GPAT-2018

Pharmaceutics

1. **Following are endogenous carriers use for targeted drug delivery EXCEPT**
   (a) Lipoprotein (b) Serum Albumin
   (c) Erythrocyte (d) Microparticulates

2. **Keesom interactions has a force of**
   (a) 0.5-1 kcal/mol (b) 1-7 kcal/mol
   (c) 1-3 kcal/mol (d) None of these

3. **Dipole-induced dipoles are also known as**
   (a) London forces (b) Keesom forces
   (c) Debye forces (d) Hydrogen bonding

4. **The angle of repose is calculated by**
   (a) tan α Radius/Height (b) tan α 1+ Radius/Height
   (c) tan α 1- Radius/Height (d) tan α Height/Radius

5. **Which method is used by pharmacists for complete blending of potent powders with large quantities of diluents**
   (a) Spatulation (b) Levigation
   (c) Trituration (d) Geometric dilution

6. **IVIVC utilizes the principles of statistical moment analysis**
   (a) Level A (b) Level B (c) Level C (d) Level D

7. **As per Factories Act 1948, in CHAPTER VI dealing with working hours of adults, no adult worker shall be required or allowed to work in a factory for more than_____ hours in a week**
   (a) 30 (b) 40 (c) 48 (d) 56

8. **Which of the following is not patentable in India as per the Patents Act 1970**
   (a) New product
   (b) New process
   (c) New use of existing drug
   (d) New process for existing drug

9. **Which of the following agencies is not classified as an 'executive agency' for administration of the act under the provision of Drugs and Cosmetics Act 1940**
   (a) Licensing authority
   (b) Drug inspectors
   (c) Drugs Consultative Committee
   (d) Customs collectors

10. **Statement 1: Vortex formation can be minimized by push pull mechanism**
    Statement 2: Vortex formation reduces the mixing intensity by increasing the velocity of impeller
    (a) True, False
    (b) True, True
    (c) False, False
    (d) Fake, True

11. **Which statements are correct for the micelle formation**
    [P] Micelles are dynamic structures that are continually formed and broken down in solution
    [Q] The typical micelle diameter is about 2-3 pm and so they are visible under the light microscope
    [R] Micelle formation is a spontaneous process
    [S] When the surfactant concentration is increased above the CMC, the number of micelles increases and the free surfactant concentration decreases below CMC
    (a) [P] and [Q] (b) [P] and [R]
    (c) [P] and [S] (d) [R] and [S]

12. **When considering drug delivery to the brain which of the following is false**
    (a) The cells in the blood vessels that supply the brain are tightly connected which restricts drug absorption
    (b) Only relatively small lipophilic molecules readily, passively diffuse in to the brain
    (c) Drugs with a low log P value show improved passive diffusion into the brain (oil/water partition coefficient)
    (d) Polar molecules can be taken up into the brain through active transport

13. **When Ke is constant and Ka is larger**
    (a) C_{max} is more and t_{max} is longer
    (b) C_{max} is lesser and t_{max} is longer
    (c) C_{max} is lesser and t_{max} is short
    (d) C_{max} is more and t_{max} is short

14. **The systems that follows, Weibull Mathematical Model used to describe drug release kinetics are**
    (a) Swellable polymeric devices
    (b) Diffusion matrix formulation
    (c) Erodible matrix formulation
    (d) Transdermal system

15. **HLB value of tragacanth is**
    (a) 4.7 (b) 8.7 (c) 13.2 (d) 14.3

16. **Substance used to reduce friction during tablet compression and facilitate ejection of tablets from the die cavity is called as**
    (a) Lubricant (b) Glidant
    (c) Anti-adherent (d) Humectant

17. **What quantities of 95% v/v and 45% v/v alcohols are to be mixed to make 800 ml of 65% v/v alcohol**
    (a) 480 ml of 95% and 320 ml of 45% alcohol
    (b) 320 ml of 95% and 480 ml of 45% alcohol
    (c) 440 ml of 95% and 360 ml of 45% alcohol
    (d) 360 ml of 95% and 440 ml of 45% alc

18. **The proportion of NaCl liquid to give 1.5% solution of drug isotonic with blood plasma is (The freezing point of 1% w/v solution of drug is -0.122 and NaCl is -0.576 °C)**
    (a) 0.79% (b) 0.585%
    (c) 0.9% (d) 0.5%

19. Which of the following solutions are more likely to have the same osmotic pressure
(a) Diluted nonelectrolytes with the same molal concentration
(b) Concentrated nonelectrolytes with the same molal concentration
(c) Diluted electrolytes with the same molal concentration
(d) Concentrated electrolytes with the same molal concentration

20. Spray drying/spray congealing method is generally used to prepare
(a) Tablets (b) Microcapsules
(c) Capsules (d) Ointments

21. The interfacial tension of Oleic acid against water at 20°C is
(a) 15.6 (b) 523 (c) 428 (d) 8.51

22. Buffer capacity is also referred to as
(a) Buffer index (b) Buffer value
(c) Buffer efficiency (d) All of these

23. In a free-flowing powder, the bulk density and tapped density would be close in value, therefore, the Carr index would be
(a) Small (b) Medium (c) Large (d) None of these

24. As the dielectric constant values increases, the polarity of the solvents
(a) Decreases and then remains constant (b) Increases
(c) Remains constant (d) Decreases

25. What are the specific surface per unit volume Sv of spherical particles with density of 3 gm/cm3 and volume surface diameter, dvs of 2.57 µm
(a) 7.78 x 10^3 cm^3/cm^3 (b) 2.33 x 10^3 cm^2/cm^3
(c) 1.55 x 10^3 cm^3/cm^3 (d) 1.00 x 10^3 cm^2/cm^3

26. What is the effective ratio of methyl paraben and propyl paraben for anti-microbial activity
(a) 1:1 (b) 5:1 (c) 2.5:1 (d) 10:1

27. Isoelectric point of Type A gelatin is
(a) pH 7.0 28 (b) pH 4.7 (c) pH 9.0 (d) pH 7.4

28. Which test is done for USP Type-I glass containers for injections
(a) Water attack test
(b) Powdered glass test
(c) Powdered glass followed by water attack test
(d) Water attack followed powdered glass test

29. Which of the following formula is used to determine shelf life as per first order reaction
(a) t_{90}=0.693/k (b) t_{90}=0.104/k
(c) $t_{1/2}$=0.693/k (d) $t_{1/2}$=0.105/k

30. The friability issue of the tablet can be solved by different ways EXCEPT
(a) Increasing the upper punch pressure of tablet machine)
(b) Addition of more tablet binder to granules
(c) Increasing the moisture content of granules
(d) Adjusting the lower punch pressure of tablet machine

31. A material which is insoluble and inert and used in matrix tablet formulation is
(a) Polyethylene (b) Stearyl alcohol
(c) Polyethylene glycol (d) Triglycerides

32. In plasma, Phenobarbital is present as ionized and unionized forms in equal because
(a) It is wealdly acidic drug
(b) It is weakly basic drug
(c) pH of plasma is 6.8
(d) pKa of the phenobarbital is 7.4

33. Vials and bottles are regularly not subjected to following test amount
(a) Sterility test (b) Charity test
(c) Leaker (chamber) test (d) Pyrogen test

34. During determination of absorption rate constant by method of residual flip-flop phenomenon occurs when (Ka absorption rate constant and KE overall elimination rate constant)
(a) K_E / Ka ≥ 3 (b) Ka / K_E ≥ 3
(c) K_E / Ka ≤ 3 (d) Ka / K_E ≤ 3

35. Suspensions of starch in water exhibit
(a) Plastic flow (b) Psudoplastic flow
(c) Dilatant flow (d) None of these

36. As per USP, test limit for treated soda lime glass with container size of 200 ml is
(a) 0.70ml of 0.02N Acid (d) 0.70ml of 0.2N Acid
(c) 0.20ml of 0.02N Acid (b) 1.0ml of 0.2N Acid

37. Which of the following fluid can be considered as an ideal fluid
(a) Viscous fluid (b) Non-viscous fluid
(c) Compressible fluid (d) All of these

38. Which equation is used to predict the stability of a drug product at room temperature from experiments at accelerated temperature
(a) Higuchi equation
(b) The Arrhenius' equation
(c) Hildebrand equation
(d) The Hixson-Crowell equation

39. What is the viscosity of resulting liquid after mixing 300ml. of liquid A (h = 1cP) with the 200mL of liquid B (η = 3.4 cP)
(a) 2.2 cP (b) 1.4cP (c) 1.6 cP (d) 1.8cP

40. Select the correct statement
(a) Acids salt corresponding to an insoluble salt will be more water soluble than original salt
(b) Hydroxides and oxides of compounds other than alkali metal cations and the common ions are generally water soluble
(c) Sulphides are water soluble except for their alkali metal salts
(d) Ammonium and Quaternary ammonium salts are water insoluble

41. Very weak bases having pKa< 5
(a) Are ionized in the entire pH range of GIT
(b) Absorbed only in stomach
(c) Are unionized at all pH values
(d) None of the above

42. The agent used to prevent the dental carries is
(a) Sodium fluoride (b) Strontium chloride
(c) Zinc chloride (d) Dicalcium phosphate

43. Hypodermoclysis refers to which route of drug administration
(a) Sublingual (b) Intradermal
(c) Subcutaneous (d) Intravenous consistency

44. Materials whose depends on the duration of shear, as well as on the rate of shear, exhibit
(a) Rheopexy (b) Thixotropy
(C) Viscoelasticity (d) Plasticity

Pharmacology

45. Which of the following is NOT CORRECT for myasthenia gravis
(a) Down regulation of nicotinic receptors (Nm) leads to myasthenia gravis
(b) Tubocurarine is used to treat myasthenia gravis
(c) It is an autoimmune disorder
(d) Thymectomy is treatment option for myasthenia gravis

46. The mechanism of action of Ciprofloxacin is
(a) Inhibition of protein synthesis by interacting with 30s ribosome
(b) Inhibition of protein synthesis by interacting with 50s ribosomes
(c) Inhibition of DNA synthesis by interacting with topoisomerase
(d) Inhibition of cell wall synthesis

47. Select the B-lactamase inhibitor
(a) Griseofulvin (b) Clavulanic acid
(c) Sulfamethoxazole (d) Tetracycline

48. Histamine concentration is highest in
(a) Beta cells (b) Mast cells
(c) Lymphocytes (d) Adipocytes

49. Which of the following side effect of ACE inhibitors result from inhibition of bradykinin breakdown
(a) Analgesia (b) Hyperglycaemia
(c) Productive cough (d) Dry cough

50. Which of the following is a suitable antidote for mercury poisoning
(a) Atropine (b) Dimercaprol
(c) Naloxone (d) Nalorphine

51. The oral oligosaccharide hypoglycemic agent, which is administered at the start of the meal is
(a) Pioglitazone (b) Miglitol
(c) Acarbose (d) Glimepiride

52. Which of the following is NOT a gene associated with breast cancer
(a) BRCA1 (b) HER2 (c) BRCA2 (d) CHRM1

53. Rheumatic heart disease is caused by
(a) Streptococcal infection
(b) Excessive lipid consumption
(c) Abnormal lipid metabolism
(d) Atherosclerosis

54. The enzyme HMG-CoA reductase is involved in the pathogenesis of
(a) Atherosclerosis (b) Renal failure
(c) Alzheimer disease (d) Parkinson disease

55. Abatacept, a fusion protein, and a co-stimulation blocker used in the treatment of Rheumatoid arthritis blocks the
(a) Activation of T-cells (b) Inhibition of T-cells
(c) Activation of B-cell (d) Inhibition of B-cells

56. The management of Type-B adverse drug reaction is
(a) To reduce the dose
(b) To withhold the dose and avoid in future
(c) To increase the dose
(d) To reintroduce and withdraw slowly

57. Which of the following is a shortest acting cholinesterase inhibitors enlisted below
(a) Neostigmine (b) Pyridostigmine
(c) Edrophonium (d) Physostigmine

58. Which of the following describes the effect of Sodium cromoglycate
(a) Mast cell degranulation
(b) Mast cell stabilization
(c) Leukotriene antagonism
(d) Glucocorticoid receptor agonism

59. Identify antihistamine drug with additional serotonin receptor blocking activity and good appetite stimulant property
(a) Cyproheptidine (b) Cimetidine
(c) Ranitidine (d) Chlorpheniramine

60. The following is NOT true for Furosemide
(a) Causes hypokalemia
(b) Causes hypouricemia
(c) Causes hypomagnesemia
(d) Acts by inhibiting sodium reabsorption

61. The correct statement about Vitamin D is
(a) The oral administration of 1, 25-dihydoxycholecalciferol is required in chronic renal failure
(b) 25-Hydroxycholecalciferol is the active form of the vitamin
(c) Vitamin D antagonizes the effects of parathyroid hormone
(d) A deficiency of vitamin D causes an increase in calcitonin secretion

62. The number of subjects required in a phase 1 clinical trial is
(a) 20 to 100 (b) Upto several hundred
(c) 300 to 3,000 (d) Several thousands

63. Identify the correct pair from the following
(a) Sympathetic stimulation: Bronchoconstriction
(b) Parasympathetic stimulation: Secretion of gastric juice
(c) Sympathetic stimulation: Contraction of pupil
(d) Parasympathetic stimulation: Dilatation of pupil

64. To obtain a more effective bronchodilation, the drugs that are combined along with beta-adrenoceptor agonists are
(a) Cholinergic antagonists
(b) Cholinergic agonists

(c) Beta-adrenoceptor antagonists
(d) Alpha-adrenoceptor antagonists

65. Which of the following antipsychotic drugs, at low doses, is combined with antidepressants in treatment resistant depression
(a) Chlorpromazine (b) Haloperidol
(c) Risperidone (d) Fluphenazine

66. Which of the following are the mechanisms of action of digitalis glycosides
[I] Inhibition of Na'-K' ATPase enzyme
[II] Reduction in the auriculo-ventricular conduction rate
[III] Increase in the cardiac output rate
[IV] Acceleration of auriculo-ventricular conduction
(a) Only III (b) I, II and III
(c) II, III and IV (d) Only!

67. Hemophilia A is a disease characterized by deficiency of
(a) Factor VIII (b) Factor II
(c) Factor VII (d) Factor V

68. Identify the specific site where maturation of sperm takes place
(a) Spermatic cord (b) Epididymis
(c) Testis (d) Vas deference

69. Identify the hormone that stimulates sperm production in testes and ovulation in females
(a) Prolactin
(b) Luteinising hormone
(c) Follicle stimulating hormone
(d) Adrenocorticotropic hormone

70. Identify the clotting factor which is known as Stuart factor or thrombokinase
(a) Clotting factor-IV (b) Clotting factor- VIII
(c) Clotting factor - X (d) Clotting factor-XII

71. Which part of the eye is light sensitive (photosensitive)
(a) Iris (b) Sclera (c) Lens (d) Retina

72. Charaka, a physician belonged to which system of medicine
(a) Ayurveda (b) Unani
(c) Siddha (d) Homeopathy

73. Alkanna tinctoria(Boraginaceae) roots are used in
(a) Dandruff
(b) Tooth paste
(c) Facial cleansing wash
(d) Lipstick formulations and hair dyes

74. The CCCN code indicating the botanical drugs is
(a) 2211 (b) 1122 (c) 1211 (d) 1311

75. Tropane alkaloids are biosynthesized from _____ amino acid
(a) Phenylalanine (b) Tyrosine
(c) Ornithine (d) Leucine

76. One mg of Lycopodium contains an average of
(a) 97000 spores (b) 96000 spores
(c) 95000 spores (d) 94000 spores

77. Uncaria gambir belongs to the family
(a) Rubiaceae (b) Combretaceae
(c) Punicaceae (d) Rosaceae

78. Catechu is used in medicine as an
(a) Antidiabetic (b) Anti cancer
(c) Antipyretic (d) Astringent

79. The constituent of Cochineal is
(a) Cantharidin (b) Hirudin
(c) Tannic acid (d) Carminic acid

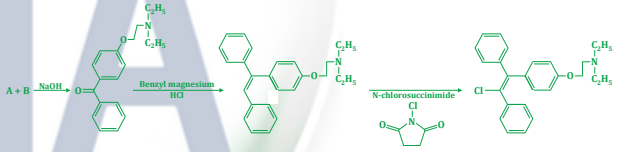
80. The sweet taste and odour of fennel is due to
(a) Anethole (b) Fenchone
(c) Eugenol (d) Phelandrene

81. A compound now increasingly used as standard practice for enhancing the flow of rubber latex by spraying on to the scraped bark of the rubber tree increasing the latex yicks from 36% to 130% is
(a) Brassinosteroids (b) Abscisic acid
(c) Ethephon (d) Kinetin

Pharmaceutical Chemistry

82. Which statement correctly describes Hess's Law
(a) The enthalpy of all reactants in their standard states is defined as zero
(b) Enthalpy changes can be calculated only if one or more of the reactants is/are element
(c) The enthalpy change of a reaction can be calculated only at 1 atm pressure and 25°C
(d) The enthalpy change of a reaction is independent of the route of reaction

83. Identify the starting material A and B in the synthesis of Clomifene



(a) Where A 4-hydroxy-benzophenone and B 2-diethyl-amino-ethyl chloride
(b) Where A 4-hydroxy benzaldehyde and B 4-methoxy aniline
(c) Where A 4-hydroxy-benzophenone and B 4-methoxy aniline
(d) Where A 4-hydroxy-benzophenone and B benzaldehyde

84. The role of glutathione in tissues includes all EXCEPT
(a) Participate in decomposition of hydrogen peroxide
(b) Participate in activation of methionine
(c) Participate in detoxification reactions
(d) Biologically active in oxidized form

85. Which of the following is a 3, 3-sigmatropic reaction which converts a 1, 5-diene to an isomeric 1,5-diene
(a) Cope rearrangement
(c) Photochemical 2+2 reaction
(b) Claisen rearrangement
(d) Diels-Alder reaction

86. Which statement regarding Huckel's rule is FALSE
(a) There must be (4n+2) pi (π) electrons
(b) The molecule must be planar

(c) The molecule must be cyclic
(d) Each of the pi (π) electrons must be associated with a conjugated double bond

87. Anthracene is isomeric with
(a) Phenanthrene (b) Naphthalene
(c) Benzene (d) Azulene

88. The molecular formula of Phenanthrene is
(a) $C_{14}H_{10}$ (b) $C_{12}H_{10}$
(c) $C_{14}H_{14}$ (d) $C_{14}H_{8}$

89. In electrophilic substitution of pyridine, reaction of pyridine with H2O2 in acetic acid leads to formation of
(a) 1, 4-Dihydropyridine0 (b) 2-Hydroxypyridine
(c) 2-Pyridone (d) Pyridine-N-oxide

90. Which compound is most basic
(a)  (b)  (c)  (d) 

91. Correct nomenclature for the following bridged bicyclic ring system is

(a) bicyclo 4.4.0 decane
(b) bicyclo 4.3.0 decane
(c) bicyclo 4.3.1decane
(d) bicyclo 4.4.1 decane

92. Which among the following correctly defines Diastereomer
(a) These have same magnitude but different signs of optical rotation
(b) Non superimposable object mirror relationship
(c) These differ in all physical properties
(d) Separation is very difficult

93. Which functional group is crucial for anti-malarial activity of Artemisinin
(a) Aldehyde functional group
(b) Ethylene-bridge
(c) Ketonic functional group
(d) Peroxide bridge

94. Select the drug which exhibits dual alpha and beta adrenergic receptor agonists activity
(a) Terbutaline
(b) Clonidine
(c) Metaproterenol
(d) Dobutamine

95. Appropriate hybridization schemes for the C atoms in molecule CH_3CO_2H are
(a) Sp^3 and Sp (b) Sp^3 and Sp^2
(c) Sp^2 and Sp (d) Sp^3 and Sp^3

96. Which of the following definitions of an asymmetric reaction is the most accurate
(a) A reaction that creates a new chiral centre in the product
(b) A reaction that involves a chiral reagent
(c) A reaction which creates a new chiral centre with selectivity for one Enantiomer/ Diastereoisomers over another
(d) A reaction that is carried out on an asymmetric starting material

97. What software programme is used to determine the Verloop steric parameter in QSAR
(a) Alchemy (b) Chem3D
(c) Sterimol (d) Chem-Draw

Pharmaceutical Analysis

98. What is the concentration of Paracetamol in a 0.1 N sodium hydroxide solution, whove Absorption in a 1 cm cell at its λmax' 257 nm, was found to be 0.825? The A (1%, 1 cm) in the IP monograph of Paracetamol is given as 715 at 257 nm
(a) 1.1 g/100 ml (b) 0.0011 mg/100 ml
(c) 0.0011 g/100 ml (d) 0.0011 µg/100 ml

99. The unit for specific absorbance A (1%, 1cm) is
(a) µ g/mL (b) mg/L
(c) Liter $mole^{-1}$ cm^{-1} (d) dl g^{-1} cm^{-1}

100. What is the nuclear magnetic resonance frequency of 1H in a 7.05 Tesla magnetic field strength
(a) 300.0 MHz (b) 200.0 MHz
(c) 60.0 MHz (d) 100 MHz

101. What is Hydrogen Deficiency Index (HDI) value for Toluene
(a) 1 (b) 2 (c) 3 (d) 4

102. In NMR, the aromatic proton resonate in a characteristic narrow range at
(a) δ 6.5 - δ 8.0 (b) δ 11.0 - δ 12.0
(c) δ 2.0- δ 4.0 (d) δ 0.7- δ 1.3

103. The difficulties of long elution time and poor resolution of complex mixtures are observed in elution analysis. These difficulties can be overcome by modification of elution analysis, known as
(a) Isocratic-elution analysis
(b) Gradient-elution analysis
(c) Displacement analysis
(d) Frontal analysis

104. What quantity of an indicator solution shall be added when quantity is not mentioned in an assay or test
(a) 0.1 ml (b) 0.05 ml (c) 0.2 ml (d) 0.5 ml

105. In Kjeldahl method, sample containing nitrogen is digested with
(a) Concentrated sodium hydroxide
(b) Fuming nitric acid
(c) Concentrated sulphuric acid
(d) Strong ammonia solution

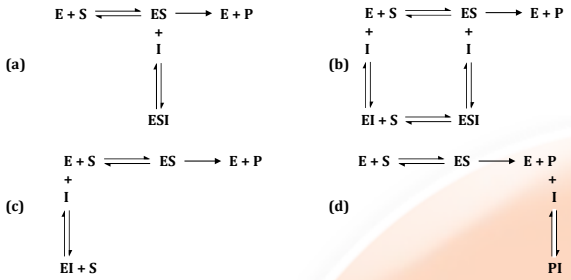
106. In Universal indicators, a pH of 7 is shown with
(a) Yellow color (b) Green color
(c) Blue color (d) Pink color

107. Which method is used for the Limit test for arsenic
(a) Gutzeit method
(b) Oswald method
(c) Arrhenius method
(d) Karl-Fischer method

Other Subjects

108. A technique of using very small metal particles coated with desired DNA in the gene transfer is called
(a) Microinjection (b) Biolistic
(c) Liposome mediated (d) Electroporation

109. Which of the following equilibrium suggests non-competitive inhibition of enzyme E for conversion of substrate S to product P with inhibitor I



110. Galactose and Glucose are
(a) Epimers (b) Anomers
(c) Isomers (d) Ketose Akose isomers

111. Which among the following is a non-essential
(a) Lysine (b) Threonine
(c) Serine (d) Histidine

112. Which of the following statement is NOT TRUE about prokaryotes amino acid
(a) Nucleus is not bounded by nuclear membrane
(b) Cell wall contains peptidoglycan
(c) 80s ribosomes are distributed in cytoplasm
(d) It is Haploid in nature

113. Which of the following are obligatory intracellular parasites
[P] Virus **[Q]** Fungus
[R] Mycobacterium **[S]** Rickettsia
(a) [P], [Q], [R] and [S] (b) [P] [Q] and [R]
(c) [R] and [S] (d) [P] and [S]

114. Henri Fayol's principle "Espirit de corps" means
(a) Corporate objective (b) Group objective
(c) Team activity (d) Team spirit

115. Which of the following about the Varicella-Zoster Virus (VZV) is NOT true
(a) Varicella develops after an individual is exposed to VZV for the first time
(b) Herpes zoster develops from reactivation of the virus later in life
(c) There are no vaccines for this virus
(d) The infection results in post-herpetic neuralgia

116. Match the following diseases under column I with the respective causative organisms under Column II

Column I	Column II
1. Creutzfeldt-Jacob disease	[P] Yersinia pestis
2. Typhus	[Q] Prions
3. Syphilis	[R] Rickettsia prowazekii
4. Plague	[S] Treponema palladium

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

117. The hexose monophosphate pathway produces distinctively two useful products. Identify these products with the ratio in which they are produced
(a) One NADPH to two ribose-6-phosphate
(b) Two NADPH to one ribose-5-phosphate
(c) Two NADPH to one ribulose-5-phosphate
(d) Two NADPH to one fructose-6-phosphate

118. Which of the following replacement of amino acid in a protein may produce greatest change in its conformation
(a) Ser' → Thr (b) Glu' → Val
(c) Gln' → Tyr (d) Phe' → lle

119. How customer's bias about the product will influence the marketing communication
(a) Positive effect (b) Negative effect
(c) No effect (d) Both positive and Negative

120. Match the following enzymes in Column I with their respective functions under Column II

Column I	Column II
[1] DNA ligase	[P] Synthesize a DNA copy of RNA
[2] Alkaline phosphatase	[Q] Forms a bond between 3'-OH and 5' - P * 0
[3] Reverse transcriptase	[R] Removes terminal PO 4 from 3or 5'end of DNA
[4] Polynucleotide kinase	[S] Adds phosphate to 5'-OH end

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

121. All of the following enzymes are used in ELISA EXCEPT
(a) Glucose oxidase (b) Alkaline phosphatase
(c) Coagulase (d) β-galactosidase

122. Which of the following disinfectant effectively destroys vegetative bacterial cells including gram positive and gram negative bacteria, bacterial endospores, fungi, and viruses
(a) 8% formaldehyde + 70 % alcohol
(b) 70% Alcohol
(c) 0.1% Phenol aqueous
(d) 0.1% Iodine aqueous

123. Arrange the following steps in sequence of their order for production of recombinant Insulin
[P] Fusion of A and B chains for disulphide bond
[Q] Cynogen bromide treatment to remove methionine and β galactosidase
[R] Introduction of A and B chain in the plasmid containing β galactosidase gene
[S] Synthesis of A and B chain in E. coli
(a) [P] → [Q] → [S] → [R] (c) [R] → [S] → [Q] → [P]
(b) [S] → [R] → [P] → [Q] (d) [Q] → [P] → [S]→[R]

124. Motif is represented by
(a) Commas repeated on the lattice
(b) 3D translational periodic arrangement of points
(c) Geometric shapes of lattice
(d) Centre of symmetry in lattice

125. Which of the following is NOT true about the Ebola Virus Disease (EVD)
(a) Spreads through human-to-human transmission via direct contact
(b) Antiviral drugs are approved by FDA to mitigate the infection
(c) Diagnostic tests include ELISA
(d) The virus is named after a river

Answer Key

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

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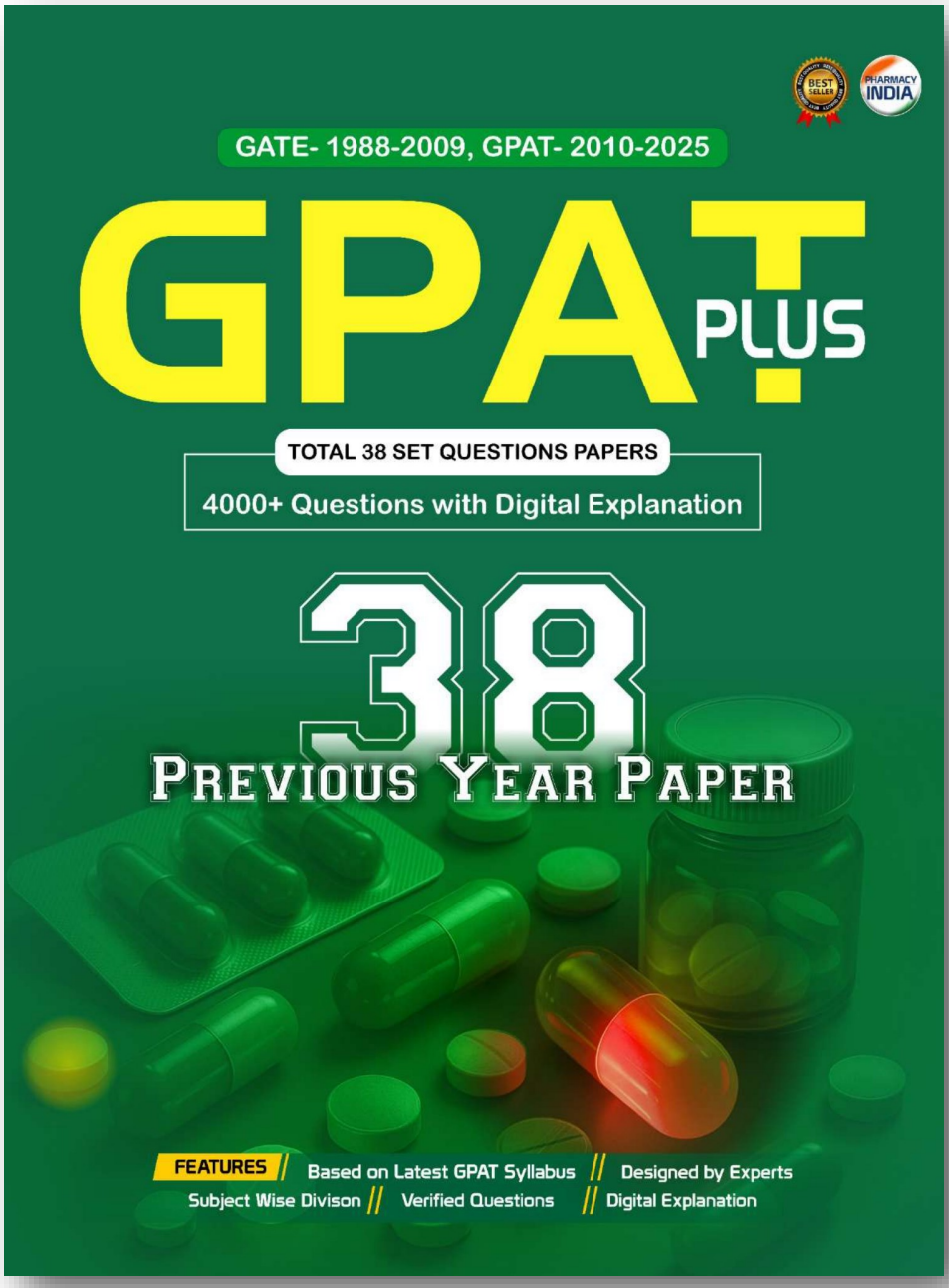

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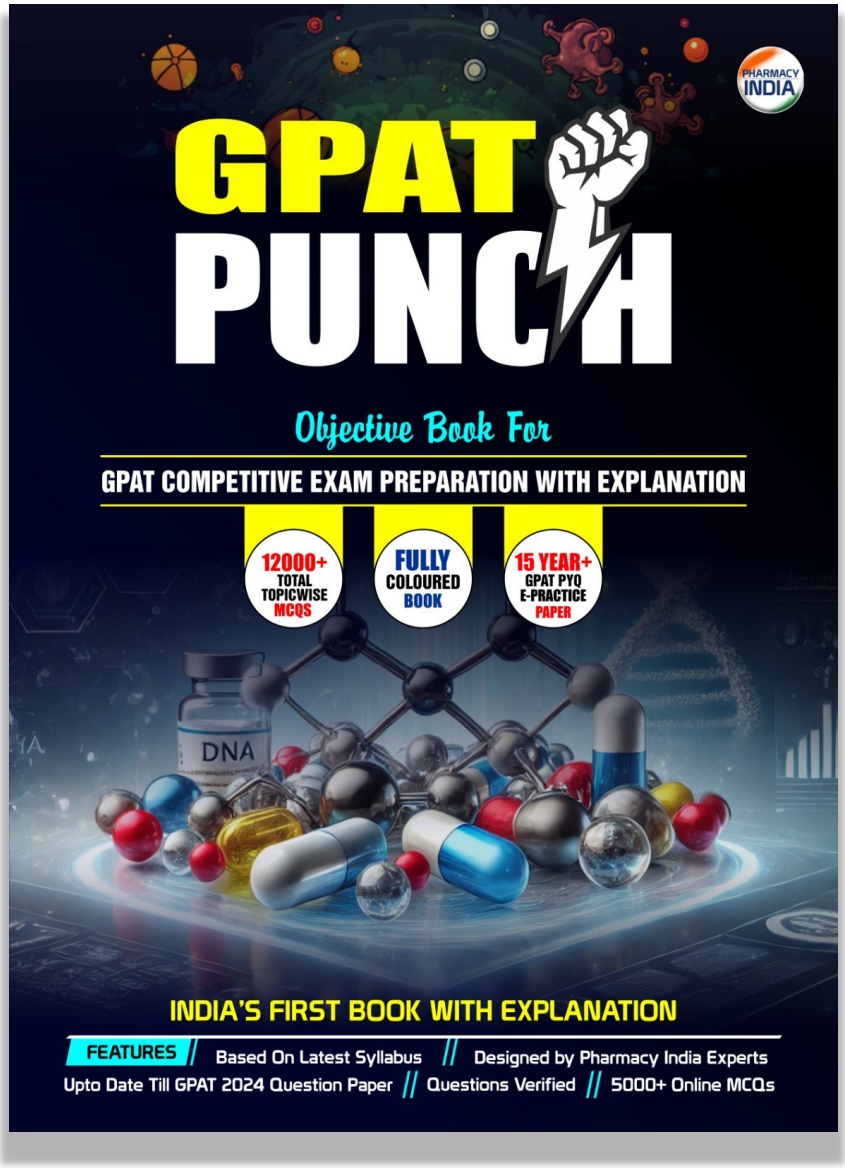

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