pm 75\%$ (b) $\pm 5\%$
(c) $\pm 10\%$ (d) $\pm 15\%$

11. Containers may be rendered free from pyrogens by adequate cleaning and by
(a) Autoclaving at 121 °C for 15 minutes
(b) Heating at 210°C for 3-4 hours
(c) Autoclaving at 121 °C for 1 hour
(d) Heating at 100°C for 3-4 hours
12. GMP regulation are pertaining to minimum requirements to be met by industry when
(a) Manufacturing, packaging and holding of human drugs and veterinary drugs
(b) Manufacture of human drugs and veterinary drugs
(c) Manufacture and packaging of human drugs and veterinary drugs
(d) Manufacture and holding of human drugs and veterinary drugs
13. Which one of the following viscometers can be used for characterizing non-Newtonian system
(a) Falling sphere viscometer
(b) Cup and Bob viscometer
(c) Capillary viscometer
(d) Hoppler viscometer
14. For drug substances with highly variable pharmacokinetic characteristics the following Bioequivalence study design is used
(a) Parallel Design (b) Non-Replicate Design
(c) Non-Parallel Design (d) Replicate Design
15. Roll-tube technique is the modification of
(a) Pour plate technique
(b) The streak-plate technique
(c) Micromanipulator technique
(d) Spread plate technique
16. The following is/are used to determine the amount of drug bound to a protein
(a) Equilibrium dialysis (b) Solubility
(c) pH titration (d) Distribution method
17. Kinetically $\frac{X}{(a(a-x))} kt$ is the expression for
(a) First order reaction
(b) Second order reaction
(c) Pseudo first order reaction
(d) Fractional order reaction
18. Identify the molecule which will not exhibit Dipole moment
(a) Carbon dioxide (b) Carbon monoxide
(c) Chloroform (d) Ammonia
19. Phase solubility analysis curve is not a good tool for
(a) Complex formation
(b) Bioavailability determination
(c) Polymorph detection
(d) Impurity detection

20. Hardinge mill is a variant of
 (a) Fluid energy mill (b) Ball mill
 (c) Hammer mill (d) Rotary cutter mill

21. As per the Medical Termination of Pregnancy Act and rules, the safe custody of "Forms" is with
 (a) Standing committee
 (b) Registered Medical Practitioner
 (c) Owner of the approved place
 (d) Chief Medical Officer

22. Choose the CORRECT statement with respect to "The Pharmacy Act, 1948
 (a) Education regulation 1991 dose not prescribe the minimum qualification for the registration as Pharmacist
 (b) Section 12 of the act deals with the approval of course of study under chapter 2 thereof
 (c) Section 12 of the act deal with the approval of course of study and examination under chapter 2 thereof
 (d) State Govt is authorized to make any rules with respect to course of study

23. The relation between emissive power of the surface and its absorptivity is given Law by
 (a) Stefan-Boltzmann (b) Darcy's Law
 (c) Fourier's Law (d) Kirchhoff's Law

24. In India the patent office has its head office at Kolkata and branch offices at
 (a) Dibrugarh, Indore and Vapi
 (b) Kashmir, Ahmedabad and Trivandrum
 (c) Chandigarh, Hyderabad and Goa
 (d) Mumbai, Chennai and New Delhi

25. Penalty for the cultivation of any cannabis plant to produce, sale purchase transport in contravention of Narcotic Drugs and Psychotropic substances Act and Rules on first conviction is
 (a) Rigorous imprisonment up to 10 years or fine up to Rs. 10 Lakhs
 (b) Rigorous imprisonment up to 10 years or fine up to Rs. 1 Lakh
 (c) Rigorous imprisonment up to 6 months
 (d) Fine up to Rs. 10 Lakh

26. In Direct Contact or jet condensers, barometric leg serves one of the following functions
 (a) To remove the condensate/cooling water mixture
 (b) To measure the pressure difference across the tube
 (c) To Heat the liquid feed to its boiling point
 (d) To transfer the feed in to the evaporating chamber

27. Which mechanism of metabolism of drug is not affected by weight change of patient
 (a) Conjugative metabolism (b) Acetylation metabolism
 (c) Hydrolytic metabolism (d) Oxidative metabolism

28. When 50 ml of sodium hydroxide (0.1 M) is added to 100 mL of 0.1 M acetic the resultant solution is Ka of acetic acid = 1.82×10^{-5} acid, pH of
 (a) 8.58 (b) 7.42 (c) 4.74 (d) 7.06

29. Microcrystalline cellulose is also called as
 (a) Sugar tab (b) Nutab
 (c) Emdex (d) Avicel

30. When two brands of a drug product gives same clinical results, it is termed as
 (a) Therapeutic equivalence (b) Bio equivalence
 (c) Pharmaceutical equivalence (d) Clinical equivalence

31. Dakin's solution is a synonym for
 (a) Ammonium Acetate solution
 (b) Chlorinated soda solution
 (c) Chloroxykenol solution
 (d) Aluminium Acetate solution

32. If mean volume- number diameter of a powdered sample is 2.41 pm, density is 3 gm/cm³, the number of particles/gm will be
 (a) 1538×10^{10} (b) 3.68×10^{10}
 (c) 14.55×10^{10} (d) 4.70×10^{10}

33. In case of suppositories base, SFI stands for
 (a) Solidified Fatty acid Indices (b) Solid Fluid Indices
 (c) Solidified Fatty acid Incline (d) Solid Fat Index

34. In case of open model intravenous infusion, Css (steady state plasma concentration) is equal to
 (a) $([\text{plasma concentration}] / [\text{infusion rate}]) / (\text{clearance})$
 (b) $([C_{\text{max}}] / [\text{infusion rate}]) / (\text{clearance})$
 (c) $([t_{\text{max}}] / [\text{infusion rate}]) / (\text{clearance})$
 (d) (Infusion rate) / (clearance)

35. For bitter drugs in pediatric formulations, excellent flavouring agent will be
 (a) Raspberry syrup (c) Lemon syrup
 (b) Orange syrup (d) Black current syrup

36. The Co-administration of Erythromycin with Cyclosporine
 (a) Increase bioavailability, due to inhibition of hepatic metabolism
 (b) Increase bioavailability, due to inhibition of microflora in intestine
 (c) Decrease bioavailability due to complex formation
 (d) Decrease bioavailability, due to induction of hepatic metabolism

37. Which of the following statement is NOT true regarding bulkiness
 (a) The reciprocal of bulk density is bulkiness
 (b) Bulkiest substance will require container larger than required for less bulky substance
 (c) Smaller particles shift between larger ones and increases bulkiness
 (d) Bulkiness increases with decrease in particle size

38. Amixture of emulsifier A and emulsifier B with values of 4 and 14 respectively are to be mixed in a proportion to get mixture with required HLB 12. What is the weight of individual emulsifier that is to be taken to have a total weight of 7 gm
 (a) A = 5.8gm and B = 1.2gm
 (b) A = 1.4 gm and B = 5.6 gm
 (c) A=5.6 gm and B = 1.4 gm
 (d) A = 1.2 gm and B = 5.8gm

39. The phase contrast microscopy is valuable in studying living cells which are
 (a) Stained
 (b) Unstained

(c) Treated with fluorescent dye
(d) Treated with fluorescent antibody

40. **Volume of blood that flows per unit time per unit volume of the tissue is**
(a) Residence time (b) Elimination rate
(c) Gastric emptying rate (d) Perfusion rate

41. **Which polymorphic form of a drug candidate has highest melting point**
(a) Unstable (b) Metastable (c) Hydrates (d) Stable

42. **In preformulation study polymorphs can be detected by**
(a) Counter current chromatography
(b) Retractometry
(c) High performance liquid chromatography
(d) Differential scanning

Pharmacology

43. **What are sutures**
(a) Cartilaginous joints (b) Non fibrous joints
(c) Synovial joints (d) Fibrous joints of the skull

44. **Which of the following cells are called scavenger cells**
(a) Neutrophils (b) Natural killer cells
(c) Macrophages (d) Mast cells

45. **Which is NOT true about Calcitriol**
(a) It is active form of Vit D3
(b) It enhances reabsorption of calcium and phosphate from bone
(c) It prevents tubular reabsorption of calcium and phosphate
(d) Enhances absorption of calcium and phosphate from intestine

46. **Production of an abnormal IgG immunoglobulin in Grave's disease causes**
(a) Multinodular goitre (b) Hypothyroidism
(c) Thyrotoxicosis (d) Rheumatoid arthritis

47. **Glucocorticoids have following effects EXCEPT**
(a) Stimulation of immune responses
(b) Resistance to stress
(c) Lipolysis
(d) Protein breakdown and glucose formation

48. **Which one of the following is NOT the role of Nitric oxide**
(a) Reliving vascular smooth muscle
(b) Mediating microbicidal action of macrophages
(c) Serving as neurotransmitter in CNS
(d) Inducing platelet aggregation

49. **Match the following liver abnormalities with consequences**

1. Steatosis	[P] Raised Bilirubin level
2. Cholestasis	[Q] Slight rise in serum transaminase level
3. Hepatitis	[R] Accumulation of fat droplets within liver cells
4. Fibrosis	[S] Elevated liver function test (LFT's)

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

50. **Numerous isomers of human liver P450 enzyme have been identified, it is not worthy that lone is responsible for the metabolism of over 50% of the prescription drugs metabolized by liver**
(a) CYP3A4 (b) CYPIAZ
(c) CYP1A11 (d) CYP2B6

51. **Which of the following directly inhibits Factor Xa**
(a) Dabigatran (b) Warfarin
(c) Bivalirudin (d) Rivaroxaban

52. **The term 'Aneurysm' refers to**
(a) Permanent blockage of blood vessels
(b) Permanent abnormal dilatation of blood vessel
(c) Abnormal connections in blood vessels
(d) Abnormal growth of neurones near blood vessels

53. **The antiemetic activity of glycopyrronium is related receptor both peripherally and centrally to potent inhibition of**
(a) 5HT³ (b) D² (c) M¹ (d) H¹

54. **Identify the false statement about Benzodiazepines from the following**
(a) Benzodiazepines cause reduction of anxiety
(b) Benzodiazepines cause convulsions
(c) Benzodiazepines produce muscle relaxation and loss of motor co-ordination
(d) Benzodiazepines are useful in Insomnia

55. **Which of the following is 5-alpha reductase inhibitor**
(a) Gliclazide (b) Sildenafil
(c) Finasteride (d) Polythiazide

56. **Several different chemicals released by microbes and inflamed tissues attract phagocytes, this phenomenon is called as**
(a) Phagocytosis (b) Integrins
(c) Chemotaxis (d) Emigration

57. **Hematocrit 65% to 70% indicates**
(a) Hemophilia (b) Polycythemia
(c) Hypoxia (d) Anaemia

58. **The adverse reaction associated with β -2 agonists administered by inhalation or nebulisation in the management of asthma does not include**
(a) Peripheral vasodilation (b) Hypertension
(c) Tachycardia (d) Fine tremor

59. **Select the ulcer protective drug from the following**
(a) Oxyphenoníum (b) Metronidazole
(c) Misoprostol (d) Sucralfate

60. **Testing of chemicals by OECD guideline No. 420 refers to which of the following**
(a) Acute oral toxicity by acute toxic class method
(b) Acute oral toxicity by up and Down procedure
(c) Repeated dose 28-day toxicity study in rodents
(d) Acute oral toxicity by fixed dose procedure

61. **Which of the following is true Excessive use of diuretics can lead to**
(a) Hypervolemic shock (b) Neurogenic shock
(c) Hypovolemic shock (d) Cardiogenic shock

Pharmacognosy

75. The principal cultivation areas of pyrethrum flowers are in
(a) Sri Lanka (b) Malaysia (c) India (d) Kenya

76. In *Cassia angustifolia* short term drought
(a) Increases the concentration of sennosides A and B
(b) Decreases the concentration of sennosides A and B
(c) Causes loss of leaf biomass
(d) Causes death of the plant

77. The Glycoside Scilliroside in red squill acts as
(a) Insecticide (b) Rodenticide
(c) Acaricide (d) Molluscide

78. Pungency of *Zingiber officinale* rhizome is due to the presence of
(a) Citral (b) Gingerol
(c) Commiphoric acid (d) Gingeral

79. Regholarrhenines A-F have been isolated from
(a) Veratrum (b) Areca (c) Aconite (d) Kurchi

80. The size of *Lycopodium* spores is
(a) 45 μm (b) 15 μm (c) 35 μm (d) 25 μm

81. Shellac is a resinous substance prepared from a secretion that encrusts the bodies of a scale insect
(a) Viverra civet (b) Karria lacca
(c) Acipenser huso (d) Alverites moschiferus

82. All members of this order are trees or shrubs; mostly evergreen with needle-like leaves, monoecious or dioecious-sporophylls usually in cones. Resin ducts occur in all parts
(a) Cycadales (b) Ginkgoaks
(c) Taxales (d) Coniferae

83. In Gambir-fluorescin test the petroleum spirit layer shows a strong
(a) Green fluorescence (b) Blue fluorescence
(c) Yellow fluorescence (d) Red fluorescence

Pharmaceutical Chemistry

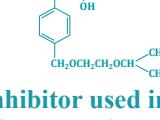
(a) Curtius Rearrangement (b) Clemmensen reduction
(c) Wolf-Kishner reduction (d) Wolf-Rearrangement

94. What will be the Heat of vaporisation of 1 mole of water, when it has the entropy change (ΔS) of 35.2 cal/mole.deg (at 25°C)

(a) 1.408 cal/mole (c) 8465 cal/mole
(b) 10489 cal/mole (d) 880 cal/mole

95. Identify the name of drug with the following structure

(a) Esmolol (b) Betaxolol (c) Metoprolol (d) Bisaprolol



CC(C)(C)NCC(O)Cc1ccccc1

96. The following ACE inhibitor used in treating cardiovascular disorder is synthesized from the natural amino acids L-alanine and L-proline

(a) Ramipril (b) Enalapril (c) Lisinopril (d) Captopril

97. One of the following is a most commonly used protecting group for amines

(a) Para Methyl benzyl (PMB) (b) t-Butyloxycarbonyl (t-BOC)
(c) Methoxy methylene (MOM) (d) Tetra hydro pyranyl oxy (THP)

98. Anti-addition of bromine to trans-2-butene yields

(a) Enantiomer and racemic mixture (b) Only racemic mixture
(c) Only enantiomers (d) Only meso compounds

99. Conversion of aryl diazonium chloride to aryl chloride can be achieved in the presence of

(a) Copper (II) chloride (b) Copper (I) chloride
(c) Sodium chloride (d) Calcium chloride

100. The chief product obtained by the reaction of neo-pentyl bromide under E₁ reaction conditions

(a) Neopentyl alcohol (b) 2-methyl-2-butane
(c) 2-methyl-1, 3-butadiene (d) 2-methyl butane

101. This semi synthetic derivative of penicillin is synthesized by acylation of 6-APA with p-hydroxy phenyl glycine

(a) Becampicillin (b) Amoxicillin
(c) Ampicillin (d) Carbenicillin

102. Choose the correct product of the following reaction

$$\text{HNO}_3 + 2\text{H}_2\text{SO}_4 \rightleftharpoons ?$$

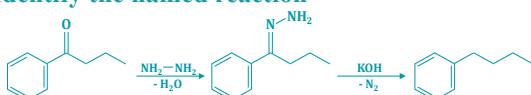
(a) $\text{H}_3\text{O}^\circ + 2\text{HSO}_4^\circ + \text{NO}_2^\circ$ (b) $\text{H}_2\text{O} + 2\text{HSO}_4^\circ + \text{NO}_2^\circ$
(c) $\text{H}_3\text{O}^\circ + 2\text{HSO}_4^\circ + \text{NO}_2^\circ$ (d) $\text{OH} + 2\text{HSO}_4^\circ + \text{NO}_2^\circ$

103. Oxazole is prepared by the condensation of B-amino carbonyl compound with

(a) Amino acid (b) Isocyanide
(c) Amino ether (d) Iminoester

104. Select the correct order of ortho/para directing ability of the functional groups from those given below:
(Strongest first, Weakest last)

(a) $-\text{NHCOR} > -\text{OH} > -\text{C}_6\text{H}_5 > 1$
(b) $-\text{NHCOR} > -\text{NH}_2 > -\text{C}_6\text{H}_5 > \text{I}$



(c) $-\text{NHCOR} > -\text{NR}_2 > -\text{C}_6\text{H}_5\text{I}$
 (d) $-\text{NHR} > -\text{NHCOR} > -\text{C}_6\text{H}_5\text{I}$

105. The basic ring system present in the antihypertensive and antiglaucoma drug Timolol is

(a) 1,3,5-Thiadiazole and Morpholine
 (b) 1, 3-Thiazole and Morpholine
 (c) 1,2,5-Thiadiazole and Morpholine
 (d) 1,2,4-Thiadiazole and Morpholine

106. Dehydration of this dicarboxylic acid to obtain corresponding anhydride is difficult due to stereo chemical arrangement

(a) Malic acid (b) Fumaric acid
 (c) Glutaric acid (d) Succinic acid

Pharmaceutical Analysis

107. PM indicators are used in

(a) Redox titrations (b) Non-Aqueous titrations
 (c) Complexometric titrations (d) Acid-base titrations

108. Choose the correct sequence of process during Atomization in atomic spectroscopy

(a) Desolvation Nebulization \rightarrow Dissociation \rightarrow Vohtilization \rightarrow Ionization
 (b) Nebulization \rightarrow Desolvation \rightarrow Vohtilization \rightarrow Dissociation
 (c) Desolvation \rightarrow Nebulization Volatilization \rightarrow Dissociation \rightarrow Ionization
 (d) Nebulization \rightarrow Volatilization \rightarrow Desolvation \rightarrow Dissociation Ionization

109. Which among the following carrier gases has the highest thermal conductivity

(a) Nitrogen (b) Oxygen
 (c) Helium (d) Compressed Air

110. The infra-red absorption peaks of Nujol is due to vibrations involving

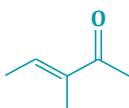
(a) S-H_{str} and S-H_{def} (b) S-H_{str} and O-H_{def}
 (c) C-H_{str} and C-H_{def} (d) N-H_{str} and N-H_{def}

111. Permitted tolerance limit for a 100 ml class B volumetric flask and 1000 ml class B volumetric flask according to BS 1792 specifications respectively are

(a) 0.15 and 0.80 (b) 0.80 and 0.30
 (c) 1.00 and 10.00 (d) 0.15 and 1.5

112. Predict λ_{max} for $\pi-\pi^*$ absorption band in the UV spectrum of following compound

(a) 237 nm
 (b) 215 nm
 (c) 241 nm
 (d) 240 nm



Other Subjects

113. The rheological and functional properties of synovial fluid are impaired due to

(a) Increase in the content of mucus
 (b) Decrease in the content of mucus

(c) Increase in the content of hyaluronic acid
 (d) Decrease in the content of hyaluronic acid

114. MEDLINE, EMBASE, EBM AND IDIS are

(a) Drug databases
 (b) New compendial specification of drugs
 (c) Chronicles of drug standards
 (d) Source for drug patents

115. Essentially Hospital Formulary system provide mechanism to

(a) Streamline prescription writing
 (b) Improve quality and hygenicity of food
 (c) Avoid brand and therapeutic duplication
 (d) Improve surgical procedures

116. Disturbances of Oestrogen/Progesterone balance could cause a relative deficiency of _____ leading to disturbances in production of Dopamine and Serotonin. This contributes for emotional disturbances and depression

(a) Enzyme decarboxylase (b) Tyrosine
 (c) Pyridoxine phosphate (d) Co-factor A

117. Amylopectin, a component of starch gives colour with iodine

(a) No colour (b) Green
 (c) Blue (d) Red-purple

118. Von Gierke's glycogen storage disease is due to defect of which enzyme

(a) Phosphofructokinase (b) Glucosyl 4-6 transferase
 (c) Glycogen phosphorylase (d) Glucose-6-phosphatase

119. RNA molecules having intrinsic catalytic activity are called as

(a) mRNAs (b) Ribozymes
 (c) sn RNAs (d) rRNAs

120. For protein detection most commonly used probe is

(a) Interferon Consumer who (b) Antibody
 (c) Lectin (d) Antigen

121. Are loyal to two-three brands are considered as

(a) Split loyals (b) Switcher loyals
 (c) Shifting loyals (d) Semi-core loyals

122. ELISA is based upon

(a) Antigen Protein Interaction
 (b) Antigen Antibody Interaction
 (c) Lectin - Antibody Interaction
 (d) Antibody protein Interaction

123. Blockade in B-oxidation results in

(a) Von Gierk's disease (b) Scurvy
 (c) Sudden infant death syndrome (d) Taruli's disease

124. In treating immunodeficiency disease the goal is to maintain IgG levels at about

(a) 100 mg/dL (b) 400 mg/dL
 (c) 200 mg/dL (d) 300 mg/dL

125. The protein toxins that have been modified to reduce the toxicity without significantly altering the immunogenicity are known as

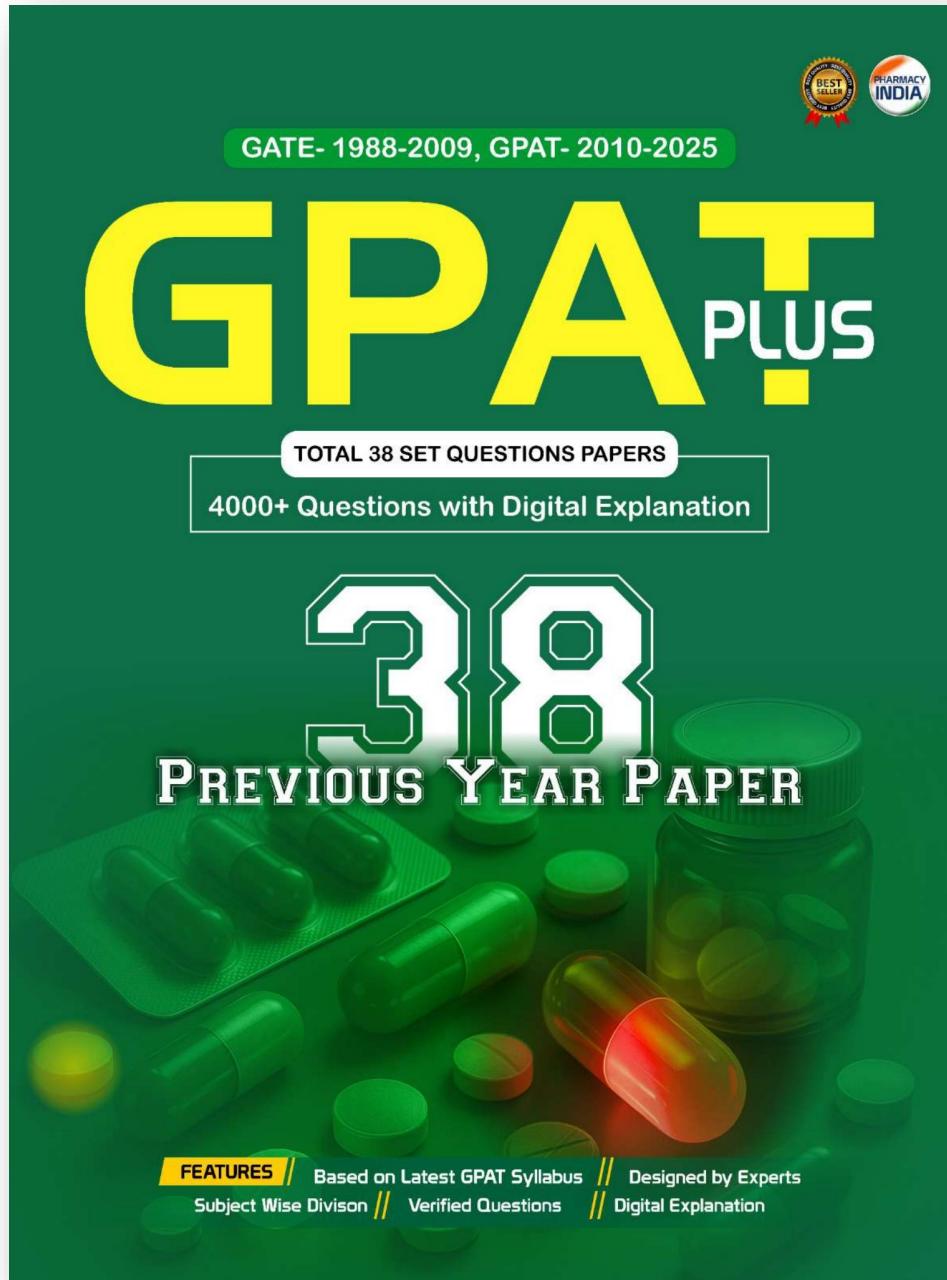
(a) Sera (b) Antisera (c) Toxoids (d) Vaccines

Answer Key

1-a	2-c	3-b	4-c	5-b	6-b	7-c	8-c	9-a	10-d
11-b	12-a	13-b	14-d	15-b	16-a	17-b	18-a	19-c	20-b
21-c	22-c	23-d	24-d	25-b	26-a	27-d	28-c	29-d	30-a
31-b	32-c	33-d	34-d	35-a	36-a	37-c	38-b	39-b	40-d
41-d	42-d	43-d	44-c	45-c	46-c	47-a	48-d	49-b	50-a
51-d	52-b	53-c	54-b	55-c	56-c	57-b	58-b	59-d	60-d
61-c	62-c	63-b	64-a	65-a	66-d	67-b	68-d	69-c	70-d
71-b	72-d	73-d	74-b	75-d	76-a	77-b	78-b	79-d	80-d
81-b	82-d	83-a	84-c	85-a	86-b	87-b	88-d	89-b	90-b
91-a	92-c	93-c	94-b	95-d	96-b	97-b	98-d	99-b	100-b
101-b	102-a	103-d	104-d	105-c	106-b	107-d	108-b	109-c	110-c
111-a	112-a	113-d	114-a	115-c	116-c	117-d	118-d	119-b	120-b
121-a	122-c	123-c	124-c	125-c					



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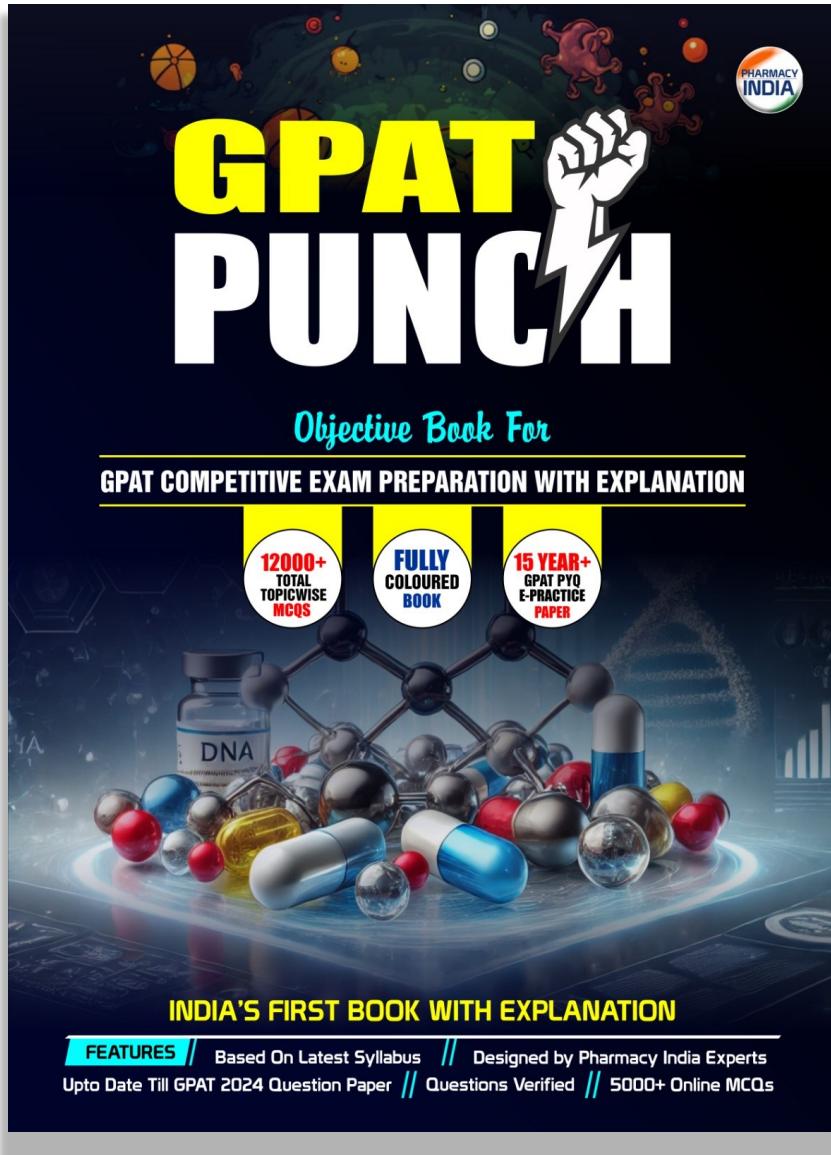
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