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MCQs in Pharmacology

G. Vidya Sagar

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This book is dedicated to

My Parents, Late Shri G. C. Naidu and Smt. G. Lalitha

For their untiring efforts and hardwork in bringing me up to what all I am today.

Prof. Dr. G. Vidya Sagar

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SNIPPETS

Very useful book for students preparing for GATE & USMLE. Recommended reading.

Dr. Sanjay Pai
Al-Ameen college of Pharmacy
Bangalore.

I found the book absorbing, questions are well framed.

Dr. Gabhe
C.U Shah College of Pharmacy,
Mumbai.

Good Reference for PG medical entrance. Recommended reading.

Dr. Kaushik Shah
M.S.(Gen. Surgery)
Rana Hospital, Mandvi

This book will be of good use for students appearing for Competitive exams. Presentation of the matter is good.

Prof. Y. Madhusudhan Rao
Univ. College of Pharmaceutical Sciences
Kakatiya University, Warangal.

FOREWORD

Medical & Pharmacy are fast growing professions with a wide range of opportunities open to the students after a basic degree. These professions play a vital role in health care management.

This book will be of immense value for students to develop themselves as the meritorious & motivated candidates for admission to post graduate courses like M.D., M.S. & M.Pharm.

I compliment the author for his pains-taking efforts in mobilizing a very large number of good MCQs from a vast subject like Pharmacology. Adequate coverage of all topics is done.

I feel that this book will be a very useful companion for professional PG entrance examinations. I strongly recommend this book to college library collection

PROF. DR. KANTIBHAI GOR
Vice Chancellor
K. S. K. V. Kachchh University
Bhuj - Kutch.

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Prof. Dr. G.Vidya Sagar.

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PREFACE

Pharmacy graduates aspiring for higher education & medicos planning to take post graduation ought to appear in PG entrance examination. These entrance examinations are usually patterned in objective type.

Pharmacology forms an integral part of curriculum of medical & paramedical courses. It is an important subject & deals with the biological response elicited by a drug in the human body. Quite a large number of MCQs appear in competitive examinations in this subject.

Hence, there is a need for providing a well structured course material & upto date information on the subject. The quick solution guides presently available in the market for PG Medical & Paramedical entrance examinations doesn't cover the subject in an integrated way.

Hence, I brought out a separate objective question bank in Pharmacology after undertaking an extensive study of the pattern of PG examinations. This book provides the reader complete information so that students have clarity of thought & ready hand information to face the competitive examination with improved confidence.

Acquiring knowledge becomes simpler if all the required information is made available at one place in a platter. This book will serve the above said purpose.

I sincerely hope that this publication would be of much help in meeting the aspirations of those who plan to take PG Entrance examinations.

I look forward for suggestions & constructive criticism.

Prof. Dr. G. Vidya Sagar
Kutch, Gujarat

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CONTENTS

CHAPTER 1

GENERAL PHARMACOLOGY

1. All of the following are general mechanisms of drug permeation Except

(a) Aqueous diffusion
(b) Aqueous hydrolysis
(c) Lipid diffusion
(d) Pinocytosis or endocytosis
(e) Special carrier transport

2. If the plasma concentration of a drug declines with "first-order kinetics", this means that

(a) There is only one metabolic path for drug disposition
(b) The half-life is the same regardless of the plasma concentration
(c) The drug is largely metabolized in the liver after oral administration and has low bioavailability elimination
(d) The rate of climination is proportionate to the rate of administration at all times
(e) The drug is not distributed outside the vascular system

3. Regarding termination of drug action

(a) Drug must be exerted from the body to terminate their action
(b) Metabolism of drugs always increases their water solubility
(c) Metabolism of drugs always abolishes their pharmacologic activity
(d) Hepatic metabolism and renal excretion are the two most important mechanisms involved
(e) Distribution of a drug out of the bloodstream terminates the drug's effect

4. Distribution of drugs to specific tissues

(a) Is independent of blood flow to the organ
(b) Is independent of the solubility of the drug in that tissue
(c) Depends on the unbound drug concentration gradient between blood and tissue
(d) Is increased for drugs that are strongly bound to plasma proteins
(e) Has no effect on the half-life of the drug

5. A physical process by which a weak acid becomes less water-soluble and more lipid-soluble at low pH is

(a) Distribution (b) Elimination
(c) First-pass effect (d) Permeation
(e) Protonation

6. Dose-response curves are used for drug evaluation in the animal laboratory and in the clinic, Quantal dose-response curves are often

(a) Used for determining the therapeutic index of a drug
(b) Used for determining the maximal efficacy of a drug
(c) Invalid in the presence of inhibitors of the drug being studied
(d) Obtained from the study of intact subject but not from isolated tissue preparations

(e) Used to determine the statistical variation (standard deviation) of the maximal response to the drug.

7. The following are excreted faster in basic urine

(a) Weak acids (b) Strong acids
(c) Weak Bases (d) None of the above

8. Which of the following statements about spare receptors is most correct ?

(a) Spare receptors, in the absence of drug, are sequestered in the cytoplasm
(b) Spare receptors will be detected if the intracellular effect of drug-receptor interaction lasts longer than the drug-receptor interaction itself
(c) Spare receptors influence the maximal efficacy of the drug-receptor system
(d) Spare receptors activate the effector machinery of the cell without the need for a drug
(e) Spare receptors may be detected by the finding that the EC_{50} is greater than the K_d for the agonist

9. Which of the following terms best describes an antagonist that interacts directly with the agonist and not at all or only incidentally, with the receptor ?

(a) Pharmacological antagonist
(b) Partial agonist
(c) Physiological antagonist
(d) Chemical antagonist
(e) Noncompetitive antagonist

10. Which of the following terms best describes a drug that blocks the action of epinephrine at its receptors by occupying those receptors without activating them ?

(a) Pharmacological antagonist
(b) Partial agonist
(c) Physiological antagonist
(d) Chemical antagonist
(e) Noncompetitive antagonist

11. Which of the following provides information about the variation in sensitivity of the drug within the population studied ?

(a) Maximal efficacy
(b) Therapeutic index
(c) Drug potency
(d) Grade dose-response curve
(e) Quantal dose-response curve

12. Which of the following most accurately describes the transmembrane signaling process involved in steroid hormone action ?

(a) Action on a membrane spanning tyrosine kinase
(b) Activation of a G protein which activates or inhibits adenyl cyclase
(c) Diffusion into the cytoplasm and binding to an intracellular receptor
(d) Diffusion of "STAT" molecules across the membrane
(e) Opening of transmembrane ion channels

13. Which of the following is a phase II drug-metabolizing reaction ?

(a) Acetylation (b) Deamination
(c) Hydrolysis (d) Oxidation
(e) Reduction

14. Which of the following drugs may inhibit the hepatic microsomal P450 responsible for warfarin metabolism

(a) Cimetidine (b) Ethanol
(c) Phenobarbital (d) Procainamide
(e) Rifampin

15. With regard to clinical trials of new drugs, which of the following is most correct ?

(a) Phase I involves the study of a small number of normal volunteers by highly trained clinical pharmacologists
(b) Phase II involves the use of the new drug in a large number of patients (100-5000) who have the disease to be treated
(c) Phase III involves the determination of the drug's therapeutic index by the cautious induction of toxicity
(d) Chemical antagonist
(e) Phase II requires the use of a positive control (a known effective drug) and a placebo

16. Animal testing of potential new therapeutic agents

(a) Extends over a time period of at least 3 years in order to discover late toxicities
(b) Requires the use of at least two primate species, eg. Monkey and baboon
(c) Requires the submission of histopathologic slides and specimens to the FDA for government evaluation
(d) Has good predictability for drug allergy-type reactions
(e) May be abbreviated in the case of some very toxic agents used in cancer

17. The "dominant lethal" test involves the treatment of a male adult animal with a chemical before mating; the pregnant female is later examined for fetal death and abnormalities. The dominant lethal test therefore is a test of

(a) Teratogenicity
(b) Mutagenicity
(c) Carcinogenicity
(d) All of the above
(e) None of the above

18. The Ames test is a method for detecting

(a) Carcinogenesis in rodents
(b) Carcinogenesis in primates
(c) Teratogenesis in any mammalian species
(d) Teratogenesis in primates
(e) Mutagenesis in bacteria

19. "Nicotinic" sites include all of the following except

(a) Bronchial smooth muscle
(b) Adrenal medullary cells
(c) Parasympathetic ganglia
(d) Skeletal muscle
(e) Sympathetic ganglia

20. A good example of chemical antagonism

(a) Heparin & Protamine
(b) Protamine & Zinc
(c) Heparin & Prothrombin
(d) All the above

21. Which of the following agents is a pro-drug that is much less toxic in mammals than in insects ?

(a) Acetylcholine (b) Bethanechol
(c) Physostigmine (d) Pilocarpine
(e) Neostigmine

22. Phenylephrine causes

(a) Constriction of vessels in the nasal mucosa
(b) Increased gastric secretion and motility
(c) Increased skin temperature
(d) Miosis
(e) All of the above

23. Pretreatment with propranolol will block which one of the following ?

(a) Methacholine-induced tachycardia
(b) Nicotine-induced hypertension
(c) Norepinephrine-induced bradycardia
(d) Phenylephrine-induced mydriasis

24. Most drug receptors are

(a) Small molecules with a molecular weight between 100 and 1000
(b) Lipids arranged in a bilayer configuration
(c) Proteins located on cell membranes or in the cytosol
(d) DNA molecules
(e) RNA molecules

25. With regard to distribution of a drug from the blood into tissues

(a) Blood flow to the tissue is an important determinant
(b) Solubility of the drug in the tissue is an important determinant
(c) Concentration of the drug in the blood is an important determinant
(d) Size (volume) of the tissue is an important determinant
(e) All of the above are important determinants

26. The pH value is calculated mathematically as the

(a) Log of the hydroxyl ion (OH^-) concentration
(b) Negative log of the OH^- concentration
(c) Log of the hydrogen ion (H^+) concentration
(d) Negative log of the H^+ concentration
(e) Ratio of H^+/OH^- concentration

27. Which property is classified as colligative?

(a) Solubility of a solute
(b) Osmotic pressure

(c) Hydrogen ion (H^+) concentration
(d) Dissociation of a solute
(e) Miscibility of the liquids

28. The colligative properties of a solution are related to the

(a) pH of the solution
(b) Number of ions in the solution
(c) Total number of solute particles in the solution
(d) Number of unionized molecules in the solution
(e) pKa of the solution

29. The pH of a buffer system can be calculated with the

(a) Noyes – Whitney equation
(b) Henderson – Hasselbalch equation
(c) Michaelis – Menten equation
(d) Yong equation
(e) Stokes equation

30. Which mechanism is most often responsible for chemical degradation?

(a) Racemization (b) Photolysis
(c) Hydrolysis (d) Decarboxylation
(e) Oxidation

31. Which equation is used to predict the stability of a drug product at room temperature from experiments at accelerated temperature?

(a) The stokes equation
(b) The Yong equation
(c) The Arrhenius equation
(d) The Michaelis – Menten equation
(e) The Hixson – Crowell equation

32. Based on the relation between the degree of ionization and the solubility of a weak acid, the drug aspirin (pKa 3.49) will be most soluble at

(a) pH 1.0 (b) pH 2.0
(c) pH 3.0 (d) pH 4.0
(e) pH 6.0

33. The particle size of the dispersed solid in a suspension is usually greater than

(a) 0.5 µm (b) 0.4 µm
(c) 0.3 µm (d) 0.2 µm
(e) 0.1 µm

34. In the extemporaneous preparation of a suspension, levigation is used to

(a) Reduce the zeta potential
(b) Avoid bacterial growth
(c) Reduce particle size
(d) Enhance viscosity
(e) Reduce viscosity

35. Active transport differs from facilitated transport in following ways, except

(a) Carrier is involved
(b) It is against concentration gradient
(c) Energy is required
(d) All of the above

36. Vanishing cream is an ointment that may be classified as

(a) A water –soluble base
(b) An oleaginous base
(c) An absorption base
(d) An emulsion base
(e) An oleic base

37. Rectal suppositories intended for adult use usually weigh approximately

(a) 1g (b) 2g
(c) 3g (d) 4g
(e) 5g

38. In the fusion method of making cocoa butter suppositories,which substance is most likely to be used to lubricate the mold?

(a) Mineral oil (b) Propylene glycol
(c) Cetyl alcohol (d) Stearic acid
(e) Magnesium silicate

39. A very fine powdered chemical is defined as one that

(a) Completely passes through a # 80 sieve
(b) Completely passes through a # 120 sieve
(c) Completely passes through a # 20 sieve
(d) Passes through a # 60 sieve and not more than 40% through a # 100 sieve
(e) Passes through a # 40 sieve and not more than 60% through a # 60 sieve

40. Which technique is typically used to mill camphor?

(a) Trituration
(b) Levigation
(c) Pulverization and intervention
(d) Geometric dilution
(e) Attrition

41. Which type of paper best protects a divided hygroscopic powder?

(a) Waxed paper (b) Glassine
(c) White bond (d) Blue bond
(e) Vegetable parchment

42. Which capsule size has the smallest capacity?

(a) 5 (b) 4
(c) 1 (d) 0
(e) 000

43. The shells of soft gelatin capsules may be made elastic or plastic–like by the addition of

(a) Sorbitol
(b) Povidone
(c) Polyethylene glycol
(d) Lactose
(e) pKa of the solution

44. Nonionic surface-active agents used as synthetic emulsifiers include

(a) Tragacanth
(b) Sodium lauryl sulphate
(c) Sorbitan esters(spans)

45. A ceramic mortar may be preferable to a glass mortar when

(a) A volatile oil is added to a powder mixture
(b) Colored substances (dyes) are mixed into a powder
(c) Comminution is desired in addition to mixing

46. Divided powders may be dispensed in

(a) Individual-dose packets
(b) A bulk container
(c) A perforated, sifter –type container

47. Agents that may be used to coat enteric coated tablets include

(a) Hydroxypropyl methyl cellulose
(b) Carboxymethyl cellulose
(c) Cellulose acetate phthalate

48. For each tablet processing problem listed below, select the most likely reason for the condition

(a) Excessive moisture in the granulation (1) Picking
(b) Entrapment of air (2) Mottling
(c) Tablet friability (3) Capping
(d) Degraded drug (4) Sticking
(e) Tablet hardness

49. For each description of a comminution procedure below, select the process that it best describes

(a) Trituration
(b) Spatulation
(c) Levigation
(d) Pulverization by intervention
(e) Tumbling

(1) Rubbing or grinding a substance in a mortar that has a rough inner surface
(2) Reducing and subdividing a substance by adding an easily removable solvent
(3) adding a suitable agent to form a paste and then rubbing or grinding the paste in mortar

50. Match the drug product below with the type of controlled-release dosage form that it represents

(a) Matrix device (1) Biphenamine Capsules
(b) Ion-exchange resin complex (2) Thorazine Spansule Capsules
(c) Hydrocolloid system (3) Valrelease
(d) Osmotic system (4) Slow - K
(e) Coated granules

51. The route of drug administration that gives the most rapid onset of the pharmacological effect is

(a) Intramuscular injection
(b) Intravenous injection
(c) Intradermal injection

(d) Peroral administration
(e) Subcutaneous injection

52. Acidic drugs mainly bind to plasma

(a) Albumin
(b) á$_1$ – acid glycoprotein
(c) Both (a) and (b)
(d) None of the above

53. After peroral administration, drugs generally are absorbed best from the

(a) Buccal cavity (b) Stomach
(c) Duodenum (d) Ileum
(e) Rectum

54. The passage of drug molecules from a region of high drug concentration to a region of low drug concentration is known as

(a) Active transport (b) Bioavailability
(c) Biopharmaceutics (d) Simple diffusion
(e) Pinocytosis

55. What equation describes the rate of drug dissolution from a tablet?

(a) Fick's law
(b) Henderson – Hasselbach equation
(c) Law of mass action
(d) Michaelis – Menten equation
(e) Noyes Whitney equation

56. Dose dumping is a problem in the formulation of

(a) Compressed tablets
(b) Modified- release drug products
(c) Hard gelatin capsules
(d) Soft gelatin capsules
(e) Suppositories

57. The rate of drug bioavailability is most rapid when the drug is formulated as a

(a) Controlled – release product
(b) Hard gelatin capsule
(c) Compressed tablet (d) Solution
(e) Suspension

58. Creatinine clearance is used as a measurement of

(a) Renal excretion rate
(b) Glomerular filtration rate (GFR)
(c) Active renal secretion
(d) Passive renal absorption
(e) Drug metabolism rate

59. The earliest evidence that a drug is stored in tissue is

(a) An increase in plasma protein binding
(b) A large apparent volume of distribution (V_D)
(c) A decrease in the rate of formation of metabolites by the liver
(d) An increase in the number of side effects produced by the drug
(e) A decrease in the amount of free drug excreted in the urine

60. The intensity of the pharmacologic action of a drug is most dependent on the

(a) Concentration of the drug at the receptor site
(b) Elimination half-life ($t_{½}$) of the drug
(c) Onset time of the drug after oral administration
(d) Minimum toxic concentration (MTC) of the drug in plasma
(e) Minimum effective concentration (MEC) of the drug in the body

61. Drug that show nonlinear pharmacokinetics have which property?

(a) A constant ratio of drug metabolites is formed as the administered dose increases
(b) The elimination half-life ($t_{½}$) increases as the administered dose increases
(c) The area under the plasma drug concentration versus time curve (AUC) increases in direct proportion to an increase in the administered dose
(d) Both low and high doses follow first-order elimination kinetics
(e) The steady-state drug concentration increases in direct proportion to the dosing rate

62. The loading dose (D_L) of a drug is usually based on the

(a) Total body clearance (Cl_T) of the drug
(b) Percentage of drug bound to plasma proteins

(c) Fraction of drug excreted unchanged in the urine
(d) Apparent volume of distribution (V_D) and desired drug concentration in plasma
(e) Area under the plasma drug concentration versus time curve (AUC)

63. The renal clearance of insulin is used as a measurement of

(a) Effective renal blood flow
(b) Rate of renal drug excretion
(c) Intrinsic enzyme activity
(d) Active renal secretion
(e) Glomerular filtration rate (GFR)

64. All of the following statements about plasma protein binding of a drug are true except

(a) Displacement of a drug from plasma protein binding sites results in a transient increased volume of distribution (V_D)
(b) Displacement of a drug from plasma protein binding sites makes more free drug available for glomerular filtration
(c) Displacement of a potent drug that is normally more than 95% bound may cause toxicity
(d) Albumin is the major protein involved in protein binding of drugs
(e) Drugs that are highly bound to plasma proteins generally have a greater V_D compared with drugs that are highly bound to tissue proteins

65. _____ is expressed in both the intestinal epithelium and the kidney.

(a) CYP2D6 (b) CYP1A1/2
(c) CYP3A4 (d) CYP2E1

66. The initial distribution of a drug into tissue is determined chiefly by the

(a) Rate of blood flow to tissue
(b) Glomerular filtration rate (GFR)
(c) Stomach emptying time
(d) Affinity of the drug for tissue
(e) Plasma protein binding of the drug

67. Which tissue has the greatest capacity to bio-transform drugs?

(a) Brain (b) Kidney
(c) Liver (d) Lung
(e) Skin

68. The principle of superposition in designing multiple-dose regimens assumes that

(a) Each dose affects the next subsequent dose causing nonlinear elimination
(b) Each dose of drug is eliminated by zero-order elimination
(c) Steady-state plasma drug concentration are reached at approximately 10 half-lives
(d) Early doses of drug do not affect subsequent doses
(e) The fraction of drug absorbed is equal to the fraction of drug eliminated

69. Which equation is true for a zero-order reaction rate of drug ?

(a) $dA/dt = - k$ (b) $t_{½} = 0.693/k$
(c) $A = A_0 e^{-kt}$

70. Which of the following functional groups is most susceptible to hydrolysis ?

(a) R – CO – R (b) R – COOR
(c) R – O - R (d) R – NH- CH_3
(e) R – COOH

71. Monomer units of proteins are known as

(a) Monosaccharides (b) Prosthetic groups
(c) Amino acids (d) Purines
(e) Nucleosides

72. Glucose is a carbohydrate that cannot be hydrolyzed into a simpler substance. It is best described as

(a) A sugar (b) A monosaccharide
(c) A disaccharide (d) A polysaccharide
(e) An oligosaccharide

73. All of the following carbohydrates are considered to be polysaccharides except

(a) Heparin (b) Starch
(c) Glycogen (d) Maltose
(e) Cellulose

74. Which of the following compounds are considered the building blocks of nucleic acids ?

(a) Nucleotides (b) Nucleosides
(c) Monosaccharides (d) Purines
(e) Amino acids

75. Which of the following terms best describes a co-factor that is firmly bound to an apoenzyme?

(a) Holoenzyme (b) Prosthetic group
(c) Coenzyme (d) Transferase
(e) Heteropolysaccharide

76. Enzymes that uncouple peptide linkages are best classified as

(a) Hydrolases (b) Ligases
(c) Oxidoreductases (d) Transferases
(e) Isomaerases

77. The sugar that is inherent in the nucleic acids RNA and DNA is

(a) Glucose (b) Sucrose
(c) Ribose (d) Digitoxose
(e) Maltose

78. N-oxidation will be involved with the metabolism of following drugs, except

(a) Dapsone (b) Meperidine
(c) Phenytoin (d) Chlorpheniramine

79. Which of the following statements describes plasmids? They

(a) Are single – stranded DNA molecules
(b) Carry optional gene(s)
(c) Carry genes essential for growth
(d) Are always found in linear form

80. Bacteria that grow at temperatures as high as 55°C are known as

(a) Psychrophiles (b) Thermophiles
(c) Mesophiles (d) Auxotrophs

81. Which of the following organisms can use only molecular oxygen as the final acceptor?

(a) Obligate anaerobes
(b) Facultative anaerobes
(c) Obligate aerobes
(d) Strict anaerobes

82. A declining growth rate occurs during which of the following phases of bacterial cell growth?

(a) Lag phase (b) Exponential phase
(c) Stationary phase (d) Death phase

83. Which class of antibody has the longest serum half-life and opsonizes antigens for phagocytosis through two different pathways?

(a) Immunoglobulin G (IgG)
(b) Immunoglobulin M(IgM)
(c) Immunoglobulin A (IgA)
(d) Immunoglobulin E (IgE)

84. Urticaria that appears rapidly after the ingestion of food usually indicates which type of hypersensitivity reaction?

(a) Type I (b) Type II
(c) Type III (d) Type IV

85. A patient receives long-term, high-dose therapy with a sulfonamide. After approximately 3 weeks of therapy, the patient has a low-grade fever, rash, and muscle and joint pain. Which type of hypersensitivity accounts for these symptoms?

(a) Type I (b) Type II
(c) Type III (d) Type IV

86. $CD4^+$T cells specifically recognize antigens in which form?

(a) Bound to major histocompatibility (MHC) class I molecules on the surface of any body cell
(b) In free, soluble form in extracellular fluids
(c) Bound to MHC class II molecules on the surface of special antigen-presenting cells (APCs)

87. Which of the following statements concerning a drug receptor is true?

(a) It mediates the nonspecific action of volatile anesthetics
(b) Its expression is induced only by exogenously added drugs
(c) It can bind endogenous ligand to produce physiological activity
(d) It mediates the cathartic activity of magnesium citrate
(e) Down-regulation of receptor level can lead to sensitization of the target cell to the receptor agonist.

88. Which of the following acids has the highest degree of ionization in an aqueous solution?

(a) Aspirin $pK_a = 3.5$
(b) Indomethacin $pK_a = 4.5$
(c) Warfarin $pK_a = 5.1$
(d) Ibuprofen $pK_a = 5.2$
(e) Phenobarbital $pK_a = 7.4$

89. Which of the following salts forms an aqueous solution that is alkaline to litmus?

(a) Sodium chloride
(b) Benzalkonium chloride
(c) Meperidine hydrochloride
(d) Cefazolin sodium
(e) Chlordiazepoxide hydrochloride

90. Hydrolysis reaction are involved with the metabolism of following drugs, except

(a) Procaine (b) Diazepam
(c) Aspirin (d) Lidocaine

91. Flurazepam has pKa of 8.2. What percentage of flurazepam will be ionized at a urine pH of 5.2?

(a) 0.1% (b) 1%
(c) 50% (d) 99%
(e) 99.9%

92. Precipitation may occur when mixing aqueous solutions of meperidine hydrochloride with which of the following solutions?

(a) Sodium bicarbonate injection
(b) Atropine sulfate injection
(c) Sodium chloride injection

93. The excretion of a weakly acidic drug generally is more rapid in alkaline urine than in acidic urine. This process occurs because

(a) A weak acid in alkaline media will exist primarily in its ionized form, which cannot be reabsorbed easily
(b) A weak acid in alkaline media will exist in its lipophilic form, which cannot be reabsorbed easily.
(c) All drugs are excreted more rapidly in an alkaline urine.

94. Which of the following drugs is considered to be the agent of choice for anaphylactic reactions?

(a) Edrophonium (b) Ipratropium
(c) Ambenonium (d) Propantheline
(e) Homatropine

95. Which of the following drugs is considred to be the agent of choice for anaphylactic reactions?

(a) Clonidine (b) Isoproterenol
(c) Epinephrine (d) Phenylephrine
(e) Terbutaline

96. Which of the following emissions from the decay of radionuclides is most commonly used in nuclear medicine imaging?

(a) X-ray (b) Beta
(c) Alpha (d) Gamma
(e) Positron

97. Which of the following radionuclides is mot commonly used in nuclear pharmacy practice?

(a) ^{67}GA (b) ^{201}Tl
(c) ^{99m}TC (d) ^{123}I
(e) ^{133}Xe

98. Which of the following radionuclides is generator produced?

(a) ^{99m}TC (b) ^{201}Tl
(c) ^{67}GA (d) ^{133}Xe
(e) ^{123}I

99. Abrasives, ingredients in dentifrices, are noted for which of the following actions?

(a) Providing flavor
(b) Cleansing via a foaming detergent action
(c) Removing plaque and debris
(d) Preventing dental caries
(e) Adding thickness to the product

100. The appropriate pH range for ophthalmic products is

(a) 2.0 – 3.0 (b) 4.0 – 6.0
(c) 6.0 – 8.0 (d) 8.0 – 10.0

101. Which type of contact lens can most easily be ruined by the absorption of chemicals?

(a) Hard lenses (b) Soft lenses
(c) Gas-permeable lenses

102. All of the following desensitizing agents are recommended for sensitive teeth except

(a) 10% carbamide peroxide
(b) 5% potassium nitrate
(c) Dibasic sodium citrate
(d) 10% strontium chloride hexahydrate

103. Carbamide peroxide appears to soften earwax by

(a) Causing oxygen to be released, which loosens the wax
(b) Stimulating fluid secretion in the ear canal
(c) Actually dissolving the ear wax
(d) Decreasing lipid content of the wax
(e) None of the above

104. A common oral problem caused by herpes simplex type I virus (HSV-1) is

(a) Aphthous ulcers
(b) Canker sores
(c) Aphthous stomatitis
(d) Fever blisters
(e) Thrush

105. The definition of a surfactant (an ingredient in toothpaste) can best be described by which of the following statements? Surfactant

(a) Prevents drying of the preparation
(b) Removes debris by its detergent action and causes foaming, which is usually desired by the patient
(c) Physically removes plaque and debris
(d) Determines the texture, dispersiveness, and appearance of the product
(e) Adds flavor to the preparation which makes it more appealing to the patient

106. Which is not a risk factor for hyperphosphatemia and death from sodium phosphate enemas when used in children?

(a) Renal insufficiency
(b) Hirschsprung's disease
(c) Anorectal malformations
(d) Children between the ages of 6 and 12 years

107. Which of the following factors is associated with an increased risk of noncompliance in the elderly?

(a) Polypharmacy
(b) Hypertension
(c) Male gender
(d) Living with a spouse in an isolated environment
(e) Expensive medications

108. The principal difference between competitive and non-competitive inhibition is

(a) Extent of receptor site blocking
(b) Whether inhibition occurs
(c) Extent of enzyme inhibition
(d) Degree of agonism
(e) None of the above

109. Drug administrated through which of the following routes is mot likely to be subjected to first-pass metabolism:

(a) Oral (b) Sublingual
(c) Subcutaneous (d) Rectal

110. Many receptors use distinct hetero _____ GTPä-binding regulatory proteins

(a) Tetrameric (b) Trimeric
(c) Dimeric (d) Monomeric

111. Alkalinization of urine hastens the excretion of

(a) Weakly basic drugs
(b) Weakly acidic drugs
(c) Strong electrolytes
(d) Nonpolar drugs

112. Majority of drugs cross biological membranes primarily by

(a) Weakly basic drugs
(b) Weakly acidic drugs
(c) Strong electrolytes
(d) Nonpolar drugs

113. The most important factor which governs diffusion of drugs across capillaries other than those in the brain is

(a) Blood flow through the capillary
(b) Lipid solubility of the drug
(c) pKa value of the drug
(d) pH of the medium

114. Active transport of a substance across biological membrane has the following characteristics except

(a) It is specific
(b) It is pH dependent
(c) It is saturable
(d) It requires metabolic energy

115. Bioavailability differences among oral formulations of a drug are most likely to occur if the drug

(a) Is freely water soluble
(b) Is completely absorbed
(c) Is incompletely absorbed
(d) Undergoes little first-pass metabolism

116. Bioavailability of drug refers to

(a) Perecentage of administered dose that reaches systemic circulation in the unchanged form
(b) Rario of oral to parental dose
(c) Ratio of orally administered drug to that excreted in the faeces
(d) Ratio of drug excreted unchanged in urine to that excreted as metabolites

117. The most important factor governing absorption of a drug from intact skin is

(a) Molecular weight of the drug
(b) Site of application
(c) Lipid solubility of the drug
(d) Nature of the base used in the formulation

118. Redistribution is a feature of

(a) Highly plasma protein bound drugs
(b) Depot preparations
(c) Poorly lipid soluble drugs
(d) Highly lipid soluble drugs

119. Weakly acidic drugs

(a) Are bound primarily to a_1 acid glycoprotein in plasma
(b) Are excreted faster in alkaline urine
(c) Are highly ionized in the gastric juice
(d) Do not cross blood—brain barrier

120. High plasma protein binding

(a) Increases the volume of distribution of the drug
(b) Facilitates glomerular filtrtion of the drug
(c) Minimizes drug interactions
(d) Generally makes the drug long acting

121. Biotransformation of drugs is primarily directed to

(a) Activate the drug
(b) Inactivate the drug
(c) Convert lipid soluble drugs into nonlipid soluble metabolites
(d) Convert nonlipid soluble drugs into lipid soluble metabolites

122. A prodrg is

(a) The prototype member of a class of drugs
(b) The oldest member of a class of drugs
(c) An inactive drug that is transformed in the body to an active metabolite
(d) A drug that is stored in body tissues and is then gradually released in the circulation

123. Which of the following cytochrome P450 isoenzymes is involved in the metabolism of a large number of drugs in human beings and has been implicated in some dangerous drug interactions:

(a) CYP 3A4 (b) CYP 2C9
(c) CYP 2E1 (d) CYP 1A2

124. The most commonly occurring conjugation reaction for drugs and their metabolites is

(a) Glucuronidation
(b) Acetylation
(c) Methylation
(d) Glutathione conjugation

125. G-protein coupled receptors span the plasma membrane as a bundle of ____ alpha helices

(a) One (b) Three
(c) Seven (d) Ten

126. Which of the following drug metabolizing reactions is entirely nonmicrosomal

(a) Glucuronide conjugation
(b) Acetylation
(c) Oxidation
(d) Reduction

127. Induction of drug metabolizing enzymes involves

(a) A conformational change in the enzyme protein to favor binding of substrate molecules
(b) Expression of enzyme molecules on the surface of hepatocytes
(c) Enhanced transport of substrate molecules into hepatocytes
(d) Increased synthesis of enzyme protein

128. Drugs which undergo high degree of first-pass metabolism in liver

(a) Have oral bioavailability
(b) Are excreted primarily in bile
(c) Are contraindicated in liver disease
(d) Exhibit zero order kinetics of elimination

129. Glomerular filtration of a drug is affected by its

(a) Lipid solubility
(b) Plasma protein binding
(c) Degree of ionization
(d) Rate of tubular secretion

130. If a drug undergoes net tubular secretion, its renal clearance will be

(a) More than the glomerular filtration rate
(b) Equal to the glomerular filtration rate
(c) Less than the glomerular filtration rate
(d) Equal to the rate of urine formation

131. Which of the following is not a primary/ fundamental, but a derived pharmacokinetic parameter

(a) Bio-availability
(b) Volume of distribution
(c) Clearance
(d) Plasma half life

132. If a drug is eliminated by first order kinetics

(a) A constant amount of the drug will be eliminated per unit time
(b) Its clearance value will remain constant
(c) Its elimination half-life will increase with dose
(d) It will be completely eliminated from the body in 2 x half-life period

133. If a drug has a constant bio-availability and first order elimination, its maintainance dose rate will be directly proportional to its

(a) Volume of distribution
(b) Plasma protein binding
(c) Lipid solubility
(d) Total body clearance

134. The following dose of a drug is governed by its

(a) Aqueous diffusion
(b) Aqueous hydrolysis
(c) Lipid diffusion
(d) Pinocytosis or endocytosis

135. Monitoring plasma drug concentration is useful while using

(a) Antihypertensive drugs
(b) Levodopa
(c) Lithium carbonate
(d) MAO inhibitors

136. Microsomal enzyme induction has one of the following features

(a) Takes about one week to develop
(b) Results in increased affinity of the enzyme for the substrate
(c) It is irreversible
(d) Can be used to treat acute drug poisonings

137. Which of the following is a competitive type of enzyme inhibitor

(a) Acetazolamide (b) Disulfiram
(c) Physostigmine (d) Theophyline

138. What is true in relation to drug receptors

(a) All drugs act through specific receptors
(b) All drug receptors are located on the surface of the target cells
(c) Agonists induce a conformational change in the receptor

(d) Partial agonists have low affinity for the receptor

139. A partial agonist can antagonize the effects of a full agonist because it has

(a) High affinity but low intrinsic activity
(b) Low affinity but high intrinsic activity
(c) No affinity and low intrinsic activity
(d) High affinity but no intrinsic activity

140. Receptor agonists possess

(a) Result in increased smooth endoplasmic reticulum
(b) Result in increased rough endoplasmic reticulum
(c) Result in decreased enzymes in the soluble cytoplasmic fraction
(d) Require 3–4 months to reach completion

141. Agonists affect the receptor molecule in the following manner

(a) Alter its amino acid sequence
(b) Denature the receptor protein
(c) Alter its folding or alignment of subunits
(d) Induce covalent bond formation

142. Receptors perform the following function/ functions

(a) Ligand recognition
(b) Signal transduction
(c) Both ligand recognition and signal transduction
(d) Disposal of agonists and antagonists

143. Which of the following receptor types has 7 helical membrane, spanning amino acid segments with 3 extracellular and 3 intracellular loops

(a) Tyrosine protein kinase receptor
(b) Gene expression regulating receptor
(c) Intrinsic ion channel containing receptor
(d) G protein coupled receptor

144. Which of the following is a G protein coupled receptor

(a) Muscarinic cholinergic receptor
(b) Nicotinic cholinergic receptor
(c) Glucocorticoid receptor
(d) Insulin receptor

145. Placebo effects result presumably from the

(a) Physician-patient relationship
(b) Mental set up imparted by the therapeutic settings
(c) Mental set up imparted by the physician
(d) All of the above

146. All of the following subserve as intracellular second messengers in receptor mediated signal transduction except

(a) Cyclic AMP
(b) Inositol trisphosphate
(c) Diacyl glycerols
(d) G protein

147. A receptor which itself has enzymatic property is

(a) Insulin receptor
(b) Progesterone receptor
(c) Thyroxine receptor
(d) Glucagon receptor

148. Down regulation of receptors can occur as a consequence of

(a) Continuous use of agonists
(b) Continuous use of antagonists
(c) Chronic use of CNS depressants
(d) Denervation

149. When therapeutic effects decline both below and above a narrow range of doses, a drug is said to exhibit

(a) Ceiling effect
(b) Desensitization
(c) Therapeutic window phenomenon
(d) Nonreceptor mediated action

150. 'Drug efficacy' refers to

(a) The range of diseases in which the drug is beneficial
(b) The maximal intensity of response that can be produced by the drug
(c) The therapeutic dose range of the drug
(d) The therapeutic index of the drug

151. If the dose-response curves of a drug for producing different actions are widely separated on the dose axis, the drug is

(a) Highly potent (b) Highly efficacious
(c) Highly toxic (d) Highly selective

152. The therapeutic index of a drug is a measure of its

(a) Safety (b) Potency
(c) Efficacy (d) Dose variability

153. If the effect of combination of two drugs is equal to the sum of their individual effects, the two drugs are exhibiting

(a) Potentiation (b) Synergism
(c) Cross tolerance (d) Antagonism

154. The antagonism between adrenaline and histamine is called 'Physiological antagonism' because

(a) Both are physiologically present in the body
(b) They act on physiological receptors
(c) Both affect many physiological processes
(d) They have opposite physiological effects

155. A drug 'R' producing no response by itself causes the log dose-response curve of another drug 'S' to shift to the right in a parallel manner without decreasing the maximal response : Drug 'R' is a

(a) Partial agonist
(b) Inverse agonist
(c) Competitive antagonist
(d) Noncompetitive antagonist

156. A drug which does not produce any action by itself but decreases the slope of the log dose-response curve and suppresses the maximal response to another drug is a

(a) Physiological antagonist
(b) Competitive antagonist
(c) Noncompetitive antagonist
(d) Partial agonist

157. A drug which is generally administered in standard doses without the need for dose individualization is

(a) Insulin (b) Mebendazole
(c) Prednisolone (d) Digoxin

158. A fixed dose combination preparation meant for internal use must not contain the following class of drug

(a) Thiazide diuretic
(b) Fluoroquinolone antimicrobial
(c) Corticosteroid
(d) H_2 blocker

159. Interindividual variations in equieffective doses of a drug are most marked if it is disposed by

(a) glomerular filtration
(b) Tubular secretion
(c) Both (a) and (b)
(d) Hepatic metabolism

160. The pharmacokinetics of drugs in the neonate differs from that in adults, because their

(a) Intestinal transit is fast
(b) Glomerular filtration rate is high
(c) Tubular transport mechanisms are not well developed
(d) Drug metabolizing enzymes are overactive

161. Pharmacodynamic tolerance may involve changes in _____of drug receptors

(a) Number (b) Affinity
(c) Function (d) All the above

162. Drug metabolism can be induced by the following factors except

(a) Cigarette smoking
(b) Acute alcohol ingestion
(c) Exposure to insecticides
(d) Consumption of charcoal boiled meat

163. Which of the following is true of placebos

(a) Placebo is a dummy medication
(b) Placebo is the inert material added to the drug for making tablets
(c) Placebos do not produce any effect
(d) All patients respond to placebos

164. In patients of hepatic cirrhosis

(a) The extent of change in pharmacokinetics of drugs can be predicted from the values of liver function tests

(b) High doses of furosemide can be safely used
(c) Metformin is the preferred oral hypoglycaemic
(d) Disposition of atenolol is not significantly affected

165. An undersireable effect of a drug that occurs at therapeutic doses and can be predicted from its pharmacological actions is called

(a) Side effect (b) Toxic effect
(c) Allergic reaction (d) Idiosyncrasy

166. Which of the following is a type II (unpredictable) adverse drug reaction

(a) Side effect
(b) Toxic effect
(c) Idiosyncrasy
(d) Physical dependence

167. A 'toxic effect' differs from a 'side effect' in that

(a) It is not a pharmacological effect of the drug
(b) It is a more intense pharmacological effect that occurs at high dose or after prolonged medication
(c) It must involve drug induced cellular injury
(d) It involves host defence mechanisms

168. Which of the following statements is true in relation to 'drug toxicity' and 'poisoning'

(a) The two terms are synonymous
(b) When a toxic effect requires specific treatment, it is called poisoning
(c) A toxic effect which endangers life by markedly affecting vital functions is called poisoning
(d) Toxicity is caused by drugs while poisoning is caused by other harmful chemicals

169. The most vulnerable period of pregnancy for the causation of foetal malformations due to drugs is

(a) 18–55 days of gestation
(b) 56–84 days of gestation
(c) Second trimester
(d) 36 weeks onwards

170. Which of the following is a proven human teratogen

(a) Chloroquine (b) Warfarin sodium
(c) Dicyclomine (d) Methyldopa

171. Select the drug which has been found to be a strong human teratogen

(a) Isoniazid (b) Isotretinoin
(c) Hydralazine (d) Propylthiouracil

172. Oral route

(a) Yields better absorption than parenteral administration for majority of drugs
(b) Should be avoided in the recumbent position
(c) Has no demerit
(d) Produces quick onset of action

173. Intramuscular route

(a) Always produces faster absorption than oral route
(b) Can be used to inject mild irritants
(c) In a child is made into the gluteus maximus muscle
(d) Can be used to inject a volume of 15 ml

174. Advantage of sublingual route include the following except

(a) It has a rapid onset of action
(b) Spitting out the tablet can terminate its action
(c) Its usefulness is limited to treat local conditions
(d) It avoids first pass hepatic metabolism

175. First pass metabolism

(a) Can increase the oral bio-availability of the drug
(b) Occurs only in the liver
(c) Is higher on intravenous administration
(d) Necessitates high oral dose for certain drugs

176. Bio-transformation

(a) Renders the drug more lipid soluble
(b) Can be altered by drugs
(c) Is necessary for all drugs for their elimination
(d) Takes place only in the liver

177. Entry of a drug in the central nervous system is enhanced if the drug is

(a) Ionized
(b) More lipid soluble
(c) Given intravenously
(d) Highly plasma protein bound

178. Kinetic processes of elimination for a large number of drugs is

(a) First order
(b) First order followed by zero order
(c) Zero order followed by first order
(d) Zero order

179. A drug is said to be potent when

(a) It produces maximal response
(b) The amount needed to produce a certain response is less
(c) It produces minimal/no side effects
(d) It has a rapid onset of action

180. Spare receptors are often found among drugs that elicit

(a) Smooth muscle contraction
(b) Smooth muscle relaxation
(c) Secretion
(d) Cardiac stimulation

181. What is the best criterian for judging the therapeutic superiority of a drug over its congeners?

(a) Potency
(b) Wide range of activity
(c) Efficacy
(d) Variability

182. pKa of a compound

(a) Is the pH of solution at which the compound is 50% ionized
(b) Is the pH of compound at which it is 50% ionized
(c) Is the time in which the compound is ionized
(d) Is the time in which total compound is ionized

183. Pharmacokinetics is

(a) The study of absorption, distribution, metabolism and excretion of drugs
(b) The study of biological and therapeutic effects of the drugs
(c) The method of development of new pharmacological agent
(d) The study of carcinogenic activity of a new drug

184. In which form the drug is absorbed more rapidly?

(a) In aqueous solution
(b) In suspension
(c) In oily solution
(d) In solid form

185. Alcohol is rapidly absorbed from the intestine because

(a) It is lipid soluble and non-electrolyte
(b) It is lipid soluble and highly ionised
(c) It is absorbed by active transport
(d) It is not absorbed quickly

186. After intramuscular injection, the drugs

(a) In oily solution are more rapidly absorbed
(b) In aqueous solution are more rapidly absorbed
(c) Suspended in various repository vehicles are more rapidly absorbed
(d) All solutions are rapidly absorbed

187. Bio-availability of a drug is

(a) The percentage of drug released from a formulation that becomes available for biological effect
(b) The percentage of drug that is ionized from a formulation
(c) The net amount of actual therapeutic agent present in the formulation
(d) The dose of a drug by which 50% animals show signs of toxicity

188. The absorption time of a drug can be reduced by

(a) Making a more soluble salt – for oral
(b) By using hyaluronidase – for injection
(c) By using vesoconstrictor substances
(d) By giving combination of drugs

189. Reduction of heavy metal toxicity by dimercaprol is an exmple of

(a) Chemical antagonist
(b) Physiological antagonist
(c) Pharmacokinetic antagonist
(d) Antagonism by receptor block

190. Which of the following drugs is primarily stored in the natural fat of the body

(a) Primaquine (b) Acetyl salicylic acid
(c) Thiopentone (d) Vitamin C

191. Bio-transformation of the drugs is to render them

(a) Less lipid soluble
(b) More protein bound
(c) Less ionized
(d) Less protein bound

192. Drug metabolism occurs chiefly in

(a) Liver (b) Brain
(c) Spleen (d) Kidneys

193. For renal excretion the factors important are

(a) Extent of plasma protein binding of drugs
(b) Glomerular filtration rate
(c) Active renal tubular reabsorption
(d) All of the above

194. If tubular urine is made more acid

(a) Excretion of weak acid is reduced
(b) Excretion of weak acid is increased
(c) Excretion of weak base is increased
(d) Excretion of weak base is reduced

195. Simultaneous administration of two drugs may – (select the false statement)

(a) Show an additive effect
(b) Produce synergism
(c) Result in antagonism
(d) Produce any of above phenomena

196. The advantages of bio-assay over chemical assay include – (select false statement)

(a) It is cheaper
(b) The active principal does not have to be known
(c) The active principal does not have to be in a pure state
(d) The sensitivity may be greater

197. In presence of competitive antagonist

(a) The maximum response of agonist can never be achieved
(b) The maximum can be achieved by increasing the concentration activity
(c) Maximum can be achieved only if the antagonist is having intrinsic activity
(d) None of the above

198. The receptor concept was first introduced by

(a) J.N. Langley in 1878
(b) Paul Ehrlich in 1926
(c) Somonis in 1964
(d) Wakesman in 1826

199. True tolerance develops because of

(a) Diminition in absorption
(b) Rapid excretion of the drug
(c) Both of the above
(d) None of the above

200. Two drugs binding to the same receptors is

(a) Chemical antagonism
(b) Pharmacokinetic antagonism
(c) Competitive antagonism
(d) Non-competitive antagonism

201. Tachyphylaxis is

(a) A drug interaction between two similar types of drugs
(b) Rapidly developing tolerance
(c) A synergism between two types of drugs
(d) None of the above

202. Drug A in a dose of 10 mg produces same response as with 100 mg of drug B

(a) Drug A is 10 times more potent than drug B
(b) Drug B is 10 times more potent than drug A
(c) Drug A is 10 times more efficacious than drug B
(d) Both are equally potent
(e) Both are equally efficacious

203. Teratogenicity is

(a) The acute reaction to drugs
(b) Intolerance to drugs
(c) Tumour forming action of the drugs
(d) Malformation of the foetus

204. The chances of foetal malformation with a teratogenic drug is maximum

(a) During first trimester of pregnancy
(b) During second trimester of pregnancy
(c) During third trimester of pregnancy
(d) When given just prior to the labor

205. Phocomelia is a known teratogenic effect of

(a) Anticancer drugs
(b) Antiviral drugs
(c) Antiepileptic drugs
(d) Thalidomide

206. Which of the following drugs are known to cause toxic cataract?

(a) Chloroquine (b) Ergot
(c) Phenothiazine (d) Naphthalene
(e) All of the above

207. The passage of drugs into the foetus from placenta

(a) Is by active transport
(b) Is by passive diffusion
(c) Is by carrier mediated transport
(d) By any of the above methods

208. Idiosyncrasy reaction of a drug is

(a) A type of hypersensitivity reaction
(b) A type of drug antagonism
(c) Unpredictable, inherent, qualitatively abnormal reaction of a drug
(d) Quantitatively exaggerated response

209. Two drugs having similar effects are termed as

(a) Heterergic drugs
(b) Isomer drugs
(c) Homergic drugs
(d) Antagonistic drugs

210. If the combined effect of two drugs acting by the same mechanism is equal to the allegebric sum of their individual effect, it is called as

(a) Antagonism (b) Additive effect
(c) Potentiation (d) None of the above

211. Antagonism between barbiturate and amphetamine is termed as

(a) Non-competitive antagonism
(b) Physiological antagonism
(c) Competitive antagonism
(d) Synergism

212. Which one of the following is an example of physical or chemical interaction?

(a) Warfarin plus salicylates–prolongation of anticoagulant effect and bleeding tendency
(b) Methotrexate plus sulfonamides–pancytopenia
(c) Heparin plus protamine–reversal of heparin effect
(d) Sulfonamides plus salicylate–sulfa toxicity

213. First order kinetics of the drugs is called when

(a) A constant fraction of the drug is removed in per unit time
(b) A constant amount of the drug is removed in per unit time
(c) Total amount of the drug is removed in one hour
(d) Total amount of the drug is removed in first passage through the kidneys

214. For the drugs which follow first order kinetics, after 4 half life the elimination will be approximately

(a) 40% (b) 94%
(c) 25% (d) 4%

215. Passive diffusion of a drug across cell membrane is low when its molecular mass is greater than

(a) 50–100 Da (b) 100–200 Da
(c) 200–300 Da (d) 300–400 Da

216. Passage of drug across most capillary endothelial membranes is dependent upon

(a) Lipid solubility (b) pH gradient
(c) Blood flow (d) All of the above

217. Following receptors are membrane proteins, except

(a) Receptors for fast neurotransmitters, coupled directly to an ion channel
(b) Receptors for many hormones and slow transmitters, coupled to effector system
(c) Receptor for insulin and various growth factors, which are directly linked linked to tyrosine kinase
(d) Receptors for steroid hormone

218. pH difference between extracellular and intracellular fluid is

(a) Nil (b) 0.2
(c) 0.4 (d) 0.8

219. Which type of drugs penetrate CNS better

(a) Lipid soluble (b) Weak acids
(c) Weak bases (d) All equally

220. Acidic drugs mostly bind to plasma

(a) Albumin (b) Globulin
(c) Glycoprotein (d) None of the above

221. The number of P_{450} gene families identified in human being is

(a) 4 (b) 8
(c) 12 (d) 16

222. The majority of drug biotransformation occurs by which cytochrome family

(a) CYP_1 (b) CYP_2
(c) CYP_3 (d) None of the above

223. Nonlinearity in pharmacokinetics of a drug is due to saturation of

(a) Protein binding
(b) Hepatic metabolism
(c) Active renal transport
(d) All of the above

224. Which of the following disease is due to G protein receptor malfunction

(a) Precocious puberty
(b) Retinitis pigmentosa
(c) Malignant hyperthyroidism
(d) All of the above

225. The pharmacokinetic alternations in elderly are due to

(a) Reduction in lean body mass and total body water
(b) Increase in percentage of body fat
(c) Reduced cytochrome P_{450} enzymes
(d) All of the above

226. The effect of enzyme induction is greatest when the drug is given

(a) Digoxin (b) Furosemide
(c) Enalapril (d) Amrinone

227. The hepatic enzyme inducer naringenin is present in

(a) Tobacco smoke (b) Grape juice
(c) Alcohol (d) Apple Juice

228. In gene tranfer which metal particle is often used

(a) Iron (b) Gold
(c) Platinum (d) Mobybdenum

229. Slow reacting substance of anaphylaxis refers to

(a) LTC_4 (b) LTD_4
(c) Both of the above (d) None of the above

230. Drugs producing allergic reaction generally act as

(a) Complete antigens
(b) Haptens
(c) Antibodies
(d) Mediators

231. An addicting drug which produces little or no physical dependence is

(a) Amphetamine (b) Methadone
(c) Phenobarbitone (d) Diazepam

232. Which of the following statements regarding therapeutic window is correct ?

(a) The ratio of LD50 to the ED50
(b) The Dosage range between the minimum effective therapeutic concentration and the minimum toxic concentration
(c) Both the above
(d) None of the above

233. Which of the following statements regarding acid –base balance is not correct ?

(a) it is an essential balance between the amount of carbonic acid and biocarbonate in blood.
(b) It must be kept constant so that the hydrogen in concentration in the blood plasma is in turn kept constant
(c) Any deviation in the balance can have a profound effect on physiological function
(d) All the above
(e) None of the above

234. During liver disease the metabolism and elimination of which of the following drugs is decreased

(a) Morphine
(b) Pentobarbitone
(c) Propanolol
(d) All the above
(e) None of the above

235. In celiac disease oral absorption of which of the following drugs is decreased

(a) Amoxycillin
(b) Cephalexin
(c) Cotrimoxazole
(d) All the above

236. Which people are said to be slowest acetylators because they metabolize isoniazid by the process of acetylation very slowly

(a) Canadian Eskimos
(b) Indians
(c) Asiatic Jews
(d) Chinese
(e) Europeans
(f) all the above

237. Which people are said to be fastest acetylators because they metabolize isoniazid by the process of acetylation very quickly

(a) Canadian Eskimos
(b) Indians
(c) Asiatic Jews
(d) Chinese
(e) Europeans
(f) all the above

238. Clearance of which of the following drugs is reduced parallel to decrease in the creatine clearance

(a) Aminoglycosides (b) Digoxin
(c) Phenobarbitone (d) All the above
(e) None of the above

239. Pharmaceutical factors which can modify the effect of drug are

(a) Formulation type
(b) Bioavailabiligy
(c) Bioequivalence
(d) Fixed Dose combination
(e) All the above
(f) None of the above

240. Following statement is true about receptors linked directly to ion channels

(a) These receptors are involved mainly in fast synaptic transmission
(b) These are monomeric proteins containing one transmembrane segment
(c) Ligand binding and channel opening occur on a minute time-scale
(d) All of the above

241. Route of administration suitable for emergency and permits titration of the dosage as well is

(a) Oral (b) Intravenous
(c) Intramuscular (d) Subcutaneous
(e) All the above (f) None of the above

242. The disadvantage of oral route is

(a) Vomiting as a result of gastrointestinal irritation
(b) Destruction of some drugs by the digestive enzyme and non-favorable gastric pH
(c) Irregularities in the absorption in the presence of the food and other drugs
(d) Patient non-compliance
(e) All the above
(f) None of the above

243. Drugs which have a tendency to accumulate in the body fat mostly have

(a) Extremely high lipid-water partition co-efficient
(b) Extremely low lipid-water partition co-efficient
(c) None of the above

244. Once the drug enters the blood, the rate at which it subsequently penetrates the tissues and other body fluids depends on

(a) Capillary permeability
(b) Extent of plasma protein and tissue binding
(c) Transport mechanism

(d) All the above
(e) None of the above

245. Factor which can effect the absorption of drug is

(a) Dissolution rate (b) Particle Size
(c) Lipid Solubility (d) All the above
(e) None of the above

246. The movement of drug molecules across the cell membrane is by

(a) Diffusion through the lipid
(b) Diffusing through aqueous pores that traverse the lipid
(c) Combination with a carrier molecule which acts as a catalyst
(d) Pinocytosis
(e) All the above
(f) None of the above

247. Which of the following responses develops to drugs due to antigen-antibody reaction ?

(a) Toxic response
(b) Idiosyncratic response
(c) Allergic response
(d) None of the above

248. The microsomal oxidation of drugs is carried out through a larger or smaller extent in

(a) Liver (b) Kidney
(c) Lung (d) small intestine
(e) all of the above

249. The mechanism of Biotransformation of Aspirin to Salicylic acid and Acetic acid is

(a) Oxidation (b) Reduction
(c) Hydrolysis (d) None of the above

250. Which one of the statements regarding microsomal enzymes is not correct

(a) They lack specificity
(b) Capable of metabolizing substances of different structure
(c) Only catalyze reaction of compounds which are lipid insoluble
(d) All the above

251. Which one of the following is a Phase II – Drug metabolizing reaction

(a) Oxidation (b) Reduction
(c) Acetylation (d) All the above

252. The metabolic reaction which makes the metabolite of codeine more Pharmacologically potent analgesic is

(a) Dealkylation (b) Oxidation
(c) Deamination (d) All the above

253. Prodrug

(a) Facilitates absorption and distribution of drugs with poor lipid solubility
(b) Increases the duration of action of drugs that are rapidly eliminated
(c) Promotes Site specific delivery of drugs
(d) All the above

254. The removal of oxygen or an alteration in a drug which leads to a decrease in the proportion of oxygen in the drug compound is known as

(a) Oxidation (b) Reduction
(c) Hydrolysis (d) All the above

255. Excipients are

(a) Pharmacologically inert substances
(b) Used to mask an unpleasant taste
(c) Used to increase solubility or stability to the agent
(d) Employed to add bulk to the active agent used in small quantities
(e) All the aboves

256. Bio-assay is used to

(a) Determine the relationship between the dose administered and the magnitude of response
(b) Determine the potency of a new agent compared with that of an established drug
(c) Determine the relationship between the doses producing a desired effect and those eliciting undesirable or toxic effect
(d) All the above
(e) None of the above

257. Which of the following endogenous compounds undergo methylation ?

(a) Histamine (b) Estradiol
(c) Thyroxine (d) All the above
(e) None of the above

258. Which one of the following statements regarding glucuronide conjugation is not correct

(a) The most frequently occurring reactions
(b) The conjugating agent is glucuronic acid, $C_6H_{10}O_6$
(c) The glucuronide are rapidly eliminated in the urine
(d) The glucuronides are also secreted in the bile, but this does not always lead to their elimination in the feces
(e) All the above
(f) None of the above

259. Which of the following therapeutic systems provides continuous, unattended, controlled drug input for a long period without gastrointestinal or hepatic drug inactivation prior to systemic circulation ?

(a) Parenteral (b) Oral
(c) Transdermal (d) All the above
(c) None of the above

260. The translocation of a solute from one side of a biologic barrier to the other side and the transferred solute appearing in the same form on both side of the biological barrier is known as

(a) Bioavailability (b) Biotransport
(c) Bioequivalence (d) None of the

261. Guanine nucleotides bind to the _____ subunit of G-proteins

(a) α (b) β
(c) γ (d) All the above

262. Pharmacodynamics include

(a) The biological effects produced by chemicals
(b) The site/s and mechanism by which the biological effects are produced
(c) The factors that effect the safety and effectiveness of the agent
(d) All the above
(e) None of the above

263. The person who set forth the principles that drugs are effective only after reaching a responsive tissue and that there is a relationship between the structure of drugs and the effects that they produce

(a) Paracelsus (b) William Harvey
(c) James Blake (d) Rudolf Buccheim
(e) None of the above

264. The great scientist who explained the circulation of the blood to the world which signaled of the beginning of the scientific study of the medical sciences was

(a) Paracelsus (b) William Harvey
(c) James Blake (d) Rudolf Buccheim
(e) None of the above

265. All the below mentioned drugs cause enzyme inhibition in man except one

(a) Acetazolamide (b) Allopurinol
(c) Meprobamate (d) Disulfiram
(e) Selegiline

266. All the below mentioned drugs cause enzyme induction in man except one

(a) Phenytoin (b) Phenobarbitone
(c) Griseofulvine (d) Enalapril
(e) Rifampicin

267. Cimetidine potentiates the action of propranol, theophylline, warfarin and phenytoin because

(a) It causes deficiency of G - 6–PD
(b) It blocks the H2 – histaminergic receptors
(c) It is an inhibitor of microsomal P–450
(d) None of the above

268. The incidence of adverse drug reaction rises with age in the adult, especially after 65 years because of

(a) The increasing number of drugs they need to take because they tend to have multiple diseases
(b) Poor compliance with dosing regimens
(c) Bodily changes of aging that require modification of dosage regimens
(d) All the above
(e) None of the above

269. Agranulocytosis is

(a) Virtual absence from the blood of white cells known as neutrophils

(b) It is a life-threatening conditions that results from toxic damage to the bone-marrow by some drugs
(c) Can be treated with antibiotics and sometimes transfusion of white blood cells
(d) All the above

270. Characteristically following oral administration to a man, drugs

(a) Are absorbed readily when in the unionized rather than in the ionized form
(b) Are absorbed primarily in the intestine
(c) Cross membranes mainly by simple diffusion
(d) With high lipid solubility readily penetrate into CNS
(e) All the above

271. Competitive antagonists

(a) Dissociate from receptors faster than their respective agonists
(b) Alter the shape of the log dose response curve of an agonist
(c) According to the rate theory have low dissociation rate constants
(d) Initiate the opposite cellular response to receptor occupancy to that obtained by the agonist
(e) All the above

272. A non-competitive antagonist

(a) Alters the mechanism of action of an agonist
(b) Alters the potency of an agonist
(c) Shifts the dose-response curve of an agonist to the right
(d) Decreases the maximum response to an agonist
(e) None of the above

273. Repeated administration of a drug may

(a) Increase its own metabolism
(b) Increase the metabolism of other drugs
(c) Increase the metabolism of endogenous compounds
(d) All the above
(e) None of the above

274. Plasma concentration is useful for

(a) Drugs with high safety margin
(b) Drugs with low safety margin
(c) Drugs activated in the body
(d) Hit and run drugs

275. During competitive equilibrium type of antagonism

(a) Equilibrium constant (K_m) is unchanged, but total number of binding sites (V_{max}) is reduced
(b) Equilibrium constant (K_m) is increased and total number of binding sites (V_{max}) is reduced
(c) Equilibrium constant (K_m) is increased and total number of binding sited (V_{max}) remain unchanged
(d) None of the above

276. Addition of oxygen or negatively charged radical and removal of hydrogen or positively charged radical is known as

(a) Reduction (b) Oxidation
(c) Acetylation (d) Hydrolysis
(e) None of the above

277. Pharmacopoeia includes list of established drugs and medicinal preparation with the description of their

(a) Physical properties
(b) Identification test
(c) Purification test
(d) Potency test
(e) All the above

278. Claude Bernard is known as

(a) Father of Medicine
(b) Father of Pharmacognosy
(c) Father of Polypharmacy
(d) Father of Pharmacology
(e) Father of Experimental Medicine

279. Oswald Schmiedeberg is known as

(a) Father of Medicine
(b) Father of Pharmacognosy
(c) Father of Polypharmacy
(d) Father of Pharmacology
(e) Father of Experimental Medicine

280. Catalytic conversion of GTP to GDP is carried out by _____ subunit of G-proteins

(a) α (b) β
(c) γ (d) All the above

281. Theophrastus is known as

(a) Father of Medicine
(b) Father of Pharmacognosy
(c) Father of Polypharmacy
(d) Father of Pharmacology
(e) Father of Experimental Medicine

282. Hippocrates is known as

(a) Father of Medicine
(b) Father of Pharmacognosy
(c) Father of Polypharmacy
(d) Father of Pharmacology
(e) Father of Experimental Medicine

283. When a drug lacking effect of its own increases the effects of the second active drug [0 +1= >1]; such an effect is called

(a) Additive effect (b) Synergism
(c) Potentiation

284. When two drugs with the same effect produce an effect greater than the sum of the effects of individual drugs [1 + 1>2]; such an effect is called

(a) Additive effect (b) Synergism
(c) Potentiation

285. Weak acids ionize more in

(a) Alkaline pH (b) Acidic pH
(c) Not dependent of pH

286. Theophylline has shorter half life in infants and children because

(a) Renal tubular secretory mechanism is deficient
(b) Immaturity of the nephron
(c) Immaturity of the blood-brain barrier
(d) Reduced plasma - protein binding
(e) Liver size larger on a body weight basis

287. An antagonist has

(a) Intrinsic activity and no affinity
(b) Only intrinsic activity and no affinity
(c) No intrinsic activity and no affinity
(d) Affinity same as agonist and devoid of intrinsic activity
(e) None of the above

288. Acetylcholine and atropine action on the muscarinic receptors is a classical example of

(a) Competitive antagonism
(b) Non-competitive antagonism
(c) Non-equilibrium antagonism
(d) Physiological antagonism
(e) Chemical antagonism

289. Biological half-life of is calculated as

(a) $t\ ½ = 0.693 \times CL/Vd$
(b) $t\ ½ = 0.693 \times K/ln2$
(c) $t\ ½ = 0.693 \times Vd/CL$
(d) $t\ ½ = 0.693 \times ln2/K$
(e) None of the above

290. Following statement is true regarding therapeutic index

(a) It is based on animal toxicity data
(b) It reflects forms of toxicity that are important clinically
(c) It takes into account idiosyncratic toxic reaction
(d) All the above

291. Ocuserts are

(a) Placed under the eyelid
(b) Intrauterine contraceptives
(c) Monoclonal antibodies
(d) None of the aboves

292. Nitroglycerin is given in angina pectoris by sublingual route because:

(a) Liver is by-passed
(b) Can be spat after desired effect
(c) Rapid absorption
(d) Non irritant and lipid soluble drug
(e) All the above

293. Volatile drug may be best administered by:

(a) Oral route (b) Inhalation
(c) Sublingual route (d) Intrathecal route
(e) Rectal route

294. A desired clinical response may be delayed altered or blocked by:

(a) A drug that does not go into solution
(b) A drug that does not get to its site of action

(c) Abnormal pharmacogenetics
(d) Lack of absorption from site of administration
(e) All the above

295. Following compartment constitutes the largest percentage

(a) Plasma (b) Intestinal fluid
(c) Intracellular fluid (d) Fat

296. The duration of action of a drug is dependent of its

(a) Plasma and tissue binding
(b) Metabolism
(c) Tubular filtration and secretion
(d) All the above

297. When a drug has a low therapeutic index, that drug should be

(a) Used mostly orally
(b) Used mostly intravenously
(c) Considered a potentially toxic substance
(d) Given only in submilligram doses

298. A drug is being metabolized by zero-order kinetics. This indicates that

(a) A constant amount of drug is being catabolised each hour
(b) A constant fraction of drug is being catabolised each hour
(c) A drug is water soluble substance
(d) The time required to catabolise half of the drug is independent of the initial concentration of the drug

299. Drugs interact with their receptors sites by forming

(a) Ionic bonds
(b) Hydrogen bonds
(c) Van der Waals bond
(d) All the above

300. The main route of administration of a drug to produce a local effect is

(a) Topical (b) Oral
(c) Parenteral

301. The main routes of administration of a drug is to provide a systemic effect. Identify the wrong answer

(a) Topical (b) Oral
(c) Parenteral

302. Parenteral administration of a drug refers to the giving of a preparation, except

(a) Orally
(b) Intradermally
(c) Intramuscularly
(d) Intravenously

303. Pharmacokinetics consIders

(a) The way in which the body affects a drug by the process of absorption, distribution, metabolism and excretion
(b) The effects of the drug on the body and the mode of drug action.
(c) The proportion of administered drug that is available to have an effect.
(d) The removal of the drug by the liver before it has become available

304. If gut motility is increased then

(a) Drug absorption is decreased
(b) Drug absorption is increased
(c) Drug absorption is not effected

305. The rate of drug absorption is greatest in

(a) The small intestine
(b) The large intestine
(c) The stomach

306. Drug distribution may depend on tissue perfusion

(a) Highly vascular organs rapidly acquire a drug
(b) Highly vascular organs acquire a drug slowly
(c) Levels of a drug in bone may rise quickly due to its high vascularity
(d) Levels of a drug in bone may rise slowly due to its reduced

307. Most drugs and metabolites are excreted by

(a) The kidneys
(b) The bile
(c) The lungs
(d) Perspiration, saliva and tears

308. Pharmacodynamics considers:

(a) The way in which the body affects the drug
(b) The effects of the drug on the body and the mode of drug action
(c) Drug metabolism

309. A drug that binds to a cell receptor and causes a response is called an:

(a) Agonist
(b) Antagonist
(c) Receptor blocker

310. Receptors for _____ are DNA-binding proteins

(a) Steroids (b) Vitamin D
(c) Retinoids (d) all the above

311. Factors affecting a client's response to a drug include all the following except:

(a) A body weight i.e. the larger the individual, the larger the area for drug distribution
(b) Body fat –A loss of body fat stores means less drug available for activity
(c) Body fat–An increase in body fat means greater sequestering in body fat and less drug activity
(d) The presence of certain foods

ANSWERS

1. b	2. b	3. d	4. c	5. e	6. a
7. a	8. b	9. d	10. a	11. e	12. c
13. a	14. a	15. a	16. a	17. b	18. e
19. a	20. a	21. a	22. a	23. a	24. c
25. e	26. d	27. b	28. c	29. b	30. c
31. c	32. e	33. a	34. c	35. a	36. d
37. b	38. a	39. b	40. c	41. a	42. a
43. a	44. a	45. c	46. a	47. c	
48. 1. a, 2. d, 3. b, 4. a		49. 1. a, 2. d, 3. c		50. 1. b, 2. e, 3. c, 4. a	
51. b	52. b	53. c	54. d	55. d	56. b
57. d	58. b	59. b	60. a	61. b	62. d
63. e	64. e	65. c	66. a	67. c	68. d
69. a	70. b	71. c	72. b	73. d	74. a
75. b	76. a	77. c	78. c	79. b	80. b
81. c	82. d	83. a	84. a	85. c	86. c
87. c	88. a	89. d	90. b	91. e	92. a
93. a	94. b	95. c	96. d	97. c	98. a
99. c	100. c	101. b	102. a	103. a	104. d
105. b	106. d	107. a	108. c	109. a	110. b
111. b	112. a	113. a	114. b	115. c	116. a
117. c	118. d	119. b	120. d	121. c	122. c
123. a	124. a	125. c	126. b	127. d	128. a

129. b	130. a	131. d	132. b	133. d	134. c
135. c	136. b	137. c	138. c	139. a	140. c
141. c	142. c	143. d	144. a	145. d	146. d
147. a	148. a	149. c	150. b	151. d	152. a
153. b	154. d	155. c	156. c	157. b	158. c
159. d	160. c	161. d	162. b	163. a	164. d
165. a	166. c	167. b	168. c	169. a	170. b
171. b	172. b	173. b	174. c	175. d	176. b
177. b	178. a	179. b	180. a	181. b	182. a
183. a	184. a	185. a	186. b	187. a	188. a
189. a	190. b	191. a	192. a	193. d	194. a
195. d	196. a	197. b	198. a	199. d	200. c
201. b	202. a	203. d	204. a	205. d	206. d
207. b	208. c	209. b	210. b	211. b	212. c
213. a	214. b	215. b	216. c	217. d	218. c
219. a	220. a	221. c	222. c	223. d	224. d
225. d	226. a	227. b	228. b	229. c	230. b
231. a	232. b	233. e	234. d	235. a	236. e
237. a	238. d	239. e	240. a	241. b	242. d
243. a	244. d	245. d	246. 5	247. c	248. e
249. c	250. c	251. c	252. a	253. d	254. b
255. d	256. b	257. d	258. f	259. c	260. b
261. a	262. d	263. c	264. b	265. c	266. d
267. c	268. d	269. d	270. e	271. c	272. d
273. d	274. b	275. c	276. b	277. e	278. e
279. d	280. a	281. b	282. a	283. c	284. b
285. a	286. e	287. d	288. a	289. c	290. a
291. a	292. e	293. b	294. e	295. c	296. d
297. c	298. a	299. d	300. a	301. a	302. a
303. a	304. a	305. a	306. a & d	307. a	308. b
309. a	310. d	311. a & d			

EXPLANATIONS FOR ANSWERS

7. a because of enhanced disassociation weak acids are excreted faster in basic (not acidic) urine.

20. a Chemical antagonism does not involve any receptors. Protamine is a positively charged protein at physiological pH and thus antagonizes the effects of Heparin which is negatively charged at physiological pH.

35. a Facilitated diffusion differs from active transport in that it does not require energy source and it carries the transport in the direction of electrochemical gradient.

52. a Glycoprotein binds to basic drugs and albumin binds to many acidic drugs and a small number of basic drugs.

65. c CYP3A4 is involved in the metabolism of majority of drugs and is also expressed extrahepatically. In fact, poor bioavailability of many drugs is attributed to the drug metabolism by CYP3A4 in gastrointestinal tract.

78. c N-oxidation is involved in the metabolism of dapsone, meperidine and chloramphenicol. Metabolism of phenytoin involves oxidative N-dealkylation.

110. b Many receptors use heterotrimeric GTP-binding regulatory proteins. The subunits are designated as β, α and α and their classification is based on á subunits.

125. c G-protein coupled receptors are hydrophobic proteins and span the plasma membrane in seven á-helical segments.

145. d Placebo effect is a desired response to a therapy without drug. Placebo effect is mainly because of various psychological reasons e.g. physician-patient relationship, mental set up affected by surroundings and positive mental set up because of known and trusted physician.

161. d Pharmacodynamic tolerance involves multiple mechanism such as number, affinity and function of receptors.

180. a Spare receptors are generally found whenever a receptor acts catalytically and not stoichiometrically. Hence, they are generally found among drugs, which elicit smooth muscle contraction.

189. a Dimercaprol interacts directly with heavy metals in blood and tissue fluids and prevents binding of heavy metals to cellular constituents. Dimercaprol forms an inactive complex with heavy metals.

200. c Two drugs binding to the same receptor is an example of competitive antagonism and effect of one drug can be decreased by increasing the concentration of other drug.

217. d Receptors for steroid hormones are intracellular DNA – binding proteins, which regulate gene transcription.

240. a Receptors linked directly to ion channels are involved in the fast synaptic transmission e.g. nicotinic acetylcholine receptor. This receptor is a pentamer i.e. it is made up of five poly-peptide subunits.

261. a In G-protein coupled receptors, agonist-receptor complex enhances GTP binding to the α subunit, mainly by dissociating already bound GDP.

280. a The termination of agonist-receptor coupling in a G-protein-coupled receptor is because of conversion of GTP to GDP by a GTPase that is intrinsic to α subunit.

290. a Therapeutic index is the range between minimal and maximal concentration required to elicit desired response.

295. c intracellular fluid comprises 35%, whereas contribution of other compartments is far less e.g. plasma – 5%; interstitial fluid – 16%; fat – 20% and transcellular fluid – 2%.

310. d Receptors for steroids, vitamin D, retinoids and also thyroid hormones are DNA-binding proteins, which regulate transcription of genes.

CHAPTER 2

DRUGS ACTING ON CENTRAL NERVOUS SYSTEM

1. A-50-year-old man has a history of frequent episodes of renal colic with high-calcium renal stones. The most useful agent in the treatment of recurrent calcium stones is

(a) Mannitol (b) Furosemide
(c) Spironolactone (d) Hydrochlorothiazide
(e) Acetazolamide

2. Which of the following drugs is correctly associated with its site of action and maximal diuretic efficacy?

(a) Thiazides–distal convoluted tubute–10% of filtered Na^+
(b) Spironolactone–proximal convoluted tubule –40%
(c) Bumetanide–thick ascending limb–15%
(d) Metolazone–collecting tubule–2%
(e) All of the above

3. Substance secreted into the blood by a neuron is

(a) Neurohormone (b) Neuromodulator
(c) Neuromediator (d) Neurotransmitter

4. Which of the following is a leukotriene receptor blocker?

(a) Alprostadil (b) Aspirin
(c) Ibuprofen (d) LTC_4
(e) Zafirlukast

5. A molecule that stimulates nitric oxide synthase, especially the eNOS isoform, is

(a) Acetylcholine (b) Citruline
(c) Isoproterenol (d) Nitroglycerin
(e) Nitroprusside

6. The primary endogenous substrate for nitric oxide synthase is

(a) Acetylcholine (b) Angiotensinogen
(c) Arginine (d) Citruline
(e) Heme

7. Which of the following is a recognized effect of nitric oxide?

(a) Arrhythmia
(b) Bronchoconstriction
(c) Constipation
(d) Inhibition of acute graft rejection
(e) Pulmonary vasodilation

8. cAMP is an example of

(a) Neurohormone (b) Neuromodulator
(c) Neuromediator (d) Neurotransmitter

9. One effect that theophylline, nitroglycerin, isoproterenol, and histamine have in common is

(a) Direct stimulation of cardiac contractile force
(b) Tachycardia
(c) Increased gastric acid secretion
(d) Postural hypotension
(e) Throbbing headache

10. Which one of the following chemicals does not satisfy the criteria for a neurotransmitter role in the CNS?

(a) Acetylcholine (b) Dopamine
(c) Glycine (d) Nitric Oxide
(e) Substance P

11. Neurotransmitters may

(a) Increase chloride conductance to cause inhibition
(b) Increase potassium conductance to cause excitation
(c) Increse sodium conductance to cause inhibition
(d) Increase calcium conductance to cause inhibition
(e) Exert all of the above actions

12. Which of the following chemicals is most likely to function as a neurotransmitter in hierarchical systems?

(a) Dopamine (b) Glutamate
(c) Metenkephalin (d) Norepinephrine
(e) Serotonin

13. Activation of metabotropic receptors located presynaptically causes inhibition by decreasing the inward flux of

(a) Calcium (b) Chloride
(c) Potassium (d) Sodium
(e) None of the above

14. This compound decrease the functional activities of several CNS neurotransmitters, including dopamine, norepinephrine, and serotonin. At high doses it may cause parkinsonism-like extrapyramidal system dysfunction.

(a) Amphetamine (b) Baclofen
(c) Diazepam (d) Ketamine
(e) Reserpine

15. This amine neurotransmitter is found in high concentration in cell bodies in the pons and brain stem; at some sites, release of transmitter is autoregulated via presynaptic inhibition.

(a) Acetylcholine (b) Dopamine
(c) Glutamate (d) Norepinephrine
(e) Substance P

16. Suramin is an antagonists of _____ receptors

(a) Purine (b) Somatostanin
(c) Neuropeptide Y (d) Neurotensin

17. Which one of the following statements best describes the mechanism of action of benzodiazepines?

(a) Benzodiazepines activate $GABA_B$ receptors in the spinal cord
(b) Their inhibition of GABA transminase leads to increased levels of GABA
(c) Benzodiazepines block glutamate receptors in hierarchical neuronal pathways in the brain
(d) They increase the frequency of opening of chloride ion channels that are coupled to $GABA_A$ receptors
(e) They are direct-acting GABA receptor agonists in the CNS

18. Which one of the following statements about the use of triazolam in this elderly patient is accurate?

(a) Ambulatory dysfunction does not occur in elderly patients taking one-half of the conventional adult dose
(b) Hypertension is a common adverse effects of benzodiazepines in patients over 70 years of age
(c) Over-the-counter cold medications may antagonize the hypnotic effects of the drug
(d) She may experience amnesia, especially if she also drinks alcoholic beverages
(e) Triazolam is distinctive in that it does not cause rebound insomnia on abrupt discontinuance

19. The most likely explanation for the increased sensitivity of elderly patients to a single dose of triazolam and other sedative-hypnotic drugs is

(a) Changes in brain function that accompany the aging process
(b) Decreased renal function
(c) Increased cerebral blood flow
(d) Decreased hepatic metabolism of lipid-soluble drugs
(e) Changes in plasma protein binding

20. Induction of various forms of synaptic plasticity is more closely associated with _____ receptors

(a) AMPA (b) Kainate
(c) NMDA (d) All of the above

21. Which one of the following drugs may increase anticoagulant effects by displacement of warfarin from plasma protein binding sites and is inactive until converted in the body to an active metabolite?

(a) Buspirone (b) Chloral hydrate
(c) Clorazepate (d) Secobarbital
(e) Zaleplon

22. Which one of the following drugs has been used in the management of alcohol withdrawal states and in maintenance treatment of patient with tonic-clonic or partial seizure states? Its chronic use may lead to an increased metabolism of warfarin and phenytoin.

(a) Chlordiazepoxide (b) Meprobamate
(c) Phenobarbital (d) Triazolam
(e) Zolpidem

23. A 40-year-old patient with liver dysfunction is scheduled for a surgical procedure. Lorazepam can be used for preanesthetic sedation in this patient without concern for excessive CNS depression because the drug is

(a) A selective anxiolytic like buspirone
(b) Actively secreted in the renal proximal tubule
(c) Conjugated extrahepatically
(d) Eliminated via the lungs
(e) Reversible by administration of naloxone

24. This hypnotic drug facilitates the inhibitory actions of GABA, but it lacks anticonvulsant or muscle relaxing properties and has minimal effect on sleep architecture.

(a) Buspirone (b) Diazepam
(c) Flurazepam (d) Phenobarbital
(e) Zaleplon

25. The most frequent type of drug interaction that occurs in patients using drugs of the sedative hypnotic class is

(a) Additive CNS depression
(b) Antagonism of sedative or hypnotic actions
(c) Competition for plasma protein binding
(d) Induction of liver drug-metabolizing enzymes
(e) Inhibition of liver drug-metabolizing enzymes

26. A 42-year-old man with a history of alcoholism is brought to the emergency room in a confused and delirious state. He has truncal ataxia and ophthalmoplegia. The most appropriate immediate course of action is to administer.

(a) Chlordiazepoxide (b) Disulfiram
(c) Folic acid (d) Lorazepam
(e) Thiamine

27. Which one of the following statements about the bio-disposition of ethanol is accurate?

(a) Ethanol is absorbed at all levels of the gastrointestinal tract
(b) Acetic acid is the initial product of ethanol metabolism
(c) After an intravenous dose, plasma levels of ethanol are lower in women than in men
(d) The elimination of ethanol follows first-order kinetics
(e) Alcohol dehydrogenase exhibits genetic variability

28. Following is $GABA_A$ agonist

(a) Muscimol (b) Baclofen
(c) Bicuculline (d) None of the above

29. Chronic use of ethanol is reported to increase

(a) Alcohol dehydrogenase
(b) Aldehyde dehydrogenase
(c) Microsomal ethanol-oxidizing system activity
(d) Monoamine oxidase
(e) NADH dehydrogenase

30. The chronic abuse of alcohol predisposes to hepatic damage following overdose of acetaminophen because ethanol

(a) Blocks acetaminophen metabolism
(b) Causes thiamine deficiency
(c) Displaces acetaminophen from plasma proteins

(d) Induces liver drug-metabolizing enzymes
(e) Inhibits renal clearance of acetaminophen

31. The activity of this enzyme is specifically decreased in the Wernicke-Korsakoff syndrome

(a) Alcohol dehydrogenase
(b) Cytochrome P450
(c) L-Aromatic amino acid decarboxylase
(d) NADH dehydrogenase
(e) Pyruvate dehydrogenase

32. Following is glycine antagonists

(a) Quisqualate (b) Taurine
(c) Strychnine (d) â-alanine

33. Which one of the following statements concerning the pharmacokinetics of antiseizure drugs is accurate?

(a) At high doses, phenytoin elimination follows first-order kinetics
(b) Valporic acid may increase the activity of hepatic ALA synthase and the synthesis of porphyrins
(c) The administration of phenytoin to patients in methadone maintenance programs has led to symptoms of opioid overdose, including respiratory depression
(d) Although ethosuximide has a half-life of approximately 40 hours, the drug is usually taken twice a day
(e) Treatment with vigabatrin may reduce the effectiveness of oral contraceptives

34. With chronic use in seizure states, the adverse effects of this drug include coarsening of facial features, hirsutism, gingival hyperplasia, and osteomalacia.

(a) Carbamazepine (b) Ethosuximide
(c) Gabapentin (d) Phenytoin
(e) Valproic acid

35. Which one of the following statements about vigabatrin is accurate?

(a) Blocks neuronal reuptake of GABA
(b) Drug of choice in absence seizures
(c) Is established to be teratogenic in humans
(d) Life-threatening skin disorders may occur
(e) Visual field defects occur in up to one-third of patients

36. Withdrawal of antiseizure drugs can cause increased seizure frequency and severity. Withdrawal is least likely to be a problem with

(a) Clonazepam (b) Diazepam
(c) Ethosuximide (d) Phenobarbital
(e) Phenytoin

37. A young femal patient who suffers from bipolar affective disorder (BAD) has been managed with lithium. If she becomes pregnant, which one of the following drugs is likely to be effective in bipolar affective disorder with minimal risk of teratogenicity?

(a) Carbamazepine (b) Clonazepam
(c) Phenytoin (d) Valproic acid
(e) None of the above

38. The most likely mechanism involved in the antiseizure activity of carbamazepine is

(a) Block of sodium ion channels
(b) Block of calcium ion channels
(c) Facilitation of GABA actions on chloride ion channels
(d) Glutamate receptor antagonism
(e) Inhibition of GABA transaminase

39. Which one of the following statements about phenytoin is accurate?

(a) Displaces sulfonamides from plasma proteins
(b) Drug of choice in myoclonic seizures
(c) Half-life is increased if used with phenobarbital
(d) Isoniazid (INH) decreases steady state blood levels of phenytoin
(e) Toxicity may occur with only small increments in dose

40. Which one of the following statements concerning nitrous oxide is accurate?

(a) It continues to be a useful component of anesthesia protocols because of its lack of cardiovascular depression
(b) Megaloblastic anemia is a common adverse effect in patients exposed to nitrous oxide for periods longer than 2 hours
(c) It is the most potent of the inhaled

anaesthetics

(d) There is a direct association between the use of nitrous oxide and malignant hyperthermia

(e) More than 30% of nitrous oxide is eliminated via hepatic metabolism

41. Following is $GABA_B$ agonist

(a) Muscimol (b) Baclofen
(c) Picrotoxin (d) Bicuculline

42. Following is $GABA_A$ antagonist

(a) Muscimol (b) Bicuculline
(c) Strychnine (d) Baclofen

43. The inhalation anesthetic with the fastest onset of action is

(a) Enflurane (b) Isoflurane
(c) Nitric oxide (d) Nitrogen dioxide
(e) Nitrous oxide

44. An intravenous bolus dose of thiopental usually leads to loss of onsciousness within 10–15 seconds. If no further drugs are administered, the patient will regain consciousness in just a few minutes. The reason for this, that thiopental is

(a) A good substrate for renal tubular secretion
(b) Exhaled rapidly
(c) Rapidly metabolized by hepatic enzymes
(d) Redistributed from brain to other body tissues
(e) Secreted in the bile

45. Respiratory depression following use of this agent may be reversed by administration of flumazenil

(a) Desflurane (b) Fentanyl
(c) Ketamine (d) Midazolam
(e) Propofol

46. Use of this agent is associated with a high incidence of disorientation, sensory and perceptual illusions, and vivid dreams during recovery from anesthesia

(a) Diazepam (b) Fentanyl
(c) Ketamine (d) Midazolam
(e) Thiopental

47. Postoperative vomiting is uncommon with this intravenous agent; patients are able to ambulate sooner than those who receive other anaesthetics

(a) Enflurane (b) Ketamine
(c) Morphine (d) Propofol
(e) Remifentanil

48. The pK_a of lidocaine is 7.9. In infected tissue at pH 6.9, the fraction in the ionized form will be

(a) 1% (b) 10%
(c) 50% (d) 90%
(e) 99%

49. Which of the following statements about nerve blockade with local anaesthetics is most correct?

(a) Block is faster in onset in infected tissues
(b) Block is faster in onset in unmyelinated fibers
(c) Block is slower in onset in hypocalcemia
(d) Block is faster in onset in hyperkalemia
(e) Block is slower in onset in the periphery of a nerve bundle than in the center of a bundle

50. Which of the following was the first compound to be identified Pharmacologically as a transmitter in the CNS ?

(a) Glycine (b) Glutamate
(c) Acetulcholine (d) Norepinephrine

51. You have a vial containing 4 mL of a 2% solution of lidocaine. How much lidocaine is present in 1 mL?

(a) 2 mg (b) 8 mg
(c) 20 mg (d) 80 mg
(e) 200 mg

52. Which one of the following statements about the toxicity of local anaesthetics is most correct?

(a) Serious cardiovascular reactions are more likely to occur with tetracaine than with bupivacaine
(b) Cyanosis may occur following injection of large doses of lidocaine, especially in patients with pulmonary disease
(c) Intravenous injection of local anaesthetics may stimulate ectopic cardiac pacemaker activity
(d) In overdosage, hyperventilation (with oxygen) is helpful to correct acidosis and lower extracellular potassium
(e) Most local anaesthetics cause vasoconstriction

53. Epinephrine added to a solution of lidocaine for a peripheral nerve block will

(a) Increase the risk of convulsions
(b) Increase the duration of anesthetic action of the local anesthetic
(c) Both (A) and (B)
(d) Neither (A) nor (B)
(e) None of the above

54. A child requires multiple minor surgical procedures in the nasopharynx. Which of the following drugs has high surface activity and vasoconstrictor actions that reduce bleeding in mucous membrane?

(a) Benzocaine (b) Bupivacaine
(c) Cocaine (d) Lidocaine
(e) Procaine

55. Characteristics of nondepolarizing neuromuscular blockade include which one of the following?

(a) Block of posttetanic potentiation
(b) Histamine blocking action
(c) Poorly sustained titanic tension
(d) Significant muscle fasciculations during onset of block
(e) Stimulation of autonomic ganglia

56. Which of the following does not cause skeletal muscle contactions or twitching?

(a) Acetylcholine (b) Nicotine
(c) Strychnine (d) Succinylcholine
(e) Vecuronium

57. Which one of the following is most effective in the management of malignant hyperthermia?

(a) Baclofen (b) Dantrolene
(c) Haloperidol (d) Succinylcholine
(e) Vecuronium

58. Following is a G-protein coupled receptor

(a) AMPA (b) Kainate
(c) NMDA (d) Metabotropic

59. Which one of the following drugs is most often associated with hypotension caused by histamine release?

(a) Diazepam (b) Pancuronium
(c) Tizanidine (d) Tubocurarine
(e) Vecuronium

60. Which one of the following drugs has caused hyperkalemia leading to cardiac arrest in patients with neurologic disorders?

(a) Baclofen (b) Dantrolene
(c) Succinylcholine (d) Tubocurarine
(e) Vecuronium

61. Following is an excitatory amino acid receptor antagonist?

(a) Phencyclidine (b) Quisqualate
(c) Homocysteate (d) Kainate

62. Which one of the following drugs has spasmolytic activity and could also be used in the management of seizures caused by overdose of a local anesthetic?

(a) Baclofen (b) Cyclobenzaprine
(c) Dantrolene (d) Diazepam
(e) Tizanidine

63. Which one of the following drugs given preoperatively will prevent postoperative pain caused by succinylcholine?

(a) Baclofen (b) Dantrolene
(c) Diazepam (d) Lidocaine
(e) Tubocurarine

64. As the physician, you could tell the patient (and close family members) all of the following things about levodopa except?

(a) Taking the drug in divided doses will decrease nausea and vomiting
(b) He should be careful when he stands up because he may get dizzy
(c) Uncontrollable muscle jerks may occur
(d) A net-like reddish to blue discoloration of the skin is a likely side effect of the medication
(e) The drug will probably improve his symptoms for a period of time but not indefinitely

65. As the physician who is prescribing levodopa, you will note that the drug

(a) Causes less severe behavioral side effects if given with carbidopa

(b) Fluctuates in its effectiveness with increasing frequency as treatment continues
(c) Prevents extrapyramidal adverse effects of antipsychotic drugs
(d) Protects against cancer in patients with melanoma
(e) Has toxic effects that include pulmonary infiltrates

66. The major reason why carbidopa is of value in parkinsonism is that the compound

(a) Crosses the blood-brain barrier
(b) Inhibits monoamine oxidase type A
(c) Inhibits aromatic L-amino acid decarboxylase
(d) Is converted to the false neurotransmitter carbidopamine
(e) Inhibits monoamine oxidase type B

67. Which one of the following statements about bromocriptine is accurate?

(a) It should not be administered to patients taking antimuscarinic drugs
(b) Effectiveness in Parkinson's disease requires its metabolic conversion to an active metabolite
(c) The drug is contraindicated in patients with a history of psychosis
(d) The drug should not be administered to patients already taking levodopa
(e) Mental disturbances occur more commonly with levodopa than with bromocriptine

68. A 72-year-old patient with parkinsonism presents with swollen feet. They are red, tender, and very painful. You could clear up these symptoms within a few days if you told the patient to stop taking

(a) Amantadine (b) Benztropine
(c) Bromocriptine (d) Levodopa
(e) Selegiline

69. Concerning the drugs used in parkinsonism, which of the following statements is accurate?

(a) Levodopa causes mydriasis and can precipitate an attack of acute glaucoma
(b) Useful therapeutic effects of amantadine continue for several years
(c) The primary therapeutic benefit of antimuscarinic drugs in parkinsonism is their ability to reliever bradykinesia
(d) Dopamine receptor against should not be used in Parkinson's disease prior to a trial of levodopa
(e) The concomitant use of selegiline may increase the peripheral adverse effects of levodopa

70. A previously healthy 50-year-old woman begins to suffer from slowed mentation and develops writhing movement of her tongue and hands. In addition, she has delusions of being persecuted. The woman has no past history of psychiatric or neurologic disorders. The most appropriate drug for treatment is

(a) Amantadine (b) Bromocriptine
(c) Haloperidol (d) Levodopa
(e) Trihexyphenidyl

71. Great caution must be exercised in the use of this drug (or drugs from the same class) in parkinsonian patients who have prostatic hypertrophy or obstructive gastrointestinal disease

(a) Benztropine (b) Carbidopa
(c) Levodopa (d) Ropinirole
(e) Selegiline

72. Which of the following statements about pramipexole is accurate?

(a) Activates dopamine D_2 receptors
(b) Commonly a first-line therapy for Parkinson's disease
(c) May cause postural hypotension
(d) Not an ergot derivative
(e) All of the above

73. Tolcapone may be of value in patient being treated with levodopa–carbidopa because it

(a) Activates catechol – *O* – methyltransferease
(b) Decreases formation of 3 – *O* – methyldopa
(c) Inhibits monoamine oxidase type B
(d) Inhibits dopamine reuptake
(e) Releases dopamine from nerve endings

74. Concerning hypotheses for the pathophysiologic basis of schizophrenia, which one of the following statements is accurate?

(a) Positron emission tomography has shown decreased dopamine receptors in the brains of both untreated and drug-treated schizophrenics
(b) Drugs that block dopamine receptors are useful for alleviating psychotic symptoms in parkinsoniam patients
(c) The clinical potency of many antipsychotic drugs correlates well with their beta adrenoceptor-blocking actions
(d) Drug-induced psychosis can occur without activation of brain dopamine receptors
(e) All effective antipsychotic drugs have high affinity for dopamine D_2 receptors

75. Choose the correct statement from the following?

(a) Muscimol is $GABA_B$ selective
(b) Bicuculline is $GABA_A$ agonist
(c) Picrotoxin blocks chloride channels associated with $GABA_A$ receptors
(d) Baclofen is $GABA_A$ agonist

76. A 30-year-old male patient is on drug therapy for a psychiatric problem. He complains that he feels "flat" and that he gets confused at times. He has been gaining weight and has lost his sex drive. As he moves his had, you notice a slight tremor. He tells you that since he has been on medication he is always thirsty and frequently has to urinate. The drug he is most likely to be taking is

(a) Clonazepam (b) Clozapine
(c) Haloperidol (d) Lithium
(e) Trifluoperazine

77. A young male patient diagnosed as schizophrenic develops severe muscle cramps with torticollis a short time after drug therapy is intiated with haloperidol. The best course of action would be to

(a) Add clozapine to the drug regimen
(b) Discontinue haloperidol and observe the patient
(c) Give oral diphenydramine
(d) Switch the patient to fluphenazine
(e) Inject benztropine

78. Which one of the following statements about the action of phenothiazines is accurate?

(a) They activate muscarinic receptors
(b) They are antiemetic
(c) They decrease serum prolactin levels
(d) They elevate the seizure threshold
(e) They raise blood pressure

79. Within days of starting haloperidol treatment for a psychatric disorder, a young male patient developed severe generalized muscle rigidity and a high fever. In the emergency room he was incoherent, with increased heart rate, hypotension, and diaphoresis, Laboratory studies indicated acidosis, leukocytosis, and increased creatine kinase. The most likely reason for these symptoms is that the patient was suffering from

(a) Agranulocytosis
(b) A severe bacterial infection
(c) Neuroleptic malignant syndrome
(d) Spastic retrocollis
(e) Tardive dyskinesia

80. Following is the main inhibitory transmitter in the brain

(a) Dopamine (b) Norepinephrine
(c) Glycine (d) GABA

81. Concerning the proposed mechanisms of action of antidepressant drugs, which one of the following statements is accurate?

(a) Bupropion is an effective inhibitor of NE and 5-HT transporters
(b) Chronic treatment with an antidepressant often leads to the up-regulation of adrenoceptors
(c) Elevation in amine metabolites in cerebrospinal fluid is characteristic of most depressed patients prior to drug therapy
(d) MAO inhibitors used as antidepressants selectively decrease the metabolism of norepinephrine

(e) The acute effect of most tricyclics is to block the neuronal reuptake of both norepinephrine and serotonin in the CNS

82. Which one of the following effects is unlikely to occur during treatment with amitriptyline?

(a) Alpha adrenoceptor blockade
(b) Elevation of the seizure threshold
(c) Mydriasis
(d) Sedation
(e) Urinary retention

83. A 54-year-old male patient was using fluoxetine for depression but decided to stop taking the drug. When questioned, he said that it affected his sexual performance and that "he wasn't getting any younger." You notice that he is a used of tobacco products. If you decide to reinstitute drug therapy in this patient, the best choice would be

(a) Amoxapine (b) Bupropion
(c) Imipramine (d) Sertraline
(e) Venlafaxine

84. Regarding maprotiline, which one of the following statements is accurate?

(a) Blocks serotonin reuptake selectively
(b) Cause hypertension
(c) Raises the seizure threshold
(d) Sedation occurs commonly
(e) Has a tricyclic structure

85. Which one of the following drugs is most likely to be of value in obsessive compulsive disorders (OCD)?

(a) Amitriptyline (b) Bupropion
(c) Clomipramine (d) Desipramine
(e) Mirtazapine

86. Compared with other antidepressant drugs, mirtazapine has the distinctive ability to act as an antagonist of

(a) Alpha$_2$ adrenoceptors
(b) Beta adrenoceptors
(c) D_2 receptors
(d) NE transporters
(e) 5-HT transporters

87. Established clinical uses of this drug include enuresis and chronic pain

(a) Bupropion (b) Fluvoxamine
(c) Imipramine (d) Phenelzine
(e) Selegiline

88. Which one of the following drugs is most likely to increase plasma levels of alprazolam, the ophyline, and warfarin

(a) Desipramine (b) Fluvoxamine
(c) Imipramine (d) Nefazodone
(e) Venlafaxine

89. Which one of the following actions of opioid analgesics is mediated via activation of kappa receptors?

(a) Cerebral Vascular dilation
(b) Decreased uterine tone
(c) Euphoria
(d) Sedation
(e) Psychologic dependence

90. _____ antagonists are known to attenuate some of the actions of alcohol.

(a) $GABA_A$ (b) $GABA_B$
(c) NMDA (d) Glycine

91. Which one of the following statements about propoxyphene is accurate?

(a) Analgesia equivalent to oxycodone
(b) Antagonist at mu receptors
(c) Causes dose-limiting diarrhea
(d) Highly effective cough suppressant
(e) Seizures have occurred in overdose

92. A young male patient is brought to the emergency room of a hospital suffering from an overdose of cocaine following intravenous administration. His symptoms are unlikely to include

(a) Agitation (b) Bradycardia
(c) Hyperthermia (d) Myocardial infarct
(e) Seizures

93. Which one of the following statements about hallucinogens is accurate?

(a) Mescaline and related hallucinogens are thought to exert their CNS actions through dopaminergic systems in the brain

(b) Teratogenic effects are known to occur with the use of LSD during pregnancy
(c) Scopolamine is unique among hallucinogens in that animals will self-administer it
(d) Dilated pupils, tachycardia, tremor and increased alertness are characteristic effects of psilocybin
(e) Phencyclidine can be anticipated to cause dry mouth and urinary retention

94. Which one of the following signs or symptoms is likely to occur with marijuana?

(a) Bradycardia
(b) Conjunctival reddening
(c) Hypertension
(d) Increased psychomotor performance
(e) Mydriasis

95. This agent has sedative and amnestic properties. Small doses added to alcoholic beverages are not readily detected by taste and have been used in "date rape" attacks. The drug is chemically related to a brain inhibitory neurotransmitter. Which one of the following most closely resembles the description given?

(a) Amyl nitrite
(b) Flunitrazepam
(c) Gamma-hydroxybutyrate
(d) Hashish
(e) Metcathinone

96. The patient is started on gemfibrozil. The major mechanism of action of gemfibrozil is

(a) Increased excretion of bile acid salts
(b) Increased expression of high-affinity LDL receptors
(c) Increased lipid hydrolysis by lipoprotein lipase
(d) Inhibition of secretion of VLDL by the liver
(e) Reduction of secretion of HDL by the liver

97. When used as monotherapy, a major toxicity of gemfibrozil is increased risk of

(a) Bloating and constipation
(b) Cholelithiasis
(c) Hyperuricemia
(d) Liver damage
(e) Severe cardiac arrhythmia

98. Alcohol drinking is associated with which of the following changes in serum lipid concentrations?

(a) Decreased HDL cholesterol
(b) Decreased IDL cholesterol
(c) Decreased VLDL cholesterol
(d) Increased LDL cholesterol
(e) Increased triglyceride

99. A patient suffering from a depressive disorder is being treted with imipramine. If he uses diphenhydramine for allergic rhinitis, a drug interaction is likely to occur because

(a) Diphehydramine inhibits imipramine metabolism
(b) Both drugs block reuptake of norepinephrine released from sympathetic nerve endings
(c) Imipramine inhibits the metabolism of diphenydramine
(d) Both drugs block muscarinic receptors
(e) The drugs compete with each other for renal elimination

100. If phenelzine is administered to a patient taking fluoxetine, the most likely result is

(a) Antagonism of the antidepressant action of fluoxetine
(b) A decrease in the plasma levels of fluoxetine
(c) Hypertensive crisis
(d) Priapism
(e) Agitation, muscle rigidity, hyperthermia, seizures

101. The antihypertensive effects of captopril can be antagonized (reduced) by

(a) Angiotensin II receptor blockers
(b) Loop diureties
(c) NSAIDS
(d) Sulfonylurea hypoglycemics
(e) Thiazides

102. Which one of the following drugs most resembles the psychoactive constituent(s)

of St. John's wort in terms of proposed mechanism of action?

(a) Alprazolam (b) Fluoxetine
(c) Levodopa (d) Methylphenidate
(e) Selegine

103. The primary site of action of tyramine is

(a) Ganglionic receptors
(b) Gut and liver catechol–*O*–methyltransferase
(c) Postganglionic sympathetic nerve terminals
(d) Preganglionic sympathetic nerve terminals
(e) Vascular smooth muscle cell receptors

104. Which one of the following drugs has been used in ophthalmology, but causes mydriasis and cycloplegia lasting more than 24 hours?

(a) Atropine (b) Echothiophate
(c) Edrophonium (d) Ephedrine
(e) Tropicamide

105. The antihypertensive drug most likely to aggravate angina pectoris is

(a) Clonidine (b) Guanethidine
(c) Hydralazine (d) Methyldopa
(e) Propranolol

106. After an intravenous bolus injection of lidocaine, the major factors determining the initial plasma concentration are

(a) Dose and clearance
(b) Dose and apparent volume of distribution
(c) Apparent volume of distribution and clearance
(d) Clearance and half-life
(e) Half-life and dose

107. Diuretics that increase the delivery of poorly absorbed solute to the thick ascending limb of the nephron include

(a) Furosemide (b) Indapamide
(c) Mannitol (d) Spironolactone
(e) All of the above

108. Following is used in methanol poisoning

(a) Disulfiram (b) Naltrexone
(c) Ethanol (d) None of the above

109. Recreational use of drugs sometimes leads to dependence. Which of the following is least likely to cause physical dependence?

(a) Alcohol is excitatory in nature
(b) Alcohol has a direct stimulatory effect on sexual responsiveness
(c) Alcohol is teratogenic
(d) Alcohol increases ADA production

110. This agent is currently a first-choice drug in the management of absence seizures as well as partial, primary generalized, and tonic-clonic seizures.

(a) Carbamazepine (b) Clonazepam
(c) Ethosuximide (d) Phenytoin
(e) Valproic acid

111. If one patient is taking amitriptyline and another patient is taking chlorpromazine, they are both likely to experience

(a) Excessive salivation
(b) Extrapyramidal dysfunction
(c) Gynecomastia
(d) Increased gastrointestinal motility
(e) Postural hypotension

112. The phenothiazines have a variety of actions at different receptor types. However, they do not appear to interact with receptors for

(a) Dopammine (b) Histamine
(c) Nicotine (d) Norepinephrine
(e) Muscarine

113. A psychiatric patient taking medications develops a tremor, thyroid enlargement, and leukocytosis. The drug he is taking is most likely to be

(a) Clomipramine (b) Haloperidol
(c) Imipramine (d) Lithium
(e) Sertraline

114. The mechanism of action of benzodiazepines is

(a) Activation of $GABA_B$ receptors
(b) Antagonism of glycine receptors in the spinal cord

(c) Blockade of the action of glutamic acid
(d) Increased GABA mediated chloride ion conductance
(e) Inhibition of GABA aminotranferase

115. A drug that is used in the treatment of parkinsonism and will also attenuate reversible extrapyramidal side effects of neuroleptics is

(a) Amantadine (b) Levodopa
(c) Pergolide (d) Selegiline
(e) Trihexyphenidyl

116. The characteristics of one-daily dosing with aminoglycosides compared with conventional dosing protocols (every 6-12 hours) include

(a) Decreased drug uptake into the renal cortex
(b) Higher peak serum drug levels to MIC ratios
(c) Postantibiotic actions
(d) All of the above
(e) None of the above

117. A young mother is breast-feeding her 2-month-old infant. Which one of the following drug situations involving the mother is most likely to be safe for the nursing infant?

(a) Doxycycline, for Lyme disease
(b) Metronidazole, for trichomoniasis
(c) Nystatin, for a yeast infection
(d) Phentermine, used for weight reduction
(e) Triazolam, used as a sleeping pill

118. Cocaine intoxication has become a common problem in hospital emergency rooms. Which one of the following drugs is not likely to be of any value in the management of cocaine overdose?

(a) Dantrolene (b) Diazepam
(c) Lidocaine (d) Naltrexone
(e) Nitroprusside

119. Which one of the following agents used in hypertension is a prodrug that is converted to its active form in the brain?

(a) Clonidine (b) Doxazosin
(c) Methyldopa (d) Nitroprusside
(e) Verapamil

120. the consumption of shellfish harvested during a "red tide" (due to a large population of a dinoflagellate species) is not recommended. This is because the shellfish are likely to contain

(a) Arsenic (b) Botulinum toxins
(c) Cyanide (d) Saxitoxin
(e) Tetrodotoxin

121. A 35-year-old female who has never been pregnant suffers each month from pain, discomfort, and mood depression at the time of menses. She may benefit from the use of this selective inhibitor of the reuptake of serotonin.

(a) Amitriptyline (b) Bupropion
(c) Mirtazapine (d) Paroxetine
(e) Trazodone

122. Which of the following is a common effect of muscarinic stimulant drugs?

(a) Decreased peristalsis
(b) Decreased secretion by salivary glands
(c) Hypertension
(d) Inhibition of sweat glands
(e) Miosis

123. Four stages of general anesthesia are distinctly seen with the use of

(a) Halothane (b) Diethyl ether
(c) Nitrous oxide (d) Enflurane

124 Infusion of phenotolamine into the cerebrospinal fluid of an experimental animal will prevent the bood pressure – lowering action of

(a) Clonidine (b) Enalapril
(c) Guanethidine (d) Reserpine
(e) Trimethaphan

125. A drug suitable for producing a brief (5 to 15 minute) increase in cardiac vagal tone is

(a) Digoxin (b) Edrophonium
(c) Ergotamine (d) Pralidoxime
(e) Pyridostigmine

126. Propranolol and hydralazine have which of the following effects in common?

(a) Decreased cardiac force
(b) Decreased cardiac output
(c) Decreased mean arterial blood pressure
(d) Increased systemic vascular resistance
(e) Tachycardia

127. Toxicities of local anaesthetics do not include

(a) Cardiovascular arrhythmias and collapse (bupivacaine)
(b) Convulsions (lidocaine)
(c) Dizziness, sedation (lidocaine)
(d) Hypertensive emergencies, strokes (procaine)
(e) Methemoglobinemia

128. Benzodiazepines are least effective in

(a) Alcohol withdrawal syndromes
(b) Balanced anesthesia regimens
(c) Initial management of phencyclidine overdose
(d) Obsessive – compulsive disorders
(e) Social phobias

129. Which one of the following drugs exerts its anticonvulsant effects by blocking sodium channels in neuronal membranes?

(a) Acetazolamide (b) Carbamazepine
(c) Diazepam (d) Gabapentin
(e) Vigabatrin

130. Regarding the pharmacodynamic actions of local anaesthetics, which one of the following statements is most accurate?

(a) All local anaesthetics with ester bonds are vasodilators
(b) Amides cause a high incidence of hypersensitivity reactions
(c) Protonated forms of such drugs readily penetrate bio-membranes
(d) The ionized forms of local anaesthetics cause a use-dependent blockade of sodium ion channels
(e) Type A alpha nerve fibers are highly sensitive to blockade

131. A patient is brought to the emergency room suffering from an overdose of an illicit drug. She is agitated, has disordered thought processes, suffers from paranoia, and "hears voices". The drug most likely to be responsible for her condition is

(a) Gamma-hydroxybutyrate (GHB)
(b) Hashish
(c) Heroin
(d) Marijuana
(e) Methamphetamine

132. Mental retardation, microcephaly, and underdevelopment of the mid face region in an infant is associated with chronic maternal abuse of

(a) Amphetamine (b) Cocaine
(c) Ethanol (d) Mescaline
(e) Phencyclidine

133. After ingestion of a meal that included sardines, cheese, and red wine, a patient taking an antidepressant drug experiences a hypertensive crisis. The drug most likely to be responsible is

(a) Bupropion (b) Fluoxetine
(c) Imipramine (d) Phenelzine
(e) Trazodone

134. A woman taking haloperidol develops a spectrum of adverse effects that include the amenorrheagalactorrhea syndrome and extrapyramidal dysfunction, including bradykinesia, muscle rigidity, and tremor at rest. Her psychiatrist prescribes a newer antipsychotic drug that improves both positive and negative symptoms of schizopherenia with few of the side effects that result from dopamine receptor blockade. Since weekly blood tests are not deemed necessary the drug prescribed by the psychiatrist is probably

(a) Bupropion (b) Clozapine
(c) Nefazodone (d) Olanzapine
(e) Sertraline

135. A 24-year-old man with a history of partial seizures has been treated with standard anticonvulsants for several years. He is currently taking valproic acid, which is not fully effective and his neurologist prescribes a new drug approved

for adjunctive use in partial seizures. Unfortunately, the patient develops toxic epidermal necrolysis. The new drug prescribed was

(a) Felbamate (b) Gabapentin
(c) Lamotrigine (d) Tiagabine
(e) Vigabatrin

136. The introduction of this drug may represent a novel approach to the treatment of major depressive disorders since it appears to act as an antagonist at alpha$_2$ adrenoceptors in the CNS

(a) Amoxapine (b) Bupropion
(c) Citalopram (d) Mirtazapine
(e) Paroxetine

137. Which one of the following pairs of drug: indication is accurate?

(a) Amphetamine:Alzheimer's dementia
(b) Bupropion:Acute anxiety
(c) Fluoxetine:Insomnia
(d) Ropinirole:Parkinson's disease
(e) Trazodone:Attention deficit disorder

138. The dose of this immunosuppressive prodrug must be significantly reduced in patients who are also taking the xanthine oxidase inhibitor allopurinol.

(a) Azathioprine
(b) Cyclosporine
(c) Hydroxychloroquine
(d) Methotrexate
(e) Tacrolimum

139. Which one of the following drugs is most likely to cause hypoglycemia when used as monotherapy in the treatment of type 2 diabetes?

(a) Acarbose (b) Glipizide
(c) Metformin (d) Miglitol
(e) Rosiglitazone

140. Anticoagulation is needed immediately in a patient with pulmonary embolism. Since there is some concern about a possible drug-induced thrombocytopenia, the most appropriate drug for parenteral administration in this patient is

(a) Clopidogrel (b) Enoxaparin
(c) Heparin (d) Ticlopidine
(e) Warfarin

141. Following general anesthetic is not metabolized

(a) Halothane (b) Ether
(c) Isoflurane (d) Nitrous oxide

142. Which of the following statements concerning morphine and hydromorphone is true?

(a) Hydromorphone is a more effective analgesic because it has a smaller ED_{50} than morphine.
(b) Morphine and hydromorphone are equally potent because they have the same E_{max}
(c) Morphine has a greater ED_{50} and is thus a less effective analgesic than hydromorphone
(d) Hydromorphone is a more potent analgesic because it has a greater E_{max} than morphine
(e) Hydromorphone has a smaller ED_{50} and is thus a more potent analgesic than morphine

143. Meperidine is classified as a

(a) Weak acid (b) Salt
(c) Weak base

144. Assuming that meperidine is absorbed after oral administration and that a large percentage of the dose is excreted unchanged, the effect of alkalinization of the urine will increase its

(a) Duration of action
(b) Rate of excretion
(c) Ionization in the glomerular filtrate for growth

145. The appropriate chemical classification for meperidine is

(a) Phenylpropylamines
(b) Piperazines
(c) 4-phenylpiperidines

146. Which of the following neuromuscular blocking agents can cause muscarinic responses such as bradycardia and increased glandular secretions?

(a) Tubocurarine (b) Succinycholine
(c) Pancuronium (d) Decamethonium
(e) Gallamine

147. Which of the following drugs is a volatile substance that is administered by inhalation?

(a) Thiopental (b) Halothane
(c) Alprazolam (d) Buspirone
(e) Phenytoin

148. The brief duration of action of an ultra-short acting barbiturate is due to a

(a) Slow rate of metabolism in the liver
(b) Low lipid solubility, resulting in a minimal concentration in the brain
(c) High degree of binding to plasma proteins
(d) Rapid rate of redistribution from the brain due to its high liposolubility
(e) Slow rate of excretion by the kidneys

149. Which of the following mechanisms of action most likely contributes to the treatment of parkinsonism?

(a) The direct-acting dopaminergic agonist amantadine mimics the activity of striatal dopamine
(b) The antimuscarinic activity of dophenhydramine contributes to the restoration of striatal dopaminergic-cholinergic neurotransmitter balance
(c) Striatal H_1 – receptors are blocked by the antihistaminic trihexyphenidyl
(d) The ergoline bromocriptine stimulates the release of striatal dopamine from intact terminals.
(e) One of the above

150. All of the following adverse effects are associated with the use of levodopa except

(a) Sialorrhea
(b) Orthostatic hypotension
(c) Delusions, confusion, and depression
(d) Dyskinesia and dystonia
(e) Livedo reticularis

151. The activity of which of the following drugs is dependent on a *p*-phenyl – *N* – alkylpiperidine moiety?

(a) Phenobarbital (b) Chlorpromazine
(c) Diazepam (d) Imipramine
(e) Meperidine

152. Which of the following agents would not be an alternative to Phenobarbital in the treatment of partial seizures?

(a) Trimethadione (b) Gabapentin
(c) Felbamate (d) Lamotrigine
(e) None of the above

153. A 32-year-old forklift operator with a past history of cardiac arrhythmias is suffering from seasonal rhinitis. Which of the following choices is the best recommendation for this patient?

(a) Diphenhydramine (b) Meclizine
(c) Astemizole (d) Fexofenadine
(e) Famotidine

154. Which of the following diuretics is most similar in chemical structure to the antihypertensive agent diazoxide?

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

155. Following is an example of ideal anesthetic

(a) Ether (b) Halothane
(c) Thiopental (d) None of the above

156. An action common to most general anesthetic

(a) Increase in the cellular threshold of firing
(b) Potentiation of spontaneous and evoked activity of neurons
(c) Inhibition of effects of glutamate
(d) None of the abvoe

157. An unconscious patient is brought to the emergency department with a history of an unknown drug overdose. Which of the following actions should the physician perform?

(a) Administer 50ml of 50% dextrose, thiamine 100 mg IV push, and naloxone 0.8 mg IV push, and naloxone 0.8 mg IV push
(b) Protect the patient's airway and ensure that vital signs are stable
(c) Perform gastric lavage
(d) Order the following laboratory tests: CBC, electrolytes, and a toxicology screen
(e) All of the above

158. Ethyl alcohol (EtOH) is administered to patients who have ingested either ethylene glycol or methanol because EtOH

(a) To call EMS and have the child taken to the hospital emergency department
(b) Administer 1 g/kg of activated charcoal with sorbitol
(c) Administer syrup of ipecac 15 ml by mouth to induce vomiting
(d) Suggest that the child receive emergency hemodialysis
(e) Suggest that the child receive acid diuresis with ammonium chloride

159. Parenteral calcium is used as an antidote for which of the following situations?

(a) Verapamil overdoses
(b) Hyperkalemia
(c) Cocaine intoxication
(d) Verapamil overdoses and hyperkalemia

160. An overdose victim presents to the emergency department with an elevated heart rate, decreased blood pressure, dilated pupils, and lethargy, upon arrival to the ICU, she has a generalized tonic-clonic seizure that is treated with IV diazepam and forsphenytoin. Which of the following is the most likely intoxicant?

(a) Ethyl alcohol (b) Methanol
(c) Acetaminophen (d) Oxycodone
(e) Amitriptyline

161. Opthalmic agents contriaindicated in glaucoma patients include which of the following substances?

(a) Antioxidants (b) Antipuritics
(c) Decongestants (d) Emollients

162. Which of the following drugs is excepted to cause anticholinergic adverse effects in the elderly?

(a) Propoxyphene (b) Ciprofloxacin
(c) Amitriptyline (d) Propranolol
(e) Cimetidine

163. Which of the following antihypertensive agents should be avoided in elderly patients?

(a) Amlodipine 5 mg every day
(b) Atenolol 25 mg every day
(c) Benazepril 10 mg every day
(d) Hydrochlorothiazide 25 mg every day
(e) Methyldopa 250 mg three times a day

164. Which of the following benzodiazepines is expected to cause the least amount of adverse effects in the elderly?

(a) Chlordiazepoxide (b) Diazepam
(c) Fluazepam (d) Oxazepam
(e) Temazepam

165. The use of morphine in the patient who has had a myocardial infarction (MI) centers around three distinct pharmacologic properties. Which of the following choices includes these properties?

(a) Relief of pain, relief of anxiety, and increased oxygen supply
(b) Relief of anxiety, after load reduction, increased preload
(c) Relief of anxiety, preload reduction, and relief of pain
(d) Vagomimetic effect, relief of anxiety, respiratory depression
(e) Bradycardia, preload reduction, and increased after load

166. Which of the following agents represents a relatively new class of drugs used in treating hypertension?

(a) Trandolapril (b) Carvedilol
(c) Lorsartan (d) Moexipril
(e) Nitrendipine

167. Reflex tachycardia, headache, and postural hypotension are adverse effects that limit the use of which of the following antihypertensive agents?

(a) Prazosin (b) Captopril
(c) Methyldopa (d) Guanethidine
(e) Hydralazine

168. Following is inverse agonist of benzodiazepine receptors

(a) Flumazenil (b) β-Carbolines
(c) Chlordiazepoxide (d) Glutethimide

169. Match the adverse effects with the antihypertensive agent that is most likely to cause them.

(a) Trandolapril (b) Methyldopa
(c) Nitroprusside (d) Terazosin
(e) Propranolol

(1) Thiocyanate intoxication, hypotension, and convulsions
(2) Bradycardia, bronchospasm, and cardiac decompensation
(3) Postural, hypotension, fever, and a positive Coombs' test
(4) First–dose syncope, postural hypotension, and palpitations

170. Match each description of a β-blocker with the most appropriate β-adrenergicblocking agent.

(a) Esmolol (b) Labetalol
(c) Bisoprolol (d) Nadolol
(e) Pindolol

(1) A β-blocker with intrinsic sympathomimetic activity
(2) A β-blocker that also blocks α-adrenergic receptors
(3) A β-blocker with an ultrashort duration of action
(4) A β-blocker with a long duration of action and nonselective blocking activity
(5) A b-blokcer with relative cardioselective blocking activity

171. Phenytoin is effective for the treatment of all of the following types of seizures except

(a) Generalized tonic-clonic
(b) Simple partial
(c) Complex partial
(d) Absence
(e) Grand mal

172. Which of the following anticonvulsants is contraindicated in patients with a history of hypersensitivity to tricyclic antidepressants?

(a) Phenytoin (b) Ethosuximide
(c) Acetazolamide (d) Carbamazepine
(e) Phenobarbital

173. Which anticonvulsant drug requires therapeutic monitoring of Phenobarbital serum levels as well as it's own serum levels?

(a) Phenytoin (b) Primidone
(c) Clonazepam (d) Ethotoin
(e) Carbamazepine

174. Zolpidem belongs to following class of drugs

(a) Benzodiazepines
(b) Carbamates
(c) Imidazopyridines
(d) None of the above

175. What are the most common adverse effects of anticonvulsive drugs?

(a) headache and dizziness
(b) Gastrointestinal symptoms
(c) Alternation of cognition and mentation
(d) Adverse effects on appetite and body weight
(e) All of the above

176. What are the important elements in considering treatment strategies for Parkinson's patients?

(a) Age
(b) Clinical presentation of disease
(c) Sex
(d) Etiology of the disease
(e) All of the above

177. Which of the following have liver failure in their side effect profile and how often the liver function tests should be monitored?

(a) Ropinirole
(b) Pramipexole
(c) Levodopa/carbidopa
(d) Tolcapone
(e) Both (a) and (b)

178. Which of the following agents should not be used concurrently with levodopa?

(a) Diphenhydramine
(b) Benztropine
(c) Amantadine
(d) Monoamine oxidase (MAO) inhibitors
(e) Carbidopa

179. Amantadine has which of the following advantages over levodopa?

(a) More rapid relief of symptoms
(b) Higher success rate
(c) Better long-term effects

180. A patient that has been treated with haloperidol for 3 weeks presents with muscle stiffness, tremor, and shuffling gait. This is most likely which type of extrapyramidal side effect?

(a) Akathisia
(b) Tardive dyskinesia
(c) Pseudoparkinsonism
(d) Acute dystonia

181. The atypical antipsychotics differ from the typical agents in various ways that define them as atypical. Which of the following is not a defining property of the atypical antipsychotics?

(a) Sustained hyperprolactinemia
(b) Improved efficacy in treating the negative symptoms
(c) Lower risk for extrapyramidal symptoms (EPS)
(d) Greater serotonin receptor blockade than dopamine blockade

182. Which of the following atypical antipsychotics would be the least sedating?

(a) Quetiapine (b) Risperidone
(c) Olanzapine (d) Clozapine

183. The typical antipsychotic agents are classified into high and low potency agents. Which of the following statements best defines high and low potency?

(a) High potency = more weight gain; low potency = weight loss
(b) High potency = less extrapyramidal symptoms (EPS); low potency = high EPS
(c) High potency = high EPS; low potency = low EPS
(d) High potency = high dose; low potency = low dose

184. Which of the following agents is not used to treat extrapyramidal symptoms?

(a) Donepezil (Aricept)
(b) Trihexyphenidyl (Artane)
(c) Diphenhydramin (Benadryl)
(d) Benztropine (Cogentin)

185. Which of the following statements about depression is true?

(a) The incidence of depression is greater in men than in women
(b) Approximately 5% of institutionalized elders develop depression
(c) Depression has no genetic link
(d) Depression is diagnosed using the DSM-IV criteria

186. A patient with major depression should receive antidepressant therapy for at least

(a) 2 weeks (b) 6 weeks
(c) 2 months (d) 6 months

187. Which of the following patients is mot likely to require maintenance antidepressant therapy?

(a) A 22-year–old woman depressed about the loss of a parent
(b) A 33-year-old man presenting with his second episode of depression
(c) A67-year-old man experiencing his first episode of depression
(d) A34-year-old woman experiencing postpartum depression

188. Which of the following medications would most likely exacerbate a preexisting seizure disorder?

(a) Venlafaxine (b) Trazodone
(c) Bupropion (d) Paroxetine

189. A patient receiving astemizole for seasonal allergies is diagnosed with major depression. Which of the following antidepressants would most likely interact with the current regiment?

(a) Nefazodone (b) Amitriptyline
(c) Sertraline (d) Venlafaxine

190. Which of the following medications would be considered first-line monotherapy for the treatment of bipolar disorder?

(a) Gabapentin (b) Lithium
(c) Risperidone (d) Lamotrigine

191. Which of the following is the appropriate therapeutic range for lithium in the treatment of acute mania?

(a) 0.6–1.0 mEq/L (b) 0.6–1.5 mEq/L
(c) 0.6–0.8 mEq/L (d) 0.8–1.2 mEq/L

192. Which of the following mood stabilizers would be most appropriate in a patient with liver disease?

(a) Lithium (b) Valproic acid
(c) Carbamazepine (d) None of the above

193. Ethinamate is _____ derivative

(a) Phenothiazine (b) Urethane
(c) Piperidine (d) Tertiary alcohol

194. Which of the following factos may reduce lithium concentrations?

(a) Dehydration
(b) Pregnancy
(c) Reduced sodium intake
(d) Nonsteroidal anti – inflammatory drugs

195. Match the description with the appropriate agent.

(a)	Cimetidine	(1)	Decrease theophylline clearance
(b)	Albuterol	(2)	Has anticholinergic activity with few side effects
(c)	Impratropium	(3)	Has high β_2 – adrenergic selectivity bromide
(d)	Epinephrine		
(e)	Atropine		

196. The diuretic of choice for the initial treatment of a patient with either acute or chronic renal failure (ARF, CRF) whose creatinine clearance is below 25 ml/min is

(a) Hydrochlorothiazide
(b) Bumetanide
(c) Furosemide
(d) Ethacrynic acid

197. Erythropoietin is used commonly to treat the anemia associated with chronic renal failure (CRF). Which of the following conditions limits the effectiveness of erythropoietin?

(a) A patient's allergy to erythropoietin
(b) Depletion of iron stores, requiring oral or parenteral supplementation
(c) The ineffectiveness of erythropoietin, as 30% of patients do not respond
(d) The anemia of chronic renal failure is not due to a lack of erythropoietin, so erythropoietin will not ameliorate

198. Morphine stimulates

(a) Billary and pancreatic secretions
(b) Nonpropulsive rhythmic contractions of small intestine of man
(c) Propulsive contractions in small intestine of man
(d) Propulsive peristaltic waves in colon
(e) Human uterus at full term

199. The brain-stem centers affected most strongly by barbiturates are the

(a) Respiratory centers
(b) Vasomotor centers
(c) Cardioinhibitory centers
(d) Cardioacceleratory centers
(e) None of the above

200. Following statement is correct about criteria for neurotransmitter

(a) Must be shown to be present in the presynaptic terminals
(b) Must be released from the presynaptic terminal concomitanly with presynaptic activity
(c) When applied experimentally, effects must be identical to the effects of stimulating the presynaptic pathway
(d) All of the above

201. A drug that produces increased contraction of the sphincter iridis by local application is a

(a) Parasympathimimetic drug
(b) Parasympatholytic drug
(c) Sympathomimetic drug
(d) Sympatholytic drug
(e) None of the above

202. BAL (British Anti-Lewiside is used to counter the toxic effects of

(a) Atropine (b) Mercury
(c) Morphine (d) Barbiturates
(e) Digitalis

203. Which of the following should not be administered to a patient with myasthenia gravis?

(a) Prostigmine (b) Digitalis
(c) Atropine (d) Curare
(e) Insulin

204. The toxicity of methanol is due to its conversion in the body to

(a) Acetaldehyde
(b) Formic acid and formaldehyde
(c) Ethyl alcohol
(d) Carbonic acid
(e) Methane

205. One of epinephrine's actions on the heart is

(a) Acceleration due to depression of the vagus
(b) Increase in refractory period
(c) Depression of the SA node
(d) Increase in the concentration of the enzyme phosphorylase A
(e) None of the above

206. Epinephrine HCl has little or no effect on

(a) Unbroken skin
(b) Conjunctiva
(c) Precapillary sphincter
(d) Nasal mucosa
(e) Pupil

207. Epinephrine is often included in the adminstration of local anaesthetics because it

(a) Enhances analgesic effect
(b) Neutralizes irritant action
(c) Delays diffusion of the anesthetic from the site of injection
(d) Increases diffusion of the anesthetic
(e) Increases blood levels of the anesthetic

208. Paxipam (halazepam) is used primarily to treat

(a) Edema
(b) Congestive heart failure
(c) Symptoms of anxiety
(d) Epilepsy
(e) Muscle spasms

209. Isoetharine is a drug which stimulated primarily which of the following receptors?

(a) Alpha (b) Histamine
(c) Beta 1 (d) Beta 2
(e) None of the above

210. The mechanism explaining the clinical picture observed in carbon monoxide poisoning is

(a) Hemolysis of red blood cells
(b) A chemical union of the carbon monoxide with the hemoglobin of the red blood cells
(c) Transformation of the carbon monoxide to carbon dioxide in the blood
(d) Arrest of oxidation in the tissues by enzyme interference
(e) None of the above

211. Acetylcholine has both muscarinic and nicotinic actions. The muscarinic action can be blocked by

(a) Epinephrine (b) Atropine
(c) Nicotine (d) Curare
(e) Nicotine and curare

212. Which of the following is the fastest acting anticoagulant?

(a) Warfarin (Coumadin)
(b) Heparin
(c) Ouabain
(d) Protamine sulfate
(e) Vitamin K

213. Phencyclidine is a non-competitive antagonist of

(a) Kainate (b) AMPA
(c) NMDA (d) All of the above

214. Which of the following would be the drug oc choice for treatment of hypertensive crisis?

(a) Diazoxide (Hyperstat)
(b) Clonidine (Catapres)
(c) Propranolol (Inderal)
(d) Guanethidine (Ismelin)
(e) Proserpine (Serpasil)

215. Parkingsonism is probably due to

(a) Too little dopamine in the brain
(b) Too little levodopa in the brain
(c) Too little acetylcholine in the brain
(d) Too much levodopa in the brain
(e) Too much dopamine in the brain

216. A prominent toxic effect of local anaesthetics is

(a) CNS stimulation (b) CNS depression
(c) Tachycardia (d) Local ischemia
(e) None of the above

217. Which of the following could be used as an antidote for curare poisoning?

(a) Neostigmine (b) Atropine
(c) Homatropine (d) Hexamethonium
(e) None of the above

218. Cigarette smoking increases the side effects of

(a) Narcotic analgesics
(b) Analeptics
(c) Antidepressants
(d) Oral contraceptives
(e) Cardiac glycosides

219. Fluoxetine is a_____ transport blocker

(a) Serotonin (b) Norepinephrine
(c) Dopamine (d) GABA

220. Vivactil (protriptyline) is used mainly as a (an)

(a) Analgesic (b) Muscle relaxant
(c) Cardiotonic (d) Antidepressant
(e) Antispasmodic

221. Which is the drug of choice for trigeminal neuralgia?

(a) Carbamazepine (b) Phenytoin
(c) Flurazepam (d) Diazepam
(e) Trimethadione

222. Which of the following may increase seizure activity in epileptic patients?

(a) Ethotoin (b) Phenobarbital
(c) Trihexyphenidyl (d) Amantadine
(e) L - Dopa

223. Trazodone (Desyrel) is used primarily as a (an)

(a) Analgesic (b) Cardiotonic
(c) Tranquilizer (d) Antidepressant
(e) Antihypertensive

224. In addition to their marked potency, the loop diuretics Lasix and Edecrin have an added advantage of

(a) Being completely free of side effects
(b) Causing hypokalemia
(c) Not causing any electrolyte imbalance
(d) Requiring only once weekly dosing
(e) Being effective when given orally

225. Neuronal death in response to high glutamate concentration is mediated by

(a) Kainate (b) AMPA
(c) NMDA (d) All of the above

226. A common side effect of ephedrine is

(a) Rashes (b) Nervousness
(c) Blood dyscrasia (d) Drowsiness
(e) Ulcers

227. Thiazide diuretics may produce an increase in blood levels of uric acid and

(a) Potassium (b) BUN
(c) Urea (d) Lithium
(e) Glucose

228. A group of drugs used widely to treat mild hypertension is

(a) Synaptic blockers
(b) Diuretics
(c) Ganglionic blockers
(d) MAO inhibitors
(e) None of the above

229. What is the advantage of levodopa over dopamine in treating parkinsonism?

(a) It is more stable
(b) It is less toxic
(c) It is more readily available

(d) It is considerably less expensive
(e) It is more effective

230. In an anaesthetized dog, repeated intravenous injection of ephedrine shows the phenomenon of

(a) Anaphylaxis (b) Tachyphylaxis
(c) Idiosyncrasy (d) Drug resistance

231. The cotransmitter may serve the following function/functions

(a) Regulate the release of the primary transmitter from the nerve ending
(b) Alter postjunctional action of the primary transmitter
(c) Itself act as an alternative transmitter
(d) All of the above

232. Pseudocholinesterase differs from the cholinesterase in that

(a) It does not hydrolyse acetylcholine
(b) It hydrolyses acetylcholine at a slower rate
(c) It is more susceptible to inhibition by physostigmine
(d) It is the only form of circulating cholinesterase

233. Acetylcholine has no therapeutic application because

(a) None of its actions are beneficial in any condition
(b) Its effects are transient
(c) It produces wide spread actions affecting many organs
(d) Both 'B' and 'C' are correct

234. Pilocarpine is used in

(a) Glaucoma (b) Paralytic ileus
(c) Urinary retention (d) All of the above

235. Which of the following inhibitors binds only to the anionic site of the cholinesterase enzyme ?

(a) Neostigmine (b) Physostigmine
(c) Edrophonium (d) Dyflos

236. Neostigmine is preferred over physostigmine for treating myasthenia gravis because

(a) It is better absorbed orally
(b) It has longer duration of action
(c) It has additional direct agonistic action on nicotinc receptors at the muscle end plate
(d) It penetrates blood-brain barrier

237. The mechanism by which neostigmine improves contraction of myasthenic muscle involves

(a) Repetitive binding of the acetylcholine molecules to the same receptors at the muscle end plate
(b) Diffusion of acetylcholine released from motor nerve endings to a wider area activating neighbouring receptors
(c) Activation of motor end-plate receptors by neostigmine molecules themselves
(d) All of the above

238. Symptoms of schizophrenia are produced by following agents, except

(a) Amphetamine (b) Apomorphine
(c) Bromocriptine (d) Reserpine

239. Select the anticholinesterase drug that is being used to afford symptomatic improvement in Alzheimer's disease

(a) Echothiophate (b) Tacrine
(c) Demecarium (d) Ambenonium

240. Pilocarpine reduces intraocular tension in open angle glaucoma by

(a) Contracting sphincter pupillae
(b) Increasing tone of ciliary muscle
(c) Reducing aqueous formation
(d) Enhancing u/veo-scleral outflow

241. Timolol eye drops are preferred over pilocarpine eye drops by many glaucoma patients because

(a) Timolol is more effective than pilocarpine
(b) Timolol acts by enhancing uveo-scleral outflow
(c) Timolol produces less ocular side effects
(d) There are no contraindications to timolol

242. Select the longer acting ocular beta blocker

(a) Timolol (b) Betaxolol
(c) Cartilol (d) Levobunolol

243. Which of the following is a prodrug of adrenaline used topically in glaucoma ?

(a) Phenylephrine
(b) Dipivefrine
(c) Phenylpropanolamine
(d) Dorzolamide

244. Which of the following diuretics is most effective in acute congestive glaucoma ?

(a) Indapamide (b) Amiloride
(c) Mannitol (d) Furosemide

245. Neostigmine is beneficial in cobra envenomation because

(a) It binds to and inactivates cobra toxin
(b) It reverses coma due to cobra toxin
(c) It counteracts the cardio-depressant action of cobra toxin
(d) It antagonizes the paralyzing action of cobra toxin

246. Which is the most important drug in the treatment of organophosphate poisoning ?

(a) Atropine sulfate (b) Pralidoxime
(c) Diazepam (d) Adrenaline

247. Which of the following diseases is worsened by propranolol ?

(a) Glaucoma
(b) Raynaud's disease
(c) Benign prostatic hypertrophy
(d) Parkinsonism

248. Diazepam is used as a muscle relaxant for

(a) Deep intra-abdominal operation
(b) Trachial intubation
(c) Tetanus
(d) Diagonosis of myasthenia gravis

249. The local anaesthetics having amide linkage differ from those having ester linkage in that the amide linked local anaesthetics

(a) Are not surface anaesthetics
(b) Have a shorter duration of action
(c) Are degraded in the plasma
(d) Do not show cross-sensitivity with ester linked local anaesthetics

250. Local anaesthetics block nerve conduction by

(a) Blocking all cation channels in the neuronal membrane
(b) Hyperpolarizing the neuronal membrane
(c) Interfering with depolarization of the neuronal membrane
(d) Both (b) and (c)

251. Sensitivity of a nerve fibre to blockade by lidocaine depends on

(a) Whether the fibre is sensory or motor
(b) Whether the fibre is myelinated or nonmyelinated
(c) Internodal distances in the fibre
(d) Both (b) and (c)

252. Which sensation is blocked first by low concentrations of a local anaesthetic ?

(a) Temperature (b) Pain
(c) Touch (d) Deep pressure

253. Following are the MAO-inhibitors, except

(a) Tranylcypromine (b) Nomifensine
(c) Moclobemide (d) Isocarboxid

254. The local anaethetic with the longest duration of action is

(a) Procaine (b) Chloroproacine
(c) Lidocaine (d) Dibucaine

255. Which of the following is a poor surface anaesthetic ?

(a) Procaine (b) Lidocaine
(c) Tetracaine (d) Benoxinate

256. The local anaesthetic having high cardiotoxic and arrhythmogenic potential is

(a) Lidocaine (b) Procaine
(c) Bupivacine (d) Chloroprocaine

257. Low concentration of bupivacaine is preferred for spinal/epidural obstetric analgesia because

(a) It has a longer duration of action
(b) It can produce sensory blockade without paralyzing abdominal muscles
(c) It distributes more in maternal tissues so that less reaches the foetus
(d) All of the above are correct

258. Which of the following local anaesthetics is poorly water soluble PABA derivative and primarily used for anorectal lesions, wounds and ulcers ?

(a) Benzocaine (b) Dibucaine
(c) Procaine (d) Benoxinate

259. Oxethazaine is used for anaesthetizing gastric mucosa because

(a) It is not absorbed from the gastrointestinal tract
(b) It remains largely unionized in acidic medium
(c) It is highly ionized in acidic medium
(d) It produces no systemic effects even at high doses

260. In which of the following techiniques the concentration of the local anaesthetic required is the lowest ?

(a) Infiltration anaesthesia
(b) Field block anaesthesia
(c) Nerve block anaesthesia
(d) Spinal anaesthesia

261. The segmental level of spinal anaesthesia depends on

(a) Volume of the local anaesthetic injected
(b) Specific gravity of the local anaesthetic solution
(c) Posture of the patient
(d) All of the above

262. Spinal anaesthesia is not suitable for

(a) Vaginal delivery
(b) Lower segment caesarian section
(c) Prostatectomy
(d) Operations on mentally ill patients

263. Epidural anaesthesia differs from spinal anaesthesia in that

(a) Epidural anaesthesia produces less cardiovascular complications
(b) Headache is more common after epidural anaesthesia
(c) Blood concentrations of the local anaesthetic are lower after epidural anaesthesia
(d) Greater separation between sensory and motor blockade can be obtained with epidural anaesthesia

264. The calcium channel blocker used for prophylaxis of migraine but not for angina pectoris is

(a) Verapamil (b) Diltiazem
(c) Flunarizine (d) Amlodipine

265. Select the nonapeptide which can be generated from plasma globulin by snake venom enzymes and causes fall in BP and intense pain when applied to blister base

(a) Kallidin (b) Bradykinin
(c) Angiotensin II (d) Angiotensin III

266. Captopril produces greater fall in blood pressure in

(a) Diuretic treated patients
(b) Patients having low plasma rennin activity
(c) Sodium replete normotensive individuals
(d) Untreated CHF patients

267. Enalapril differs from captopril in that

(a) It blocks angiotensin II receptors
(b) It does not produce cough as a side effect
(c) It is less liable to cause abrupt first dose hypotension
(d) It has a shorter duration of action

268. Which of the following drugs increases cardiac output in congestive heart failure without having any direct myocardial action ?

(a) Digoxin (b) Captopril
(c) Amrinone (d) Dobutamine

269. Which of the following statements most closely describes the current status of angiotensin converting enzyme inhibitors in congestive heart failure ?

(a) They are the first choice drugs unless contraindicated
(b) They are used when diuretics alone fail
(c) They are a substitute for digitalis
(d) They are to be used as adjuncts only in resistant cases

270. Following is a MAO-inhibitor and also has anit-tubercular activity

(a) Iproniazid (b) Phenelzine
(c) Moclobemide (d) Isocarboxid

271. Losartan is a

(a) Selective AT_1 receptor antagonist
(b) Selective AT_2 receptor antagonist
(c) Nonselective AT_1 + AT_2 receptor antagonist
(d) AT_1 receptor partial agonist

272. Losartan differs from analapril in the following respect

(a) It does not potentiate bradykinin
(b) If depresses cardiovascular reflexes
(c) It impairs carbohydrate tolerance
(d) It does not have fetopathic potentisl

273. Bisphosphonates are indicated in the following condition

(a) Organophosphate poisoning
(b) Dementia
(c) Steven's Johnson syndrome
(d) Postmenopausal osteoporosis

274. The most likely mechanism by which general anaesthetics produce their action is

(a) Affecting receptor operated ion channels in cerebral neurones
(b) Blocking voltage sensitive Na^+ channels in neuronal membrane
(c) Depressing metabolic activity of cerebral neurons
(d) Blocking production of high energy phosphates in the brain

275. Which of the following is a sign of deep anaesthesia ?

(a) Appearance of tears in eyes
(b) Resistane to passive inflation of lungs
(c) Fall in blood pressure
(d) Patient makes swallowing movements

276. Which inhalational general anaesthetic is metabolized in the body to a significant extent

(a) Sevoflurane (b) Isoflurane
(c) Ether (d) Halothane

277. Which of the following general anaesthetics has poor muscle relaxant action ?

(a) Ether (b) Nitrous oxide
(c) Halothane (d) Isoflurane

278. Which of the following is true of nitrous oxide ?

(a) It irritates the respiratory mucosa
(b) It has poor analgesic action
(c) It is primarily used as a carrier and adjuvant to other anaesthetics
(d) It frequently induces post anaesthetic nausea and retching

279. Ether is widely used as a general anaesthetic in India, specially in peripheral hospitals because

(a) It is nonexplosive
(b) It is pleasant smelling and nonirritating
(c) It induces anaesthesia rapidly
(d) It is cheap and can be administered without anaesthetic machine

280. The factor that effects rate of elimination of general anaesthetics is

(a) Pulmonary ventilation
(b) Blood flow
(c) Solubility in blood and tissue
(d) All of the above

281. Which of the following general anaesthetics has the most marked uterine relaxant action ?

(a) Propofol (b) Halothane
(c) Nitrous oxide (d) Ether

282. The distinguishing feature of enflurane compared to halothane is its

(a) Pleasant and nonirritating nature
(b) Propensity to precipitate seizures
(c) Propensity to cause hypotension
(d) Bronchodilator action

283. The drug/drugs used mainly for induction of general anaesthesia is/are

(a) Thiopentone sodium
(b) Fentanyl + droperidol
(c) Ketamine
(d) All of the above

284. The anaesthetic action of thiopentone sodium is characterized by

(a) Good muscle relaxation
(b) Poor analgesia

(c) Sensitization of heart to adrenaline
(d) No postoperative residual CNS depression

285. Dissociative anaesthesia is produced by

(a) Ketamine
(b) Fentanyl + droperidol
(c) Propofol
(d) Both (a) and (b)

286. Use of morphine in preanaesthetic medication

(a) Is routine except in the presence of contraindications
(b) Is restricted to patients being anaesthetized with ether
(c) Should be made only in combination with atropine
(d) Is restricted mostly to patients in pain preoperatively

287. Which of the following drugs is routinely used in preanaesthetic medication for prolonged operations

(a) Atropine (b) Morphine
(c) Promethazine (d) Ranitidine

288. Patients treated with the following drugs should be cautioned not to consume alcoholic beverages

(a) Mebendazole (b) Metronidazole
(c) Methimazole (d) Metamizol

289. Consumption of alcoholic beverages, even in moderate amounts, is contraindicated for the following category of subjects except

(a) Epileptics
(b) Patients with history of myocardial infarction
(c) Gastroesophageal reflux patients
(d) Pregnant women

290. What is considered to be the safe limit of daily alcohol consumption by an adult man in the absence of contraindications and interacting drugs

(a) 20 – 40 ml of whisky
(b) 50 – 100 ml of whisky
(c) 120 – 180 ml of whisky
(d) 200 – 300 ml of whisky

291. Which of the following drugs has been found to reduce alcohol craving and chances of resumed heavy drinking by alcoholics after they have undergone a detoxification programme

(a) Chlordiazepoxide (b) Chlorpromazine
(c) Methadone (d) Naltrexone

292. Following agent potentiates actions of GABA

(a) Volatile anaesthetics
(b) Barbiturates
(c) Propofol
(d) All of the above

293. Ethanol is used in methanol poisoning because it

(a) Antagonises the actions of methanol
(b) Stimulates the metabolism of methanol and reduces its blood level
(c) Inhibits the metabolism of methanol and generation of toxic metabolite
(d) Replenishes the folate stores depleted by methanol

294. The mechanism of action of barbiturates differs from that of benzodiazepines in that they

(a) Do not affect the GABA–benzodiazepine receptor–chloride channel complex
(b) Act as inverse agonists at the benzodiazepine receptor
(c) Increase the frequency of chloride channel opening without affecting its life time
(d) Have both GABA–facilitatory as well as GABA–mimetic actions

295. Which one of the following processes plays the major role in terminating the action of phenobarbitone

(a) Billary excretion
(b) Renal excretion
(c) Hepatic metabolism
(d) Redistribution

296. Currently barbiturates are primarily used as

(a) Hypnotic
(b) Sedative

(c) Antiepileptic
(d) Preanaesthetic medicant

297. Hypnotic benzodiazepines increase the period of time spent in the following stage of sleep

(a) Stage II (b) Stage III
(c) Stage IV (d) REM stage

298. The primary mechanism of action of benzodiazepines is

(a) Dopamine antagonism
(b) Adenosine antagonism
(c) Opening of neuronal chloride channels
(d) Facilitation of GABA–mediated chloride influx

299. At a single hypnotic dose, the pharmacokinetics of diazepam is characterized by

(a) Slow elimination and little redistribution
(b) Slow elimination with marked redistribution
(c) Rapid elimination and marked redistribution
(d) Ultra rapid elimination

300. The following drug is used to reverse the CNS depression produced by diazepam

(a) Nikethamide (b) Doxapram
(c) Physostigmine (d) Flumazenil

301. Which of the following is not a CNS depressant but increases the tendency to fall asleep at night ?

(a) Pyridoxine (b) Methaqualone
(c) Melatonin (d) Ethanol

302. The barbiturate having higher anticonvulsant sedative activity ratio is

(a) Pentobarbitone (b) Phenobarbitone
(c) Bultabarbitone (d) Thiopentone

303. The most probable mechanism of anticonvulsant action of phenytoin is

(a) Facilitation of GABA ergic inhibitory transmission
(b) Hyperpolarization of neurones
(c) Interaction with Ca^{2+} channels to rpmote Ca^{2+} influx
(d) Prolongation of voltage sensitive neuronal Na^{+} channel inactivation

304. Phenytoin appears to derive its anticonvulsant action from

(a) Selective inhibition of high frequency neuronal discharges
(b) Selective inhibition of epileptic focus
(c) Selective inhibition T-type Ca^{2+} current in brain cells
(d) Selective enhancement of inhibitory transmission in the brain

305. The characterstics feature of phenytoin pharmacokinetics is

(a) High first pass metabolism
(b) Nonsaturation kinetics of metabolism
(c) Capacity limited metabolism saturating at higher therapeutic concentration range
(d) Extrahepatic metabolism

306. Which of the following drugs displaces plasma protein bound phenytion as well as decreases its metabolism

(a) Carbamazepine (b) Sodium valproate
(c) Cimetidine (d) Chloramphenicol

307. The following antiepileptic drug is also effective in manic-depressive illness

(a) Ethosuccimide (b) Primidone
(c) Phenobarbitone (d) Carbamazepine

308. The drug of choice for trigeminal neuralgia is

(a) Aspirin (b) Imipramine
(c) Carbamazepine (d) Valproic acid

309. Which of the following is a narrow spectrum antiepileptic drug effective only in absence seizures

(a) Phenacemide (b) Ethosuccimide
(c) Sodium valproate (d) Primidone

310. Sodium valproate has been shown to

(a) Prolong neuronal Na^{+} channel inactivation
(b) Attenuate 'T' type Ca^{2+} current in neurones
(c) Inhibit degradation of GABA by GABA – transaminase
(d) All of the above

311. Sodium valproate should be used with caution in young children because they

are particularly at risk of developing the following adverse effect

(a) Hepatitis (b) Loss of hair
(c) Anorexia (d) Tremor

312. 2-bromo-2-chloro-1,1,1 trifluroethane is

(a) Halothane (b) Enflurane
(c) Isoflurane (d) Desflurane

313. Clobazam is a benzodiazepine used as

(a) Hypnotic (b) Muscle relaxant
(c) Anxiolytic (d) Antiepileptic

314. Which of the following is a recently developed antiepileptic drug used mainly as add-on therapy of refractory partial seizures ?

(a) Viloxazine (b) Lamotrigine
(c) Bupropion (d) Clozapine

315. Gabapentin acts

(a) As $GABA_A$ agonist
(b) As precursor of GABA
(c) By enhancing GABA release
(d) By GABA independent mechanism

316. Which of the following is a GABA – transaminase inhibitor ?

(a) Gabapentin (b) Vigabatrin
(c) Lamotrigine (d) Clobazam

317. Which of the following factors indicates that withdrawal of the successfully used antiepileptic medication is likely to result in recurrence of seizures ?

(a) Childhood epilepsy
(b) Partial seizures
(c) Treatment started soon aftrer seizure onset
(d) Absence of EEG abnormality

318. An epileptic woman controlled by phenytoin therapy conceives. Which of the following measures is most appropriate ?

(a) Mecal termination of pregnancy
(b) Withdraw phenytoin therapy
(c) Gradually reduce phenytoin dose to the lowest effective level
(d) Stubstitute phenytoin with a combination of carbamazepine and sodium valproate

319. Which of the following is the most suitable drug for a 6-year-old girl suffering from absence seizures with occasional generalized tonic-clonic seizures ?

(a) Ethosuccimide (b) Sodium valproate
(c) Carbamazepine (d) Phenytoin

320. The preferred drug for status spilepticus is

(a) Intravenous diazepam
(b) Intravenous phenytoin sodium
(c) Intramuscular phenobarbitone
(d) Rectal paraldehyde

321. The most effective single drug in parkinsonism is

(a) Bromocriptine (b) Selegiline
(c) Levodopa (d) Biperiden

322. The dopamine D2 receptor has the following feature.

(a) It is excitatory in nature
(b) It is negatively coupled to adenlyl cyclase
(c) It is selectively blocked by chlorpromazine
(d) It is not blocked by metoclopramide

323. The usual cardiovascular effect of levodopa is

(a) Bradycardia due to increased vagal tone
(b) Rise in blood pressure due to increased noradrenaline content of adrenergic nerve endings
(c) Fall in blood pressure due to decrease in sympathetic tone
(d) Both (a) and (b)

324. Which of the following adverse effects of levodopa has a delayed onset and increases in severity with continued therapy ?

(a) Nausea and vomiting
(b) Postural hypotension
(c) Cardiac arrhythmia
(d) Abnormal movements

325. The drug which abolishes the therapeutic effect of levodopa in parkinsonism, but not that of levodopacarbidopa combination is

(a) Metoclopramide (b) Pyridoxine
(c) Chlorpromazine (d) Isoniazid

326. Use of carbidopa along with levodopa in the treatment of parkinsonism

(a) Inhibits development of involuntary movements
(b) Minimises 'on–off' effect
(c) Inhibits occurrence of behavioral abnormal ities
(d) Accentuates nausea and vomiting

327. Which of the following adverse effects of levodopa is not minimized by combining it with carbidopa

(a) Involuntary movements
(b) Nausea and vomiting
(c) Cardiac arrhythmia
(d) 'On–off ' effect

328. Though bromocriptine acts directly on dopamine receptors, it is used in parkinsonism only as a supplement to levodopa because

(a) It has low efficacy
(b) It produces 'first dose hypotension'
(c) Used alone, its effective doses produce intolerable side effects
(d) Its therapeutic effect takes long time to develop

329. Nitrous oxide is

(a) Non-flammable
(b) Non-irritant
(c) Potent analgesis
(d) All of the above

330. The antiparkinsonian drug which acts by inhibiting the degradation of dopamine in the brain is

(a) Carbidopa (b) Amantadine
(c) Selegiline (d) Bromocriptine

331. Tolerance to the antiparkinsonian action develops most rapidly in the case of

(a) Levodopa
(b) Levodopa + carbidopa
(c) Amantadine
(d) Bromocriptine

332. Which of the following drugs is added to levodopa therapy of parkinsonism to attenuate wearing off effect ?

(a) Selegiline (b) Trihexiphenidyl
(c) Amantadine (d) Any of the above

333. The following drug is effective in chlorpromazine induced parkinsonism.

(a) Trihexyphenidyl
(b) Selegiline
(c) Bromocriptine
(d) Levodopa + carbidopa

334. For majority of patients of parkinsonism the standard drug therapy is

(a) Levodopa
(b) Levodopa + carbidopa
(c) Levodopa + trihexiphenidyl
(d) Bromocriptine

335. Compared to other antipsychotic drugs, the distinctive feature of penfluridol is

(a) Very long duration of action
(b) Weak dopamine D2 blocking activity
(c) Lack of extrapyramidal side effects
(d) Additional 5–HT_2 receptor blocking activity

336. Which of the following adverse effects of neuroleptic drugs is positively correlated to the antipsychotic potency of the different compounds ?

(a) Sedation
(b) Extrapyramidal motor distubances
(c) Postural hypotension
(d) Lowering of seizure threshold

337. Chlorpromazine therapy increases the secretion of the following hormone.

(a) Prolactin (b) Gonadotropin
(c) Corticotropin (d) Antidiuretic hormone

338. What is true of risperidone ?

(a) It is an atypical neuroleptic which produces few extrapyramidal side effects
(b) It has combined dopamine D2 and 5-HT_2 receptor blocking activity
(c) It is highly sedative
(d) Both (a) and (b)

339. Which of the following is a high potency antipsychotic drug having minimal sedative and autonomic effects and no propensity to cause weight gain ?

(a) Chlorpromazine (b) Triflupromazine
(c) Haloperidol (d) Reserpine

340. The psychotic symptoms most benefited by neuroleptic drugs are

(a) Judgement and memory impairment
(b) Loss of insight and voltion
(c) Hallucinations, delusions and aggressive
(d) Apathy and social withdrawl

341. A manic patient has been brought to the hospital with nonstop talking, singing, uncontrollable behavior and apparent loss of contact with reality. Which of the following is the most appropriate drug for rapid control of his symptoms ?

(a) Lithium carbonate (b) Diazepam
(c) Haloperidol (d) Chloral hydrate

342. The drug which should not be used to treat neurotic anxiety and tension syndromes despite having antianxiety action is

(a) Buspirone (b) Chlorpromazine
(c) Diazepam (d) Alprazolam

343. Which of the following is a nonsedative anxiolytic ?

(a) Meprobamate (b) Buspirone
(c) Hydroxyzine (d) Alprazolam

344. Which of the following statements in correct about buspirone ?

(a) It interacts with benzodiazepine receptor as an inverse agonist
(b) It is a rapidly acting anxiolytic, good for panic states
(c) It produces physical dependence and suppresses barbiturate withdrawl syndrome
(d) It has anxiolytic but no anticonvulsant or muscle relaxant propery

345. Which of the following selective MAO–B inhibitor ?

(a) Selegiline (b) Chlorgiline
(c) Moclobemide (d) Tranylcypromine

346. The most important reason for the unpopularity of nonselective MAO inhibitors as antidepressants is their

(a) Low antidepressant efficacy
(b) Organ toxicity
(c) Potential to interact with many foods and drugs
(d) Propensity to precipitate hypomania in depressed patients

347. The antidepressant which selectively blocks 5-hydroxytryptamine uptake is

(a) Desipramine (b) Amoxapine
(c) Fluoxetine (d) Dothiepin

348. Adaptive changes in brain monoamine turnover due to blockade of noradrenaline/5-HT reuptake is credited with the following effect.

(a) Antipsychotic (b) Antianxiety
(c) Antiparkinsonian (d) Antidepressant

349. A 65-year-old man was brought to the hospital with complaints of pain in lower abdomen and not having passed urine for 16 hours. The bladder was found to be full. His son informed that he was depressed for the last 2 years and only the day before a doctor had given him some medicine. Which of the following drugs is he most likely to have received ?

(a) Alprazolam (b) Haloperidol
(c) Imipramine (d) Trazodone

350. Following analgesics are frequently employed as supplemental drugs during general anesthesia.

(a) Meperidine (b) Fentanyl
(c) Alfentanil (d) All of the above

351. Prolonged painful erection of penis has been noted particularly as a side effect of

(a) Doxepin (b) Trimipramine
(c) Mianserin (d) Trazodone

352. A 30-year old woman suffering from endogenous depression improved after one month of treatment with amitriptyline. How long the drug should be continued

(a) Selegiline (b) Chlorgiline
(c) Moclobemide (d) Tranylcypromine

353. Which of the following statements about lithum is not correct

(a) It has a sedative action in normal individuals
(b) It controls mania, but takes 1–2 weeks to produce the effect
(c) It has prophylactic effect in recurrent unipolar depression
(d) It can be combined with tricyclic antidepressants for refractory cases of major depression

354. For therapeutic effect in manic depressive illness, stady-state serum lithium concentration should be maintained between

(a) 0.2–0.4 mEq/L (b) 0.5–0.8 mEq/L
(c) 1.0–1.3 mEq/L (d) 1.5–2.5 mEq/L

355. Renal excretion of lithium is enhanced by

(a) Furosemide (b) Mannitol
(c) Indomethacin (d) Both (a) and (b)

356. Which of the following drugs can be used as an alternative to lithium in mania and bipolar illness

(a) Diethyl carbamazine
(b) Haloperidol
(c) Clomipramine
(d) Carbamazepine

357. The constellation of side effects consisting of thirst, polyuria, looseness of stools and fine tremors is characteristically associated with the following psychotropic drug

(a) Amitriptyline (b) Buspirone
(c) Lorazepam (d) Lithium carbonate

358. Prolonged lithium therapy can cause

(a) Diabetes mellitus (b) Goiter
(c) Parkinsonism (d) Gout

359. Strychnine produces convulsions by

(a) Stimulating NMDA receptors
(b) Facilitating the excitatory transmitter glutamate
(c) Blocking the inhibitory transmitter GABA
(d) Blocking the inhibitory transmitter glycine

360. The drug of choice for hyperkinetic children is

(a) Methylphenidate (b) Nikethamide
(c) Caffeine (d) Clonazepam

361. The neurotransmitter system in the brain most affected in Alzheimer's disease is

(a) Glutaminergic (b) Gabaergic
(c) Dopaminergic (d) Cholinergic

362. Which of the following drugs is claimed to have a therapeutic effect in senile dementia and has adrenergic blocking activity

(a) Digoxin (b) Furosemide
(c) Enalapril (d) Amrinone

363. Which of the following drugs improves some symptoms in Alzheimer's dementia by increasing brain acelylcholine levels

(a) Pemoline (b) Tacrine
(c) Nicergoline (d) Piribedil

364. Pyritinol (pyrithioxine) is used as

(a) Analeptic drug (b) Cerebroactive drug
(c) Antiepileptic drug (d) Antidepressant drug

365. Extract of the following plant has platelet activating factor antagonistic activity and is claimed to benefit congnitive disorders due to cerebral ischaemia

(a) Ginkgo biloba (b) Claviceps purpurea
(c) Amanita muscaria (d) Artemisia annua

366. Digitalis increases the force of contraction of ventricles by

(a) Increasing the duration of systole
(b) Increasing the rate of contraction without affecting the duration of systole
(c) Increasing the rate of contraction, but reducing the duration of systole
(d) Increasing both the rate of contraction as well as the duration of systole

367. Digitalis induced increase in refractory period of myocardial fibres is most consistent and pronounced in the

(a) Atria (b) Ventricles
(c) A-V node (d) Purkinje fibres

368. Following general anaesthetic is oil at room temperature

(a) Propofol (b) Ketamine
(c) Droperidol (d) Diazepam

369. The most important channel of elimination of digoxin is

(a) Glomerular filtration
(b) Tubular secretion
(c) Hepatic metabolism
(d) Excretion in bile

370. Digitalis is most suitable for treatment of CHF when it is due to

(a) Digoxin (b) Furosemide
(c) Enalapril (d) Amrinone

371. The dose of digoxin in congestive heart failure is adjusted by monitoring

(a) Electrocardiogram
(b) Heart rate and symptoms of CHF
(c) Blood pressure
(d) Plasma digoxin levels

372. Digoxin affords the following benefit/ benefits in CHF

(a) Restores cardiac compensation and relieves symptoms
(b) Reverses the pathological changes of CHF
(c) Prolongs survival of CHF patients
(d) Both (a) and (b)

373. A patient of CHF was treated with furosemide and digoxin. He became symptom-free and is stable for the last 3 months with resting heart rate 68/min in sinus rhythm but left ventricular ejection fraction is low. Which of the following lines of action is warranted.

(a) Stop above medication and start an ACE inhibitor
(b) Continue all medication as before
(c) Continue the diuretic but stop digoxin
(d) Continue digoxin but stop the diuretic

374. Which of the following actions of digoxin is responsible for beneficial effect in auricular fibrillation ?

(a) Increased myocardial contractility
(b) Suppression of SA node
(c) Depression of A-V conduction
(d) Enhanced Purkinje fibre automaticity

375. What is the usual response to digoxin in a patient of atrial fibrillation ?

(a) Restoration of normal sinus rhythm
(b) Conversion of atrial fibrillation to atrial flutter
(c) Increase in atrial fibrillation frequency, but decrease in ventricular rate
(d) Decrease in atrial fibrillation frequency, but increase in ventricular rate

376. The preferred diuretic for mobilizing edema fluid in CHF is

(a) Polythiazide (b) Furosemide
(c) Metolazone (d) Amiloride

377. Infusion of potassium chloride is indicated in digitalis toxicity when the manifestation(s) is/are

(a) Vomiting, hyperapnoea and visual disturbance
(b) Pulsus bigeminus with heart rate 110/min in a patient on maintenance digoxin therapy
(c) Ventricular tachycardia in a child who has accidentally ingested 10 digoxin tablets
(d) 2:1 A-V block with occasional ventricular extrasystoles

378. Which of the following is the most suitable antiarrhythmic drug for counteracting ventricular extrasystoles due to digoxin toxicity ?

(a) Lidocaine (b) Quinidine
(c) Verapamil (d) Amiodarone

379. The apparent stimulation of CNS by local anesthetic is due to

(a) Direct excitatory action
(b) Depression of inhibitory neurons
(c) Non specific action
(d) All of the above

380. The following drug is used for short-term control of emergency heart failure but not for long-term treatment of congestive heart failure

(a) Digoxin (b) Enalapril
(c) Dobutamine (d) Theophylline

381. Select the drug which is an 'inodilator' beneficial in refractory congestive heart failure

(a) Astemizole (b) Amiodarone
(c) Amrinone (d) Amiloride

382. The principal action common to all class I antiarrhythmic drugs is

(a) Na^+ channel blockade
(b) K^+ channel openine
(c) Depression of impulse conduction
(d) Prolongation of effective refractory period

383. Following is an amide linked local anaesthetic

(a) Bupivacaine (b) Procaine
(c) Tetracaine (d) Proparacaine

384. Persistent dry cough may occur as a side effect of the following antihypertensive drug

(a) Enalapril (b) Atenolol
(c) Diltiazem (d) Methyldopa

385. Loss of taste sensation can be a side effect of the following antihypertensive drug

(a) Clonidine (b) Captopril
(c) Verapamil (d) Prazosin

386. Furosemide is to be preferred over hydrochlorothiazide when hypertension is accompanied by

(a) Asthma
(b) Hyperuricaemia
(c) Diabetes
(d) Congestive heart failure

387. Thiazide diuretics are the preferred first line antihypertensives from the following category of patients

(a) Young hypertensives
(b) Physically and sexually active male hypertensives
(c) Elderly obese hypertensives
(d) Diabetic hypertensives

388. Indapamide differs from other diuretics in that

(a) It has selective antihypertensive action at doses which cause little diuresis
(b) It is a more efficacious antihypertensive
(c) Its antihypertensive action develops more rapidly
(d) All of the above

389. In the treatment of hypertension the beta adrenergic blockers have the following advantage

(a) They have minimal effect on work capacity, sleep quality and libido
(b) They do not cause postural hypotension
(c) Used alone, they have high ceiling antihypertensive efficacy
(d) They can be used in combination with any other antihypertensive drug

390. The following antihypertensive drug has a favourable effect on plasma lipid profile

(a) Prazosin
(b) Propranolol
(c) Hydrochlorothiazide
(d) Furosemide

391. The following drug has been found to improve urine flow in elderly males with benign prostatic hypertrophy

(a) Nifedipine (b) Prazosin
(c) Disopyramide (d) Imipramine

392. Following is an ester linked local anaesthetic

(a) Mepivacaine (b) Ropivacaine
(c) Benzocaine (d) Prilocaine

393. The following antihypertensive is used topically to treat alopacia areata

(a) Hydralazine (b) Prazosin
(c) Minoxidil (d) Guanethidine

394. Diazoxide is an effective hypotensive, but it is not used in the long-term treatment of hypertension because

(a) It impairs glucose tolerance by inhibiting insulin release
(b) It inhibits uric acid excretion
(c) It causes marked Na^+ and water reterntion
(d) All of the above

395. The following antihypertensive drug tends to lower plasma rennin activity

(a) Clonidine (b) Hydralazine
(c) Nifedipine (d) Captopril

396. Methyldopa lowers BP by

(a) Inhibiting dopa decarboxylase in adrenergic nerve endings
(b) Generating α-methyl noradrenaline in brain which reduces sympathetic tone
(c) Generating α-methyl noradrenaline which acts as a false transmitter in peripheral adrenergic nerve endings
(d) Activating vascular dopamine receptors

397. Injection of local anaesthetic directly into tissue without taking into consideration the course of cutaneous nerves is

(a) Infiltration anesthesia
(b) Field block anesthesia
(c) Nerve block anesthesia
(d) All of the above

398. Select the correct statement about combining antihypertensive drugs

(a) Antihypertensive combinations should always be preferred over single drugs
(b) Combinations of antihypertensives with similar pattern of haemodynamic action are superior to those with dissimilar pattern
(c) Only those antihypertensives which act on different regulatory systems maintaining blood pressure should be combined
(d) A diuretic must be included whenever antihypertensives are combined

399. Angiotensin converting enzyme inhibitors are contraindicated in

(a) High rennin hypertensives
(b) Diabetics
(c) Congestive heart failure patients
(d) Pregnant women

400. A woman in the 28th week of pregnancy has been found to have pregnancy induced hypertension with a blood pressure reading of 150/95 mm Hg. Select the most appropriate antihypertensive drug for her

(a) Furosemide (b) Methyldopa
(c) Propranolol (d) Captopril

401. Secretion of K^+ in the late distal tubule and collecting ducts of kidney depends on

(a) Intracellular K^+ content
(b) Unabsorbed Na^+ load presented to the distal segment
(c) Aldosterone
(d) All of the above

402. Which of the following diuretics is orally active, efficacious in acidosis as well as alkalosis, causes diuresis even in moderately severe renal failure and has additional carbonic anhydrase inhibitory action

(a) Mannitol
(b) Bendroflumethiazide
(c) Mersalyl
(d) Furosemide

403. The following diuretic abolishes the corticomedullary osmotic gradient in the kidney

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

404. Intravenous furosemide promptly mitigates dyspnoea in acute left ventricular failure by

(a) Producing bronchodilatation
(b) Causing rapid diuresis and reducing circulating blood volume
(c) Increasing venous capacitance and reducing cardiac preload
(d) Stimulating left ventricular contractility

405. Parenteral furosemide is an alternative diuretic to mannitol in the following condition

(a) Pulmonary edema (b) Cirrhotic edema
(c) Cerebral edema (d) Cardiac edema

406. Though ethacrynic acid is also a high ceiling diuretic, it is rarely used compared to furosemide because

(a) It is more ototoxic
(b) It causes diarrhoea and gut bleeding

(c) Its response increases steeply over a narrow dose range
(d) All of the above

407. Thiazide diuretics enhance K^+ elimination in urine primarily by

(a) Inhibiting proximal tubular K^+ reabsorption
(b) Inhibiting Na^+ K^+–2C1$^-$ cotransport in the ascending limb of of loop of Henle
(c) Increasing the availability of Na^+ in the distal tubular fluid to exchange with interstitial K^+
(d) Potentiating the action of aldosterone

408. The primary site of action of thiazide diuretics is

(a) Proximal tubule
(b) Ascending limb of loop of Henle
(c) Cortical diluting segment
(d) Collecting ducts

409. The most important reason for the thiazides being only moderately efficacious diuretics is

(a) FSH + LH obtained from urine of menstruating women
(b) LH obtained from urine of pregnant women
(c) FSH + LH obtained from urine of menopausal women
(d) LH obtained from serum of pregnant mare

410. Combined tablets of thiazide or high ceiling duretics with potassium chloride are not recommended because

(a) Potassium absorbed while diuresis is occurring is largely excreted out
(b) Potassium administered concurrently diminishes the diuretic action
(c) Potassium chloride in tablet formulation is likely to cause gut ulceration
(d) Both (a) and (c)

411. _____ technique relies on using the vasculature to bring the local anesthetic solution to the nerve trunks and endings

(a) Spinal anesthesia
(b) Nerve block anesthesia
(c) Intravenous regional anesthesia
(d) All of the above

412. A patient of congestive heart failure was being treated with furosemide and digoxin. He developed urinary tract infection. Which of the following antimicrobials should not be prescribed

(a) Ampicillin (b) Gentamicin
(c) Norfloxacin (d) Cotrimoxazole

413. Which of the following has a 'self limiting diuretic' (action of the drug itself causing changes which limit further diuresis) action ?

(a) Indapamide (b) Spironolactone
(c) Theophylline (d) Acetazolamide

414. The most important therapeutic indication of acetazolamide is

(a) Congestive heart failure
(b) Renal insufficiency
(c) Cirrhosis of liver
(d) Glaucoma

415. Aldosterone increases Na^+ reabsorption and K^+ excretion in the renal collecting duct cells by

(a) Inducing synthesis of Na^+ K^+ ATP ase
(b) Inducing synthesis of amiloride sensitive Na^+ channels
(c) Translocating Na^+ channels from cytosolic site to luminal membrane
(d) All of the above

416. Select the diuretic that can cause gynaecomastia, hirsutism and menstrual disturbance as a side effect on long-term use.

(a) Amiloride (b) Spironolactone
(c) Metolazone (d) Acetazolamide

417. Which of the following is a potassium retaining diuretic ?

(a) Trimethoprim (b) Triamterene
(c) Trimethaphan (d) Trimethadione

418. Triam

(a) It has greater natriuretic action
(b) Its K^+ retaining action is not dependent on presence of aldosterone
(c) It acts from the luminal membrane side of the distal tubular cells
(d) Both (b) and (c)

419. Potassium sparing diuretics should not be coadministered with

(a) Furosemide
(b) Hydrochlorothiazide
(c) Captopril
(d) Verapamil

420. The primary mechanism by which antidiuretic hormone reduces urine volume is

(a) Decrease in glomerular filtration rate
(b) Decreased renal blood flow
(c) Decreased water permeability of descending limb of loop of Henle
(d) Increased water permeability of collecting duct cells

421. Which of the following tissues is most sensitive to vasopressin ?

(a) Vascular smooth muscle
(b) Intestinal smooth muscle
(c) Renal collecting ducts
(d) Uterus

422. Which of the following drugs reduces urine volume in both pituitary origin as well as renal diabetes insipidus and is orally active ?

(a) Vasopressin
(b) Hydrochlorothiazide
(c) Chlorpropamide
(d) Carbmazepine

423. Alpha methyldopa

(a) Is ineffective when given orally
(b) Decreases serum prolactin levels
(c) Is valuable in patients with compromised renal function
(d) Causes troublesome postural hypotension

424. Fetal alcohol syndrome is characterized by

(a) Normal CNS function
(b) Characteristic cluster of facial abnormalities
(c) Normal growth
(d) All of the above

425. Prazosin

(a) Is relatively ineffective in blocking presynaptic alpha$_2$ receptors
(b) Produces reflex tachycardia
(c) Is contraindicated in patients with renal insufficiency
(d) Decreases plasma renin activity

426. Diazoxide

(a) Causes marked sodium and water retention
(b) Can be used in hypertensive emergencies
(c) Can produce alopecia
(d) Lowers blood sugar levels

427. Hydroxyethyl starches

(a) Are allergenic
(b) Do not cause coagulation disturbances
(c) Can precipitate renal failure
(d) Are hydrolysed by amylase

428. Normal saline

(a) Has a long duration of action
(b) Is commonly used as a vehicle for noradrenaline drip
(c) Is 5% sodium chloride
(d) Is a commonly used agent to raise effective blood volume in emergencies

429. The sympathomimetic amine preferred in shock due to myocardial infarction is

(a) Dopamine (b) Isoprenaline
(c) Epinephrine (d) Norepinephrine

430. Phenytoin sodium

(a) Depresses ventricular automaticity
(b) Decreases AV nodal conduction
(c) Is given by constant intravenous infusion
(d) Decreases the conduction velocity in the ventricular fibers

431. Dale's vasomotor reversal phenomenon is exhibited by

(a) Adrenaline (b) Noradrenaline
(c) Isoprenaline (d) Both (a) and (b)

432. Phenylephrine instilled in the eye can produce

(a) Mydriasis but no cycloplegia
(b) Mydriasis and cycloplegia
(c) Miosis and cycloplegia
(d) Miosis without cycloplegia

433. Synthesis of norepinephrine occurs from

(a) Tyramine (b) Tyrptophan
(c) Tyrosine (d) Tetracaine

434. The drug of choice in anaphylactic shock is

(a) Isoprenaline (b) Adrenaline
(c) Dobutamine (d) Noradrenaline

435. Phenoxybenzamine is less commonly used to treat chronic essential hypertension, because it

(a) Has a transient action of 2 hours
(b) Has to be given parenterally
(c) Also blocks the vasodilatory beta$_2$ adrenergic receptors
(d) Causes tachycardia and postural hypotension

436. The anti-cholinesterase with the shortest duration of action is

(a) Neostigmine (b) Physostigmine
(c) Edrophonium (d) Ambenonium

437. The agent that produces cycloplegia for a short time is

(a) Cyclopentolate (b) Homatropine
(c) Tropicamide (d) Atropine

438. The drug of choice in the treatment of organophosphorus poisoning is

(a) Neostigmine (b) Atropine
(c) Pralidoxime (d) Acetylcholine

439. The average rate of ethanol metabolism in one hour in normal adults is between

(a) 1 to 2 ml (b) 8 to 12 ml
(c) 30 to 50 ml (d) 100 to 150 ml

440. Following barbiturate is significantly excreted as unchanged drug

(a) Phenobarbital (b) Pentobarbital
(c) Secobarbital (d) All of the above

441. Acute opium poisoning is treated by intravenous administration of

(a) Naloxone (b) Pethidine
(c) Nalbuphine (d) Noscapine

442. Ultrashort duration of effct of thiopentone sodium given intravenously is due to

(a) Rapid hepatic metabolism
(b) Rapid renal clearance
(c) Extensive binding to plasma proteins
(d) Redistribution to body tissues outside the CNS

443. The drug of choice for myoclonic epilepsy

(a) Carbamazepine (b) Phenobarbitone
(c) Phenytoin sodium (d) Valproic acid

444. Peripheral conversion of levodopa to dopamine is facilitated by

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

445. Which of the following does not produce hypertensive crisis when coadministered with levodopa?

(a) Phenelzine (b) Selegiline
(c) Isocarboxazid (d) Pargyline

446. Nitrous oxide

(a) Provides slow induction
(b) Produces adequate muscle relaxation
(c) By itself is not a potent anaesthetic
(d) Is a poor analogesic

447. Propofol

(a) Enhances the neuromuscular blockade of d-tubocurarine
(b) Causes marked postoperative confusion
(c) Can produce involuntary movements during its use
(d) Has a delayed recovery after induction

448. Neurolept analgesia

(a) Is used in patients with Parkinson's disease
(b) Precludes the use of succinylcholine
(c) Induces unconsciousness
(d) Is useful for minor surgical procedures

449. The local anaesthetic with a short duration of action is

(a) Lignocaine (b) Procaine
(c) Tetracaine (d) Mepivacaine

450. The local anaesthetic with significant vasoconstriction effect is

(a) Cocaine (b) Procaine
(c) Bupivacaine (d) Tetracaine

451. The local anaesthetic recommended as an antiarrhythmic is

(a) Lignocaine (b) Procaine
(c) Medivacuene (d) Tetracaine

452. A H_1 receptor antagonist has limited beneficial effect in

(a) Combating motion sickness
(b) Systemic anaphylaxis
(c) Allergic conjunctivitis
(d) Reversing extrapyramidal side effects caused by phenothazines

453. The H_1 receptor antagonist with high anticholinergic activity is

(a) Diphenhydramine (b) Terfenadine
(c) Mepyramine (d) Clemastine

454. Magnesium sulfate

(a) Is used to control eclamptic seizures during pregnancy
(b) Is not given in patients in whom b_2 adrenergic receptor
(c) Is used to arrest post partum hemorrhage
(d) Can arrest labor even when cervix is 7 cm dilated

455. Colchicine

(a) Is used for treatment and prevention of acute gouty arthritis
(b) Causes cellular proliferation
(c) Is an effective analgesic in osteoarthritis
(d) Enhances uric acid excretion

456. Probenecid

(a) Increases excretion of uric acid by blocking its tubular reabsorption
(b) Is used in combination with salicylates
(c) Is useful in gouty patients with nephrolithiasis
(d) Reduces the plasma concentrations of rifampicin

457. Salicylates and barbiturates are more readily absorbed from the stomach because

(a) They are weak bases and are ionized at gastric pH
(b) They are weak acids and predominantly non-ionized in gastric pH
(c) They are strong bases and are highly ionized at gastric pH
(d) They are weak acids and are ionized at gastric pH

458. Zolpidem interacts with

(a) BZ1 receptors
(b) BZ2 receptors
(c) Both (a) and
(d) None of the above

459. Phenobarbitone reduces the incidence of severe hyperbilirubinaemia in the neonates because

(a) It prevents the synthesis of bilirubin
(b) It conjugates with the bilirubin
(c) It stimulates hepatic glucuronyl tranferase
(d) None of the above mechanism

460. The methanol is toxic to optic nerve, it is because of

(a) Methanol itself
(b) Oxidative metabolites of methanol
(c) Conjugated product of methanol
(d) Idiosyncratic reaction

461. A patient has resulted in acute hypertensive episode after ingestion of certain cheeses or wine. This interaction is because he is on

(a) Tetracyclines (b) Tranyleypromine
(c) Aspirin (d) Digitalis

462. Which of the following drugs increases the metabolism of bishydroxycoumarin by induction of hepatic microsomal enzymes?

(a) Digoxin (b) Furosemide
(c) Enalapril (d) Amrinone

463. Antihistamines, phenothiazines, tricyclic antidepressants and antiparkinsonian agents have a common property that

(a) All produces CNS stimulation
(b) All have adrenergic action
(c) All have some atropine like action
(d) All have long plasma half-life

464. Regarding the eardiac and therapeutic effect of phenytoin, which of the following is true?

(a) It increases the action potential duration in purkinje fibres
(b) It has a brief duration of action because of $t^{1/2}$ of 2 hours
(c) It is probably the drug of choice in the treatmet of arrhythmias caused by digitalis intoxication
(d) The drug markedly depresses conduction velocity in the A-v node and intraventricular conduction system

465. Phenytoin

(a) Is useful only in the treatment of epilepsy
(b) Has an antiarrhythmic action that is quite different from that of quinidine
(c) Has antiarrhythmic action against many types of arrhythmias
(d) Increases excitability of atrial or ventricular muscle

466. The drug of choice in the treatment of hypertensive emergency is

(a) Guanethidine (b) Reserpine
(c) Diazoxide (d) Furosemide

467. Which of the following statements concerning hypertension is true?

(a) It is easier to obtain salt depletion in hypertensive patients with thiazide diuretics than by limitation of salt intake
(b) I.V. guanethidine is very useful in controlling hypertensive emergencies
(c) In essential hypertension the excretion of catecholamine in the urine is abnormally high
(d) Aldosterone stimulates the secretion of angiotensin leading to certain types of hypertension

468. The duration of action of methacholine is longer than that of acetylcholine because

(a) Acetylcholine is inactivated by active transport into schwan cell
(b) Acetylcholine is inactivated by active transport into nerve cell
(c) Acetylcholine is metabolized more rapidly
(d) Acetylcholine is excreted more rapidly

469. Hemicholinium modifies Ach metabolism by

(a) Interfering with destruction of Ach
(b) Interfering with relese of Ach
(c) Interfering with synthesis of Ach
(d) Promoting release of Ach

470. Action of acetylcholine is terminated by

(a) Diffusion away from the site of action
(b) Deamination
(c) Hydrolysis
(d) Temporary adsorption on plasma proteins

471. Norepinephrine in the synaptic cleft can activate presynaptic alpha 2 receptors which results in

(a) Increased release of exocytotic norepinephrine
(b) Displacement of norepinephrine from the storage site
(c) Further inhibition of exocytotic release of norepinephrine
(d) Increased synthesis of norephinephrine

472. Which of the following barbiturates is preferred as sedative agent in a patient having liver disease ?

(a) Allobarbitone (b) Cyclobarbitone
(c) Phenobarbitone (d) Pentobarbitone

473. One of the way to classify regions of the cortex is

(a) By the modality of information processed
(b) By the physiological position
(c) By the chemical relationship between cell types in the major cortical layers
(d) All of the above

474. Peak serum level of orally administered lithium is usually achieved in

(a) 5 to 10 min (b) 1 to 2 days
(c) 2 to 4 hours (d) 8 to 12 hours

475. For induction of anaesthesia nitrous oxide is superior to ether because

(a) Nitrous oxide is not explosive, while ether vapours are flammable in air
(b) Iuduction with nitrous oxide is very rapid while with ether it is slow and unplea sant to patient

(c) Ether is irritant to respiratory tract and may lead to coughing, laryngeal spasm and increased mucus secretion while nitrous oxide does not
(d) All of the above

476. Succinylcholine is preferred over d-tubocurarine for endotrachial intubation, because of the following reasons except

(a) With succinylcholine total paralysis lasts upto 4 min. with 50% recovery at about 10 min
(b) Allergic reactions due to release of histamine are not seen with succinylcholine
(c) In addition to neuromuscular blocking effect succinylcholine blocks autonomic ganglia
(d) Bronchospasm is less common with succinylcholine

477. The difference between autonomic and somatic nerves are all except

(a) Somatic nerves do not contain peripheral ganglia unlike autonomic nerves
(b) Motor nerves to skeletal muscles are myelinated while postganglionic autonomic nerves are unmyelinated
(c) The presynaptic transmitted in both the cases is different
(d) None of the above

478. In endothelium nitric oxide is synthezised from

(a) Arginine (b) Valine
(c) Tyrosine (d) All of the above

479. Ipratropium bromide is principally effective in

(a) Asthma (b) Bronchitis
(c) COPD (d) All of the above

480. What are obidoxine and pralidoxime

(a) Acetylcholine reactivators
(b) Choline esterase reactivators
(c) Choline esterase inhibitors
(d) Cellular poisons

481. Which of the following cholinergic drugs is used in Alzheimer's disese

(a) Neostigmine (b) Pyridostigmine
(c) Tacrine (d) None of the above

482. Which of the following neuromuscular blocking agent has short duration of action

(a) Atracurium (b) Mivacurium
(c) Pancuronium (d) Doxacurium

483. Botulinium toxin causes muscle palsy by blocking

(a) Nerve action potential
(b) Acetylcholine release
(c) Permeability to sodium and potassium
(d) Muscle action potential

484. Dopamine is preferred over norepinephrine in cardiogenic and hypovolemic shock because

(a) Better cardiac stimulation
(b) Potent renal vasodilator
(c) Potent cerebral vasodilation
(d) All of the above

485. What is the mechanism of action of clonidine

(a) α_1 antagonist (b) α_2 agonist
(c) α_1 agonist (d) β_1 agonist

486. What is true of methylphenidate

(a) Mild CNS stimulant
(b) Abuse potential as of amphetamine
(c) Effective in narcolepsy and attention deficit-disorder
(d) All of the above

487. The longest half-life is of which of the following betablockers

(a) Esmolol (b) Nadolol
(c) Pindolol (d) Acebutolol

488. Which of the following is both alpha and beta blocker

(a) Propranolol (b) Labetalol
(c) Esmolol (d) Metoprolol

489. The rate limiting enzyme in synthesis of melatonin and serotonin is

(a) Tryptophan hydroxylase
(b) 5 HT N-acetylase
(c) Aldehyde dehydrogenase
(d) Aldehyde reductase

490. Which of the following is a function of melatonin

(a) Darkening of skin colour
(b) Suppression of ovarian function
(c) Regulation of biorhythm
(d) All of the above

491. Which neurotransmitter has maximum number of receptor subtypes

(a) GABA (b) Glutamate
(c) Serotonin (d) Substance P

492. The cell bodies of 5HT neurons in CNS are principally located in

(a) Hypothalamus (b) Frontal lobe
(c) Raphenuclei (d) Caudate nucleus

493. In GI tract enterochromaffin cells maximum in

(a) Stomach (b) Duodenum
(c) Jejunum (d) Colol

494. Tryptophan is essential for synthesis of

(a) Niacin (b) Serotonin
(c) Melatonin (d) All of the above

495. Which of the following is 5HT antagonists except

(a) Sumatriptan (b) Ondansetron
(c) Ketanserin (d) None of the above

496. The rate at which inhalational anaesthetic passes into tissues depends on

(a) Tissue: Blood partition coefficient
(b) The rate at which gas is delivered to the tissues
(c) The partial pressure of the gas in the arterial blood
(d) All of the above

497. General anaesthesis for surgery requires

(a) Unconsciousness
(b) Analgesia
(c) Suppression of visceral reflexes
(d) Muscle relaxation
(e) All of the above

498. The most ideal inhalation anaesthetic is

(a) Halothane (b) Enflurane
(c) Isoflurane (d) Desflurane

499. The barbiturate of choice for induction of anaesthesis is

(a) Pentothal (b) Thiamylal
(c) Methohexital (d) Etomidate

500. Ketamine injection produces

(a) Amnesia (b) Analgesia
(c) Sedation (d) Immobility
(e) All of the above

501. Local anaesthetics prevent or relieve pain by

(a) Inhibit substance P
(b) Interrupt nerve conduction
(c) Modify neuronal metabolism
(d) All of the above

502. What is true about sensitivity of nerve fibres to local anaesthetics ?

(a) Small fibres are more sensitive
(b) Large fibres are more sensitive
(c) Both small and large fibres are equally senstive
(d) Small fibres are resistant

503. Which function is lost last after local anaesthetic injection

(a) Pain (b) Touch
(c) Muscle tone (d) Deep pressure

504. A vasoconstrictor is added to local anaesthetic for

(a) Prolongation of anaesthetic action
(b) Tackling anaphylaxis
(c) To prevent bleeding
(d) All of the above

505. The local anaesthetic of choice during labor is

(a) Procaine (b) Bupivacaine
(c) Cocaine (d) Lignocaine

506. Bier's block refers to

(a) Field block anaesthesia
(b) Nerve block anaesthesia
(c) Intravenous regional anaesthesia
(d) Infiltration anaesthesia

507. Which of the following is the most trouble shooter in spinal anaesthesia

(a) Sympathetic block
(b) Parasympathetic block
(c) Contracted intestines
(d) Paralysed intercostals muscles

508. A local anaesthetic in its lowest concentration will block

(a) Somatic motor
(b) Somatic sensory
(c) Preganglionic sympathetic
(d) All of the above

509. Benzodiazepines act on which receptors

(a) $GABA_A$ (b) $GABA_B$
(c) Both of the above (d) None of the above

510. Which of the following benzodiazepines has shortest half-life

(a) Alprazolam (b) Oxazepam
(c) Clonazepam (d) Midazolam

511. Which of the following barbiturate has shortest half-life

(a) Secobarbital (b) Pentobarbital
(c) Methohexital (d) Amobarbital

512. Barbiturate induced enzyme induction facilitates metabolism of

(a) Steroid (b) Ethanol
(c) Vit K and D (d) All of the above

513. Most barbiturates loose biological action after oxidation of radicals at position

(a) Digoxin (b) Furosemide
(c) Enalapril (d) Amrinone

514. The metabolism of ethanol is directly proportional to

(a) Digoxin (b) Furosemide
(c) Enalapril (d) Amrinone

515. Disulfiram–ethanol interaction often produces hypertension due to

(a) Increased concentration of ethanol
(b) Inhibition of sympathetic tone
(c) Inhibition of dopamine hydroxylase
(d) None of the above

516. Chemically the phenothiazines have

(a) One ring (b) Two rings
(c) Three rings (d) Five rings

517. Following are examples of generalized seizures, except

(a) Tonic-clonic seizures
(b) Infantile spasms
(c) Simple partial seizures
(d) Atonic seizures

518. The D3 receptors are preferentially present in

(a) Negative inotropy
(b) QT prolongation
(c) P-R prolongation
(d) ST depression
(e) All of the above

519. What is rabit syndrome

(a) Tardive dyskinesia
(b) Akathisia
(c) Perioral tremor
(d) None of the above

520. The maximum daily dose of Alprazolam is

(a) Anxiolytic (b) Sedative
(c) Antidepressant (d) All of the above

521. Atypical antidepressant is

(a) Selegiline (b) Trazodone
(c) Desipramine (d) Doxeptan

522. Setraline belongs to which class of compounds

(a) MAO inhibitor
(b) Serotonin reuptake inhibitor
(c) Nor epinephrine reuptake inhibitor
(d) None of the above

523. Following is an irreversible inhibitor of GABA amino transferase

(a) Pyrimidine (b) Vigabatrin
(c) Lamotrigine (d) Gabapentin

524. Lithium has also been used for which of the following

(a) Gout (b) Salt substitute
(c) Anticonvulsant (d) All of the above

525. Which lithium salt is used for manic-depressive disorders

(a) Carbonate (b) Chloride
(c) Bromide (d) All of the above

526. MAO inhibitors in general raise the brain level of

(a) Dopamine (b) Serotonin
(c) Nor adrenaline (d) All of the above

527. Which of the following is not MAO-A inhibitor

(a) Selegiline (b) Brofaromine
(c) Clorgyline (d) Moclobemide

528. Which of the recently introduced antiepileptics is useful in absence seizure

(a) Absence attack
(b) Partial seizure (simple)
(c) Clonic tonic seizure
(d) Complex partial seizure

529. Gabapentin acts by

(a) Binds to $GABA_A$ receptors
(b) Binds to $GABA_B$ receptors
(c) Inhibits GABA destruction
(d) Promotes GABA release
(e) All of the above

530. IV administration of phenytoin in status epilepticus carries the danger of

(a) Arrhythmia (b) Cerebellar atrophy
(c) Renal failure (d) Jaundice
(e) All of the above

531. For seizure control, therapeutic plasma phenobarbitone should be

(a) 2 –5 μg/ml (b) 10 – 20 μg/ml
(c) 50 – 60 μg/ml (d) 80 – 90 μg/ml

532. The drug of choice for status epilepticus is

(a) Clonazepam (b) Diazepam
(c) Lorazepam (d) Alprazolam

533. The maximum dose of ergotamine per week in treatment of migraine is

(a) 5 mg (b) 10 mg
(c) 20 mg (d) 40 mg

534. Which of the following is 5 HT receptor antagonist

(a) Methysergide (b) Plzotifen
(c) Minaserin (d) All of the above

535. Fenton reaction refers to the formation of

(a) Free radical (b) Hydrogen peroxide
(c) Nitric oxide (d) None of the above

536. How many types of dopamine receptors are present in brain

(a) 3 (b) 5
(c) 7 (d) 9

537. The term endorphin refers to which of the following

(a) Encephalins (b) Dynorphins
(c) b endrophin (d) All of the above

538. How many types of opioid receptor are present in brain

(a) 3 (b) 4
(c) 5 (d) 6

539. The agent that has strong affinity for μ, δ and kappa receptor is

(a) Morphine (b) Etorphine
(c) Fentanyl (d) Sufentanil

540. Anti-epileptic, chemically derived from the tricyclic antidepressant is

(a) Carbamazepine (b) Ethosuximide
(c) Phenytoin (d) None of the above

541. The triad of coma, pinpoint pupil and decreased respiration points toward poisoning with

(a) Organophosphorus
(b) Morphine
(c) Mushroom
(d) Belladona

542. Which of the following is not a feature of alcohol withdrawal syndrome

(a) Seizure
(b) Hypertension
(c) Constricted pupils
(d) Delirium tremens

543. Angel dust refers to

(a) LSD (b) MDMA
(c) Phencyclidine (d) MDA

544. Acetazolamide inhibits which form of carbonic anhydrase

(a) Membrane bound (b) Cytosolic
(c) Both of the above (d) None of the above

545. The site of action of loop diuretics is

(a) Proximal convoluted tubule
(b) Proximal straight tubule
(c) Thick ascending limb
(d) Distal convoluted tubule

546. Which loop diuretic is more likely to have toto toxicity Ethacryhia

(a) Furosemide (b) Bumetamide
(c) Ethacrynic acid (d) Torsemide

547. Among thiazide diuretics the relative potency is highest for

(a) Hydrochlorthiazide
(b) Benzthiazide
(c) Polythiazide
(d) Indapamide

548. The anti diuretic action of vasopressin is mediated via

(a) V_1 receptor (b) V_2 receptor
(c) Both of the above (d) None of the above

549. Hyoscine differs from atropine in that

(a) Its duration of action is longer
(b) Anticholinergic action is more on heart
(c) Has depressant action on CNS in low doses
(d) Slowly absorbed from GI tract

550. All are side effects of bromocriptine except

(a) Hallucination
(b) Tremor
(c) Suppression of lactation
(d) Postural hypotension

551. ETDA is useful in poisoning due to all except

(a) Lead (b) Zinc
(c) Iron (d) Mercury

552. Quinidine is contraindicated in

(a) Atrial flutter (b) Atrial fibrillation
(c) PSVT (d) Digoxin toxicity

553. Nalorphine is not used as antidote for

(a) Morphine (b) Pethidine
(c) Pentazocine (d) Heroin

554. Carbonic anhydrase inhibitor is often useful in

(a) Thyrotoxicosis (b) Petit mal epilepsy
(c) Myasthenia gravis (d) Bronchial asthma

555. Which of the following drug is contraindicated in myasthenia gravis ?

(a) Neostigmine (b) Pyridostigmine
(c) Quinine (d) Ephedrine

556. Petit mal epilepsy is treated by

(a) Phenobarbitone (b) Ethosuximide
(c) Diazepam (d) Phenytoin

557. Lithium toxicity may manifest as

(a) Polyuria (b) Nephrotic syndrome
(c) Renal calculi (d) Acute renal failure

558. In Parkinsonism levodopa exerts following effects except

(a) Improves tremor
(b) Improves akinesia
(c) Improves muscle power
(d) Improves dystonia

559. The primary mechanism of action of benzodiazepine is

(a) Dopamine antagonism
(b) Adenosine antagonism
(c) Opening up of chloride channel
(d) Facilitation of GABA mediated chloride influx

560. Which of the following general anaesthetic has poor muscle relaxation ?

(a) Ether (b) Nitrous oxide
(c) Halothane (d) Enflurane

561. Which of the following secretions is not stimulated by acetylcholine ?

(a) Tear (b) Bile
(c) Sweat (d) Pancreatic juice

562. Which of the following drugs is not effective in acute congestive glaucoma

(a) Acetazolamide (b) Pilocarpine
(c) Timolol (d) Mannitol

563. The anticholinergic used only as preanaesthetic medication is

(a) Atropine (b) Glycopyrrolate
(c) Isopropamide (d) Dicyclomine

564. Ephedrine is similar to adrenaline in respect to

(a) Duration of action
(b) Potency
(c) Penetration of blood brain barrier
(d) Both α and β adrenergic effects2106.

565. The neurotransmitter released at the end of the sympathetic nerve fibre is

(a) Epinephrine (b) Furosemide
(c) Enalapril (d) Amrinone

566. Valproic acid is shown to be effective against

(a) Absence seizures
(b) Partial seizures
(c) Generalized seizures
(d) All of the above

567. In which of the following conditions centrally acting anticholinergic drugs cannot be used for treatment

(a) Parkinsonian disease
(b) Akathisia
(c) Tardive dyskinesia
(d) All the above
(e) None of the above

568. Levodopa and carbidopa combination is used to treat parkinsonian disease because carbidopa

(a) Selectively stimulates dopa decarboxylase
(b) Enters the CNS and increases the dopamine in the nigro-striatum
(c) Reduces levodopa – induced dyskinesias
(d) Reduces levodopa induced vomiting and nausea
(e) All of the above
(f) None of the above

569. Huntington's chorea is hereditary disorder where there is

(a) Loss of GABA neurons in corpus striatum
(b) An over-activity in dopaminergic nigro-striatal pathway
(c) Loss of some cholinergic neurons in the corpus striatum
(d) All the above
(e) None of the above

570. Which of the following MAO inhibitors prevents the 1-methyl 4-Phenyl 1,2,3,6 tetrahydropyridine's (MPTP) selective action in destroying the dopaminergic nigro-striatal neurons

(a) Tranylcypromine
(b) Phenelzine
(c) Selegiline
(d) All of the above
(e) None of the above

571. Concurrent use ow which of the following drugs may reverse the antiparkinsonian effect of levodopa

(a) Carbidopa (b) Selegiline
(c) Bromocriptine (d) Pyridoxine
(e) All of the above (f) None of the above

572. Selegiline is a

(a) MAO – A inhibitor
(b) MAO – B inhibitor
(c) Drug that releases dopamine
(d) All of the above
(e) None of the above

573. Schizophrenia has following clinical feature

(a) Delusions
(b) Hallucinations
(c) Thought disorders
(d) All of the above

574. Which of the following is an ergot derivative used in Parkinson's disease as a dopamine agonist

(a) Levodopa (b) Carbidopa
(c) Bromocriptine (d) Selegiline
(e) Amantadine (f) All of the above
(g) None of the abvoe

575. Which of the following drugs used in Parkinson's disease is a peripherally acting dopa decarboxylase inhibitor ?

(a) Levodopa (b) Carbidopa
(c) Bromocriptine (d) Selegiline
(e) Amantadine (f) All of the above
(g) None of the above

576. Which of the following opioid antagonists is used as an adjunct to prevent relapse in addicts following detoxification because of its long half-life ?

(a) Nalorphine (b) Naloxone
(c) Naltrexone (d) All of the above
(e) None of the above

577. Which of the following opioid antagonists is not a derivative of oxymorphone ?

(a) Nalorphine (b) Naloxone
(c) Naltrexone (d) All of the above
(e) None of the above

578. Which of the following opioid antagonists is a competitive antagonist of all the effects of morphine at opioid receptor in a low dose and in higher dose mimics effects of morphine (such as analgesic effect) ?

(a) Nalorphine (b) Naloxone
(c) Naltrexone (d) All of the above
(e) None of the above

579. Morphine administration leads to

(a) Physical dependence
(b) Psychological dependence
(c) Physical as well as Psychological dependence
(d) None of the above

580. Naloxone and naltrexone are

(a) Opioid agonists
(b) Opioid agonists/antagonists
(c) Opioid antagonists
(d) None of the above

581. Opioid analgesics inhibit the release of which of the following hormones.

(a) Anti-diuretic hormone
(b) Luteinizing hormone
(c) Prolactin
(d) Somatotropin

582. Droperidol, a neuroleptic, belongs to following class of drugs.

(a) Phenothiazines
(b) Thioxanthines
(c) Butyrophenone
(d) Benzamides

583. Which of the following opioid analgesics is used as a preferred and rational antitussive agent ?

(a) Morphine (b) Codeine
(c) Meperidine (d) Methadone

584. Which of the following opioid analgesics has very low protein binding ?

(a) Morphine (b) Codeine
(c) Meperidine (d) Methadone
(e) Propoxyphene (f) All of the above
(g) None of the above

585. Which of the following group of analgesic drugs act on the CNS ?

(a) Morphine – like drugs
(b) NSAIDS (Aspirin and related drugs)
(c) Local Anaesthetic
(d) All of the above
(e) None of the above

586. Which of the following statements regarding lithium is not correct ?

(a) It is a monovalent cation
(b) Salts of lithium share some chemical characteristics with salts or sodium and potassium
(c) The half life of lithium is more in adult and adolescent patient of bipolar as compared to an elderly patient of bipolar disorder
(d) Chances of neonatal goiter and congenital cardiovascular malformation if administered to a pregnant women
(e) All of the above
(f) None of the above

587. Which of the following anticonvulsant drugs is used for prophylactic treatment of mood swings (i.e. manic-depression illness) in patients unresponsive to lithium carbonate ?

(a) Phenobarbitone (b) Phenytoin

(c) Ethosuximide (d) Carbamazepine
(e) All of the above (f) None of the above

588. Which of the following thioxanthene derivatives may be used as an anti-emetic and sedative ?

(a) Chlorprothixene (b) Flupenthixol
(c) Thiothixene (d) All of the above
(e) None of the above

589. Haloperidol is used in Huntington's chorea as a

(a) Anti-psychotic drug
(b) Anti-dyskinetic drug
(c) Anti-emetic
(d) None of the above

590. Chlorpromazine is a phenothiazine derivative having a

(a) Aliphatic side chain
(b) Piperazine side chain
(c) Peperazine side chain

591. Which of the following extra-pyramidal effects seen with antipsychotic agents is not due to dopamine receptor blockade, but due to super-sensitivity of dopamine receptors ?

(a) Acute dystonia reaction
(b) Parkinsonian syndrome
(c) Tardive dyskinesia
(d) Akathisia
(e) All the above
(f) None of the above

592. Which of the following extra-pyramidal effects seen with antipsychotic agents is also known as "rabbit syndrome" ?

(a) Acute dystonia reaction
(b) Parkinsonian syndrome
(c) Tardive dyskinesia
(d) Perioral tremon
(e) Akathisia(f) None of the above

593. MAO is localized in

(a) Cell membrane
(b) Plasma
(c) Mitochondrial membrane
(d) All of the above

594. Which of the following drugs is used in the childhood enuresis ?

(a) Imipramine hydrochloride
(b) Imipramine pamoate
(c) Both the above
(d) None of the above

595. Which of the following tricyclic antidepressant drugs has the least anticholinergic effect and sedation ?

(a) Amitriptyline (b) Amoxapine
(c) Clomipramine (d) Desipramine
(e) All the above (f) None of the above

596. The tricyclic antidepresent drugs produce their effect by

(a) Increasing the synaptic concentration of noradrenaline in the CNS
(b) Increasing the synaptic concentration of 5-HT in the CNS
(c) By causing inhibition of noradrenaline and 5-HT re-uptake by the pre-synaptic neuronal membrane
(d) All the above

597. Which of the following tricyclic antidepressant drugs is a preferred drug in the treatment of obsessive – compulsive dirorder ?

(a) Amitriptyline (b) Amoxapine
(c) Clomipramine (d) Doxepin
(e) All the above (f) None of the above

598. MAO – A enzyme has no substrate preference for

(a) Noradrenaline (b) Dopamine
(c) 5–HT (d) Phenylethylamine
(e) All the above (f) None of the above

599. Risk with acute overdose is less with which of the following class of antidepressants

(a) Tricyclic antidepressants
(b) MAO inhibitors
(c) 5-HT uptake inhibitors
(d) Atypical antidepressand drugs

600. Pergolide is.

(a) Dopamine precursor
(b) Dopamine agonist
(c) Dopamine releasing agent
(d) Dopamine antagonist

601. Phenelzine and tranylcypromine belong to which one of the following group (class) of antidepressants

(a) Tricyclic antidepressants
(b) MAO inhibitors
(c) 5-HT uptake inhibitors
(d) Atypical antidepressant drugs
(e) None of the above

602. Which one of the following drugs is not 5-HT uptake inhibitor but used as an antidepressant ?

(a) Fluoxetine (b) Maprotiline
(c) Paroxetine (d) Sertraline
(e) All of the above (f) None of the above

603. Following endogenous opioid peptide is a pentapeptide

(a) Enkephalin (b) Dynorphin A
(c) Endorphin (d) Dynorphin B

604. Concurrent use of which of the following may lead to similar effects seen in patients who are administered disulfiram after the ingestion of alcohol

(a) Oral hypoglycemic drug
(b) Coumarin type antigoagulants
(c) Salicylates
(d) All of the above
(e) None of the abvoe

605. Wernicke's encephalopathy and Korsakoff's psychosis occur often in alcoholic's due to

(a) Malnutrition
(b) Vitamin deficiencies
(c) Faulty gastrointestinal deficiencies
(d) All of the above
(e) None of the above

606. Phenobarbitone is beneficial in the treatment of which of the following generalized seizures

(a) Tonic – clonic seizures
(b) Absence seizures
(c) Atonic seizures
(d) All of the above
(e) None of the above

607. Which of the following barbiturates is a long acting barbiturate (i.e. has a longer onset and duration of action)

(a) Phenobarbital (b) Amobarbital
(c) Secobarbital (d) All the above
(e) None of the above

608. The half life of ethosuximide in adult is

(a) 10–20 hours (b) 30–40 hours
(c) 50–60 hours (d) 60–70 hours
(e) None of the above

609. Concurrent use of carbamazepine and phenyton will lead to

(a) Increased metabolism of phenyton
(b) Decreased metabolism of phenytoin
(c) No change in the metabolism of phenytoin

610. Zolpidem is used as

(a) Anticonvulsant drug
(b) Anti-anxiety drug
(c) Sedative and hypnotic drug
(d) myorelaxant drug
(e) All the above
(f) None of the above

611. Which of the benzodiazepines is used only as a sedative and hypnotic

(a) Chlordiazepoxide (b) Clorazepam
(c) Diazepam (d) Flurazepam
(e) All of the above (f) None of the above

612. Which of the following benzodiazepines is not in active form and behaves as a prodrug or drug prercursor

(a) Chlordiazepoxide (b) Diazepam
(c) Parzepam (d) Clorazepate
(e) All of the above (f) None of the above

613. The dynorphins are endogenous ligands for

(a) μ (b) δ
(c) κ (d) σ

614. A drug that produces a mild degree of nonselective depression of the central nervous system by decreasing the response of an individual to all sensory modalities is known as

(a) Sedative (b) Hypnotic
(c) None of the above

615. Lidocaine is used as

(a) Mucosal local anaesthetic
(b) Parenteral local anaesthetic agent
(c) Mucosal as well as parenteral local anaesthetic agent
(d) None of the above

616. Prilocaine, a local anaesthetic is used as

(a) Dental anaesthesia
(b) Low spinal anaesthesia for vaginal delivery
(c) Abdominal surgical anaesthesia
(d) Caudal anaesthesia
(e) All the above
(f) None of the above

617. Which of the following statements regarding procaine, a local anaesthetic agent is not correct.

(a) It has a very low lipid solubility at pH 7.4
(b) It is least protein bound
(c) it has a short duration of action
(d) It is an amide – type local anaesthetic
(e) All of the above

618. Which of the following parenteral local anaesthetics has a very high protein binding and may produce analgesia for more than 10 hours via its nerve block action

(a) Chloroprocaine (b) Bupivacaine
(c) Lidocaine (d) Prilocaine
(e) All of the above (f) None of the above

619. Which of the following parenteral local anaesthetics has a short duration of action (i.e. between 30 to 60 minutes)

(a) Chloroprocaine (b) Bupivacaine
(c) Lidocaine (d) Prilocaine
(e) All of the above (f) None of the above

620. In small intestine, morphine particularly affects

(a) Duodenum
(b) Ileum
(c) Both (a) and (b)
(d) Does not affect small intestine

621. Local anaesthetics affect membrane excitability by inhibiting

(a) Sodium (Na^+) Channel inactivation
(b) Increased (Na^+) conductance
(c) Increased potassium (K^+) conductance
(d) All of the above
(e) None of the above

622. The order of loss of sensory function when a local anaesthetic is used is

(a) Temperature, pain, touch and deep pressure
(b) Pain, touch, deep pressure and termperture
(c) Pain, temperature, touch and deep pressure
(d) None of the above

623. Ester type local anaesthetics are hydrolyzed by

(a) True cholinesterase
(b) Pseudo cholinesterase
(c) Liver microsomal enzymes
(d) All of the above
(e) None of the above

624. When an amide is acted upon by an amidase

(a) Alcohol and acid is formed
(b) Amine and acid is formed
(c) Alcohol and amine is formed
(d) None of the above

625. Which one of the following is not an ester local anaesthetic ?

(a) Cocaine (b) Procaine
(c) Lidocaine (d) Benzocaine
(e) All of the above (f) None of the above

626. Which of the following local anaesthetics cause arteriolar vasoconstriction ?

(a) Lidocaine (b) Procaine
(c) Cocaine (d) Prilocaine

(e) All of the above

627. Local anaesthetics are drugs that produce

(a) Irreversible loss of sensitivity to pain in the restricted area to which they are applied
(b) Reversible loss of sensitivity to pain in the restricted area to which they are applied.
(c) No loss of sensitivity to pain in the area to which they are applied
(d) None of the above

628. Local anaesthetic molecule consists of

(a) Lipophilic group linked by an ester or amide chain
(b) Lipophilic group linked by an ester or amide chain to an amine substitute
(c) Lipophilic group linked to an amine substitute
(d) None of the above

629. Ketamine, a general anaesthetic agent can be administered by

(a) Intravenous route
(b) Intramuscular route
(c) Intravenous or Intramuscular route
(d) None of the above

630. In the following benzodiazepines used as intravenous general anaesthetic which one has a more rapid onset and shorter half life

(a) Diazepam (b) Lorazepam
(c) Midazolam

631. Which of the following is a intravenous anaesthetic

(a) Thiopental (b) Ethomidate
(c) Propofol (d) Ketamine
(e) All of the above (f) None of the above

632. Which of the following intravenous anaesthetic agents is useful to produce sedation prior to anaesthesia and is also helpful in reducing the amount of inhalation anaesthetic

(a) Ultra–short acting barbiturates
(b) Benzodiazepines
(c) Opioid analgesic anaesthesia
(d) Propofol
(e) All of the above
(f) None of the above

633. Post – anaesthesia emergency delirium is most frequent side effect of

(a) Enflurane (b) Halothane
(c) Isoflurane (d) Methoxyflurane
(e) Nitrous oxide (f) All the above
(g) None of the above

634. Which of the following anaesthetic agents is not indicated in low doses to provide analgesia for procedures not requiring loss of consciousness

(a) Enflurane (b) Halothane
(c) Isoflurane (d) Methoxyflurane
(e) Nitrous oxide (f) All the above
(g) None of the above

635. Blood pressure is thought to generally remain unchanged with which one of the following anaesthetic agent

(a) Enflurane (b) Halothane
(c) Isoflurane (d) Nitrous oxide
(e) All the above (f) None of the above

636. Which of the following anaesthetic agents has the best (most) analgesic effect in low concentration

(a) Enflurane (b) Halothane
(c) Isoflurane (d) Nitrous oxide
(e) All the above (f) None of the above

637. Opioid angalgesics provide symptomatic relief of

(a) Pain (b) Cough
(c) Diarrhea (d) All of the above

638. Opioid receptors act via

(a) Opening of potassium channels
(b) Inhibition of calcium channels
(c) Both (a) and (b)
(d) Opening of sodium channels

639. The main factor that determines the speed and recovery from inhalation of anaesthetics is

(a) Blood : Gas partition coefficient
(b) Oil : Gas partition coefficient
(c) Minimum alveolar concentration
(d) All of the above
(e) None of the above

640. Which of the following inhalation general anaesthetic is not a volatile liquid

(a) Enflurane (b) Methoxyflurane
(c) Ether (d) Isoflurane
(e) Nitrous oxide (f) All of the above
(g) None of the above

641. Which of the following general anaesthetics is not administered intravenously

(a) Thiopental (b) Diazepam
(c) Ketamine (d) Halothane
(e) All of the above

642. The use of nitrous oxide to relieve the pain of surgery

(a) Horace Wells (b) Humphry Davy
(c) William Morton (d) None of the above

643. Which of the following is designated as "The Vital Node"

(a) Mid brain
(b) Pons
(c) Medulla oblongata
(d) All of the above
(e) None of the above

644. CNS stimulant agents belong to

(a) Respiratory stimulants
(b) Psychomotor stimulants
(c) Psychomimetic agents
(d) All of the above

645. Acetylcholine action at the nicotinic receptor in the motoneuron – Renshaw cell synapse is

(a) Excitatory causing decrease in potassium conductance
(b) Inhibitory causing decrease in potassium conductance
(c) Excitory causing increase in cation conductance
(d) All of the above
(e) None of the above

646. Which of the following CNS Neurotransmitters is excitatory on the individual neurons and causes decrease in potassium conductance

(a) Dopamine (b) Acetylcholine
(c) GABA (d) Glycine
(d) All of the above (e) None of the above

647. Which of the following amino acids is an inhibitory transmitter and increases the membrane permeability to chloride ions, and thus causing inhibitory post synaptic potential (IPSP) in the CNS

(a) Glycine (b) Glutamate
(c) Aspartate (d) All of the above
(e) None of the above

648. Which of the following is a neurotransmitter in the central nervous system (CNS)

(a) Acetylcholine
(b) Noradrenaline
(c) Dopamine
(d) 5–Hydroxytryptamine
(e) All of the above

ANSWERS

1. d	2. a	3. a	4. e	5. a	6. c
7. e	8. b	9. b	10. d	11. a	12. b
13. a	14. e	15. d	16. a	17. d	18. d
19. a	20. c	21. b	22. c	23. c	24. e
25. a	26. e	27. a	28. a	29. c	30. d
31. e	32. c	33. d	34. d	35. e	36. c
37. b	38. a	39. e	40. a	41. b	42. b
43. e	44. d	45. d	46. c	47. d	48. d

49. d	50. c	51. c	52. d	53. b	54. c
55. c	56. e	57. b	58. d	59. d	60. c
61. a	62. d	63. e	64. d	65. b	66. c
67. c	68. c	69. a	70. c	71. a	72. e
73. b	74. d	75. c	76. d	77. e	78. b
79. c	80. d	81. e	82. b	83. b	84. d
85. c	86. a	87. c	88. b	89. d	90. a
91. e	92. b	93. d	94. b	95. c	96. c
97. b	98. e	99. d	100. e	101. c	102. b
103. c	104. a	105. c	106. b	107. c	108. c
109. c	110. e	111. e	112. c	113. d	114. d
115. e	116. d	117. c	118. d	119. c	120. d
121. d	122. e	123. b	124. a	125. b	126. c
127. d	128. d	129. b	130. d	131. e	132. c
133. d	134. d	135. c	136. d	137. d	138. a
139. c	140. b	141. d	142. e	143. c	144. a
145. c	146. d	147. b	148. e	149. b	150. e
151. e	152. a	153. d	154. e	155. d	156. a
157. e	158. c	159. d	160. e	161. c	162. c
163. e	164. d	165. c	166. c	167. e	168. b

169. 1. c, 2. e3. a, 4. b 170. 1. e, 2. b3. a, 4. d5. c 171. d 172. d

173. b	174. c	175. e	176. d	177. d	178. d
179. a	180. c	181. a	182. b	183. c	184. a
185. d	186. d	187. c	188. c	189. a	190. b
191. d	192. a	193. b	194. b	195. 1. a, 2. c3. b	
196. c	197. b	198. b	199. a	200. d	201. a
202. b	203. d	204. b	205. d	206. d	207. c
208. c	209. d	210. b	211. b	212. b	213. c
214. a	215. a	216. a	217. a	218. d	219. a
220. d	221. a	222. d	223. d	224. e	225. c
226. b	227. e	228. b	229. e	230. b	231. d
232. b	233. d	234. a	235. c	236. c	237. d
238. d	239. b	240. b	241. c	242. d	243. b
244. c	245. d	246. a	247. b	248. c	249. d
250. c	251. d	252. b	253. b	254. d	255. a
256. c	257. d	258. a	259. b	260. a	261. d
262. d	263. d	264. c	265. b	266. a	267. c
268. b	269. a	270. a	271. a	272. a	273. d
274. a	275. c	276. d	277. b	278. c	279. d
280. d	281. b	282. b	283. a	284. b	285. a
286. d	287. d	288. c	289. b	290. b	291. d
292. b	293. c	294. d	295. b	296. c	297. a
298. d	299. b	300. d	301. c	302. b	303. d

304. a	305. c	306. b	307. d	308. c	309. b
310. d	311. a	312. a	313. d	314. b	315. c
316. b	317. b	318. c	319. b	320. a	321. c
322. b	323. c	324. d	325. b	326. b	327. a
328. c	329. d	330. c	331. c	332. a	333. a
334. b	335. a	336. b	337. a	338. d	339. c
340. c	341. c	342. b	343. b	344. d	345. a
346. c	347. c	348. d	249. c	350. d	351. d
352. b	353. a	354. b	355. b	356. d	357. d
358. b	359. d	360. a	361. d	362. c	363. b
364. b	365. a	366. c	367. c	368. a	369. a
370. d	371. b	372. a	373. a	374. c	375. c
376. b	377. b	378. a	379. b	380. c	381. c
382. a	383. a	384. a	385. b	386. d	387. c
388. a	389. b	390. a	391. b	392. c	393. c
394. d	395. a	396. b	397. a	398. c	399. d
400. b	401. d	402. d	403. b	404. c	405. c
406. d	407. c	408. c	409. a	410. d	411. c
412. b	413. d	414. d	415. d	416. b	417. b
418. d	419. c	420. d	421. c	422. b	423. c
424. b	425. a	426. b	427. b	428. d	429. a
430. a	431. a	432. a	433. c	434. b	435. d
436. c	437. c	438. b	439. b	440. a	441. a
442. d	443. d	444. c	445. b	446. c	447. c
448. d	449. b	450. a	451. a	452. b	453. a
454. a	455. a	456. a	457. b	458. a	459. c
460. b	461. b	462. a	463. b	464. c	465. b
466. c	467. a	468. c	469. c	470. c	471. c
472. b	473. a	474. c	475. d	476. c	477. c
478. a	479. c	480. b	481. c	482. b	483. b
484. b	485. a	486. d	487. b	488. b	489. a
490. d	491. c	492. c	493. b	494. d	495. b
496. d	497. e	498. c	499. b	500. e	501. b
502. a	503. c	504. a	505. b	506. c	507. a
508. c	509. a	510. d	511. c	512. d	513. b
514. c	515. c	516. c	517. c	518. c	519. c
520. b	521. b	522. b	523. b	524. d	525. a
526. d	527. a	528. b	529. d	530. e	531. b
532. b	533. b	534. d	535. a	536. b	537. d
538. a	539. b	540. a	541. b	542. c	543. c
544. c	545. c	546. c	547. c	548. b	549. d
550. b	551. d	552. d	553. c	554. b	555. c
556. b	557. a	558. c	559. d	560. b	561. b
562. c	563. b	564. b	565. a	566. d	567. c

568. d	569. d	570. c	571. d	572. b	573. d
574. c	575. b	576. c	577. a	578. a	579. c
580. c	581. b	582. c	583. b	584. b	585. a
586. c	587. d	588. a	589. b	590. a	591. c
592. d	593. c	594. a	595. d	596. d	597. c
598. d	599. d	600. b	601. b	602. b	603. a
604. a	605. d	606. a	607. a	608. c	609. a
610. c	611. d	612. d	613. c	614. a	615. c
616. a	617. d	618. b	619. a	620. a	621. a
622. d	623. b	624. b	625. c	626. c	627. b
628. b	629. c	630. c	631. d	632. b	633. b
634. b	635. d	636. d	637. d	638. c	639. a
640. e	641. d	642. b	643. c	644. d	645. c
646. b	647. a	648. e			

EXPLANATIONS FOR ANSWERS

3.a Neurotransmitter is a substance present in neuron and is secreted by neurons to transmit signals to its postsynaptic targets.

8. b An example of neuromodulator is cAMP. It acts as a second messenger of synaptic transmission.

16. a Suramin is an antagonist of purinergic receptors, specifically P_{2x} and P_{2y}

20. c NMDA receptors are closely associated with the induction of synaptic plasticity. AMPA and kainite receptors are involved in mediation of fast depolarization.

28. a Muscimol is $GABA_A$ agonist.
Baclofen is a $GABA_B$ agonist.
Bicuculline is a $GABA_A$ antagonist.

32. c Strychnine is an antagonist of glycine receptors. Taurine and â-analine are agonists of glycine receptors. Quisqualate is an agonist of AMPA receptors.

41. b Baclofen is an agonist of $GABA_B$ receptor. Muscimol is an agonist of $GABA_A$ receptor. Picrotoxin and bicuculline are antagonists of $GABA_A$ receptors.

50. c In CNS, acetylcholine was the first neurotransmitter to be identified pharmacologically. In 1950s Eccles showed that excitation of Renshaw cells by motor axon collaterals was blocked by nicotinic antagonists.

58. d Metabotropic receptors of glutamate are coupled with G-proteins. AMPA, kinate and NMDA receptors are coupled with ion channels.

61. a Phencyclidine blocks NMDA receptors and thus antagonizes effects of glutamate, an excitatory amino acid neurotransmitter.

75. c Picrotoxin is an antagonist of $GABA_B$ receptors and blocks chloride channels associated with it. Muscimol is $GABA_A$ selective agonist. Bicuculline is $GABA_A$ antagonist. Baclofen is $GABA_B$ agonist.

80. d In the brain, GABA is the main inhibitory neurotransmitter, whereas glycine plays an important inhibitory role in brain stem and spinal cord.

90. a A direct interaction is believed to exist between $GABA_A$ receptors and various drugs e.g. alcohol, volatile anaesthetics etc. Hence, $GABA_A$ antagonists attenuate some of the action of alcohol.

108. c As ethanol competes for alcohol dehydrogenase, a 10% ethanol solution is generally used in methanol poisoning.

109. c Alcohol is teratogenic and is associated with fetal alcohol syndrome.

123. b Diethyl ether has high solubility in blood and has slow onset of central action and hence all the four stages of general anesthesia can be observed with this drug.

141. d Metabolism is not an important route of elimination of inhalational anaesthetics. However, except nitrous oxide, other anaesthetics such as halothane, ether and isoflurane do undergo some degree of metabolism.

155. d An ideal anesthetic should possess wide margin of safety with no adverse effect. But no single anaesthetic can achieve all the desirable effects of general anaesthetics without some adverse effects.

156. a An action common to most general anaesthetics is to increase the cellular threshold of firing and thus decreasing neuronal activity.

168. b β-Carbolines are inverse agonists of benzodiazepines.

174. c Zolpidem is a nonbenzodiazepine sedative-hypnotic agent and belongs to imidazopyridine class of drugs.

193. b Ethinamate is a sedative-hypnotic agent and is a urethane derivative. Ethinamate has rapid onset and short duration of action.

200. d For substance to be classified as neuro-transmitter, it has to fulfill all the criteria as stated in A, B and C.

213. c Phencyclidine, also called as angel-dust, is a non-competitive antagonist of NMDA receptors and it produces various psychotic symptoms e.g. hallucinations, thought disorders etc.

219. a Fluoxetine is a serotonin transport blocker and it is an antidepressant agent.

225. c Neuronal death in response to high glutamate concentration is mediated by excessive activation of NMDA receptors and is associated with influx of calcium.

238. d Drugs that increases dopaminergic activity in CNS can produce or aggravate symptoms of schizophrenia

253. b Tranylcypromine, moclobemide and isocarboxid are MAO inhibitors. Nomifensine is a dopamine transport blocker.

270. a Iproniazid is an antitubercular agent, an inhibitor of MAO and has antidepressant effect.

280. d The major factors, which affect elimination of a general anesthetic are, pulmonary ventilation, blood flow and solubility in blood and tissues.

292. b Barbiturates bind to GABA receptors ($GABA_A$) but on a different site than benzodiazepines and enhance the action of GABA.

312. a Chemical name of halothane is 2-bromo-2-chloro-1,1,1-trifluoroethane.

329. d Nitric oxide is a colorless gas without significant odor or taste and is non-flammable, non-irritant and potent analgesic.

350. d Surgical pain is often severe and hence opioid analgesics such as meperidine, fentanyl, alfentanil, sufentanil and morphine are generally used as supplemental agents during general anaesthesia.

368. a Propofol is an intravenous anesthetic agent. It is an oil at room temperature and is supplied as 1% emulsion.

379. b Local anaesthetics produce stimulation of CNS, restlessness and tremors, which may proceed to convulsions. Selective depression of inhibitory neurons is responsible for the CNS excitation.

383. a Bupivacaine is an amide-linked local anaesthetic. Procaine, tetracaine and proparacaine have ester linkage in their structure.

392. c Benzocaine has ester linkage in its structure. Mepivacaine, ropivacaine and priocaine have amide linkage in their structure.

397. a In infiltration anesthesia, local anaesthetic is directly injected into tissue without taking into consideration the course of cutaneous nerves.

411. c Intravenous regional anesthesia or Bier's block relies on using the vasculature to bring the local anaesthetic to the nerve trunks and endings.

424. b Fetal alcohol syndrome is characterized by cluster of facial abnormalities viz. short nose, hypoplastic upper lip and short palpebral fissures. In addition, it is associated with CNS dysfunction and slow growth.

440. a Except Phenobarbital, only insignificant quantities of the barbiturates are excreted unchanged.

458. a Zolpidem is a nonbenzodiazepine sedative-hypnotic that interacts with benzodiazepine BZ_1 receptors to produce its effects.

473. a Regions of the cortex can be classified in three different ways:
(i) By the modality of the information processed.
(ii) By the cytoarchitectonic classification i.e. the geometrical relationship between cell types in the major cortical layers.
(iii) By the anatomical position.

496. d The rate at which inhalational anaesthetics passes into tissues depends on various factors; tissue-blood partition coefficient i.e. solubility of anaesthetics in tissues and blood, the rate of delivery of anesthetic to the tissue.

517. c Generalized seizure can be of various types – tonic- clonic seizures, absence seizures, tonic seizures, atonic seizures, clonic and myoclonic seizures and infantile spasms.

523. b Vigabatrin is an irreversible inhibitor of GABA aminotransferase, the enzyme responsible for the degradation of GABA and thus increases GABA at synaptic sites.

540. a Carbamazepine is a derivative of iminostilbene and is chemically related to tricyclic antidepressants.

566. d Although valproic acid has been widely used for the treatment of absence seizures, it is also effective against wide variety of partial and generalized seizures.

573. d Schizophrenia is an idiopathic psychoses characterized by disordered thinking, delusions, auditory hallucinations and emotional withdrawal.

582. c Droperidol like haloperidol belongs to butyrophenone neuroleptic class of drug.

593. c MAO is a flavin-containing enzyme, which is localized in mitochondrial membranes in nerve terminals, liver and other organs.

600. b Pergolide, an ergot derivative, is a dopamine agonist and it interacts with both D1 and D2 receptors.

603. a Enkephalin is a pentapeptide i.e. it has 5 amino acids in its structure.

613. c Dynorphin, specifically dynorphin A, is the endogenous ligand for $\hat{e}_1$ receptors that are responsible for spinal analgesia.

620. a In small intestine, morphine particularly affects upper part of small intestine, especially the duodenum compared to ileum.

637. d Opioid analgesics provide symptomatic relief of pain, cough and diarrhea but the disease remains unaffected.

638. c All the opioid receptors are coupled to pertussis toxin-sensitive GTP binding proteins. These receptors produce opening of potassium channels and inactivation of calcium channels.

644. d CNS stimulants belong to all three categories.

CHAPTER 3

DRUGS ACTING ON AUTONOMOUS NERVOUS SYSTEM

1. In the autonomic regulation of blood pressure

(a) Cardiac output is maintained constant at the expense of other hemodynamic variables
(b) Elevation of blood pressure results in elevated aldosterone secretion
(c) Baroreceptor nerve fibers docrease firing rate when arterial pressure increases
(d) Stroke volume and mean arterial blood pressure are the primary direct determinants of cardiac output
(e) A condition that reduces the sensitivity of the sensory baroreceptor nerve endings might cause an increase in sympathetic discharge

2. The autonomic nervous system is also known as

(a) Visceral
(b) Vegetative
(c) Involuntary nervous system
(d) All of the above

3. Full activation of the sympathetic nervous system, as in maximal exercise, can produce all of the following responses except

(a) Bronchial relaxation
(b) Decreases intestinal motility
(c) Increased renal blood flow
(d) Mydriasis
(e) Increased heart rate (tachycardia)

4. Several children at a summer camp were hospitalized with symptoms thought to be due to ingestion of food containing botulinum toxins. The effects of botulinum toxin are likely to include

(a) Bronchospasm
(b) Cycloplegia
(c) Diarrhea
(d) Skeletal muscle spasms
(e) Hyperventilation

5. The neurotransmitter agent that is normally released in the sinoatrial node of the heart in response to a blood pressure increase is

(a) Acetylcholine (b) Dopamine
(c) Epinephrine (d) Glutamate
(e) Norepinephrine

6. A direct-acting cholinomimetic that is lipid-soluble and often used in the treatment of glaucoma is

(a) Acetylcholine (b) Bethanechol
(c) Physostigmine (d) Pilocarpine
(e) Neostigmine

7. Which of the following agents is a pro-drug that is much less toxic in mammals than in insects ?

(a) Acetylcholine (b) Bethanechol
(c) Physostigmine (d) Pilocarpine
(e) Neostigmine

8. Atropine overdose may cause which one of the following

(a) Gastrointestinal smooth muscle crampine
(b) Increased cardiac rate
(c) Increased gastric secretion
(d) Pupillary constriction
(e) Urinary frequency

9. The synaptic pre-ganglionic neurons have their cell bodies in the lateral horn of the grey matter of the

(a) Thoracic segment only
(b) Lumbar segment only
(c) Both (a) and (b)
(d) None of the above

10. Which one of the following can be blocked by atropine?

(a) Decreased blood pressure caused by hexamethonium
(b) Increased blood pressure caused by nicotine
(c) Increased skeleton muscle strength caused by neostigmine
(d) Tachycardia caused by exercise
(e) Tachycardia caused by infusion of acetylcholine

11. Which of the following best describes the mechanism of action of scopolamine ?

(a) Irreversible antagonist at nicotinic receptors
(b) Irreversible antagonist at muscarinic receptors
(c) Physiologic antagonist at muscarinic receptors
(d) Reversible antagonist at muscarinic receptors
(e) Reversible antagonist at nicotinic receptors

12. Accepted therapeutic indications for the use of antimuscarinic drugs include all of the following except

(a) Hypertension
(b) Motion sickness
(c) Parkinson's disease
(d) Postoperative bladder spasm
(e) Traveler's diarrhea

13. In male sex organs _____ system is responsible for erection.

(a) Sympathetic (b) Parasympathetic
(c) Norepinephrine (d) None of the above

14. A 7-years-old boy has a significant bed-wetting problem. A long-acting indirect sympathomimetic agent sometimes used by the oral route for this and other indications is

(a) Dobutamine (b) Ephedrine
(c) Epinephrine (d) Isoproterenol
(e) Phenylephrine

15. When pupillary dilation-but not cyclo-plegia-is desired, a good choice is

(a) Homatropine (b) Isoproterenol
(c) Phenylephrine (d) Pilocarpine
(e) Tropicamide

16. 'Fight or flight' state can be described as

(a) Sympathetic active; para-sympathetic quiescent
(b) Sympathetic active; para-sympathetic active
(c) Sympathetic quiescent; para-sympathetic active

17. Your patient is to receive a selective β_2 stimulant drug β_2 selective stimulant are often effective in

(a) Angina due to coronary insufficiency
(b) Asthma
(c) Chronic heart failure
(d) Delayed or insufficiently strong labor
(e) All of the above

18. Which of the following drugs is the drug of choice in anaphylaxis associated with bronchospasm and hypotension ?

(a) Cortisone (b) Epinephrine
(c) Isoproterenol (d) Norepinephrine
(e) Phenylephrine

19. Which of the following effects of epineph-rine would be blocked by phentolamine but not by metoprolol ?

(a) Cardiac stimulation
(b) Contractionof radial smooth muscle in the iris
(c) Increase of camp in fat
(d) Relaxation of bronchial smooth muscle
(e) Relaxation of the uterus

20. Propranolol is useful in all of the following except

(a) Angina
(b) Familial tremor
(c) Hypertension
(d) Idiopathic hypertrophic subaortic cardiomyopathy
(e) Partial atrioverntricular heart block

21. 'Rest and digest' state can be described as

(a) Sympathetic active; para-sympathetic quiescent
(b) Sympathetic active; para-sympathetic active
(c) Sympathetic quiescent; para-sympathetic active

22. A friend has very severe hypertension and asks about a drug her doctor wishes to prescribe. Her physician has explained that this drug is associated with tachycardia and fluid retention (which may be marked) and increased hair growth. Which of the following is most likely to produce the effects that your friend has described?

(a) Captopril (b) Guanethidine
(c) Minoxidil (d) Prazosin
(e) Propranolol

23. Which one of the following is characteristic of captopril and enalapril ?

(a) Competitively blocks angiotensim II at its receptor
(b) Decreases angiotensin II concentration in the blood
(c) Decreases rennin concentration in the blood
(d) Increases sodium and decreases potassium in the blood
(e) Decreases sodium and increases potassium in the urine

24. Postural hypotension is a common adverse effect of which one of the following types of drugs ?

(a) ACE inhibitors
(b) Alpha-receptor blockers
(c) Arteriolar dilators
(d) β_1 – selective receptor blockers
(e) Nonselective β - blockers

25. A visitor from another city comes to your office complaining of incessant cough. He has diabetes and hypertension and has recently started taking a different antihypertensive medication. The most likely cause of his cough is

(a) Enalapril (b) Losartan
(c) Minoxidil (d) Propranolol
(e) Verapamil

26. Reserprine, an alkaloid derived from the root of Rauwolfia serpentina

(a) Can be used to control hyperglycemia
(b) Can cause severe depression of mood
(c) Can decrease gastrointestinal secretion and motility
(d) Has no cardiac effects
(e) A spare receptor agonist

27. Nitroglycerin, either directly or through reflexes, results in which one of the following effects

(a) Decreased heart rate
(b) Decreased venous capacitance
(c) Increased afterload
(d) Increased cardiac force
(e) Increased diastolic intramyocardial fiber tension

28. The antianginal effect of propranolol may be attributed to which one of the following

(a) Block of exercise – induced tachycardia
(b) Decreased end – diastolic ventricular volume
(c) Dilation of consticted coronary vessels
(d) Increased cardiac force
(e) Increased resting heart rate

29. The major common determinant of myocardial oxygen consumption is

(a) Blood volume
(b) Cardiac output
(c) Diastolic blood pressure
(d) Heart rate
(e) Myocardial fiber tension

30. Choose the incorrect statement from the following

(a) Sympathetic system increases rate of SA node
(b) Sympathetic system causes constriction of coronary arteries
(c) Sympathetic system causes increased motility of GIT smooth muscles
(d) Sympathetic system causes constriction of sphincter in GIT

31. Denervation super-sensitivity includes

(a) Proliferation of receptors
(b) Loss of mechanism for transmitter removal
(c) Increased post-junctional responsiveness
(d) All of the above

32. Which of the following is approved for the treatment of hemorrhagic stroke ?

(a) Amyl nitrite
(b) Hydralazine
(c) Isosorbide moninitrate
(d) Nifedipine
(e) Nimodipine

33. Which of the following drugs used for the treatment of angina by inhalation has a very rapid onset and a brief duration of effect ?

(a) Amyl nitrite
(b) Hydralazine
(c) Isosorbide mononitrate
(d) Nifedipine
(e) Nimodipine

34. Which of the following is a vasodilator drug used for hypertension that lacks a direct effect on autonomic receptors but may provoke anginal attacks?

(a) Amyl nitrite
(b) Hydralazine
(c) Isosorbide mononitrate
(d) Nifedipine
(e) Nimodipine

35. The biochemical mechanism of action of digitalis is associated with

(a) A decrease in calcium uptake by the sarcoplasmic reticulum
(b) An increase in ATP synthesis
(c) A modification of the actin molecule
(d) An increase in systolic intracellular calcium levels
(e) A block of sodium/calcium exchange

36. A patient has been taking digoxin for several years for chronic heart failure is about to receive atropine for another condition. A common effect of digoxin (at therapeutic blood levels) that can be almost entirely blocked by atropine is

(a) Decreased appetite
(b) Increased atrial contractility
(c) Increased PR interval on the ECG
(d) Headaches
(e) Tachycardia

37. In a patient given a cardiac glycoside, important effects of the drug on the heart include which of the following?

(a) Decreased atrioventricular conduction velocity
(b) Decreased ejection time
(c) Increased ectopic automaticity
(d) Increased ectopic automaticity
(e) All of the above

38. Which of the following situations constitutes an added risk of digoxin toxicity ?

(a) Starting administration of captopril
(b) Starting administration of quinidine
(c) Hyperkalemia
(d) Hypermagnesemia
(e) Hypocalcemia

39. At rest, the interior of the typical mammalian neuronal axon potential is approximately _____ mV

(a) 0 (b) –70
(c) –100 (d) –20

40. Following enzyme is involved in the synthesis of actylcholine

(a) Choline acetyl transferase
(b) Acetyl cholinesterase
(c) Both (a) and (b)
(d) None of the above

41. Which of the following has been shown to prolong life in patient with chronic congestive failure but has a negative inotropic effect on cardiac contractility?

(a) Carvedilol (b) Digitoxin
(c) Digoxin (d) Dobutamine
(e) Enalapril

42. Which of the following is the drug of choice in treating suicidal overdose of digitoxin ?

(a) Digoxin antibodies
(b) Lidocaine
(c) Magnesium
(d) Potassium
(e) Quinidine

43. When used as an antiarrhythmic drug, Lidocaine typically

(a) Increases action potential duration
(b) Increases contractility
(c) Increses PR interval
(d) Reduces abnormal automaticity
(e) Reduces resting potential

44. A 16-year-old-girl is found to have paroxysmal attacks of rapid heart rate. The antiarrhythmic of choice in most cases of acute AV nodal tachycardia is

(a) Adenosine (b) Amiodarone
(c) Flecainide (d) Propranolol
(e) Quinidine

45. Recognized adverse effects of quinidine include which one of the following?

(a) Cinchonism
(b) Constipation
(c) Lupus erythematosus
(d) Increase in digoxin clearance
(e) Precipitation of hyperthyroidism

46. Following is an antagonist of ganglion type nicotinic receptors

(a) Tubercurarine (b) α-bungarotoxin
(c) Trimethaphan (d) All of the above

47. Which of the following is an orally active drug that blocks sodium channels and decreases action potential duration?

(a) Adenosine (b) Amiodarone
(c) Disopyramide (d) Esmolol
(e) Mexiletine

48. Which of the following has the longest half-life of all antiarrhythmic drugs?

(a) Adenosine (b) Amiodarone
(c) Disopyramide (d) Esmolol
(e) Flecainide

49. Which of the following diuretics would be most useful in a patient with cerebral edema?

(a) Acetazolamide (b) Amiloride
(c) Ethacrynic acid (d) Furosemide
(e) Mannitol

50. Which of the following therapies would be most useful in the management of severe hypercalcemia?

(a) Amiloride plus saline infusion
(b) Furosemide plus saline infusion
(c) Hydrochlorothiazide plus saline infusion
(d) Mannitol plus saline infusion
(e) Spironolactone plus saline infusion

51. A 55-year-old patient with severe post-hepatitis cirrhosis is started on a diuretic for another condition. Two days later he is found in a coma. The drug most likely to cause coma in a patient with cirrhosis is

(a) Acetazolamide
(b) Amiloride
(c) Furosemide
(d) Hydrochlorothiazide
(e) Spironolactone

52. Oxytremorine is a selective agonist of muscarinic _____ receptors

(a) M1 (b) M2
(c) M3 (d) M4

53. A drug that is useful in glaucoma and high-altitude sickness is

(a) Acetazolamide (b) Amiloride
(c) Demeclocycline (d) Desmopressin
(e) Ethacrynic acid

54. Cromolyn has as its major action

(a) Block of calcium channels in lymphocytes
(b) Block of mediator release from mast cells
(c) Block of phosphodiesterase in mast cells and basophils
(d) Smooth muscle relaxation in the bronchi
(e) Stimulation of cortisol release by the adrenals

55. Following events occur in the cytoplasm and not inside storage vesicles, except

(a) Conversion of tyrosine to dopa
(b) Conversion of dopa to dopamine
(c) Conversion of dopamine to norepinephrine
(d) Conversion of dopamine to 3,4 dihydroxy phenyl acetic acid

56. Which one of the following is lest likely to be useful in the therapy of hypercalcemia?

(a) Calcitonin
(b) Glucocorticoids
(c) Plicamycin
(d) Parenteral infusion of phosphate
(e) Thiazide diuretics

57. Characteristics of Vitamin D and its metabolites include which one of the following?

(a) Act to decrease serum levels of calcium
(b) Activation of their Vitamin D receptors increases cellular CAMP
(c) Calcitriol is the major derivative responsible for increasing intestinal absorption of phosphate
(d) Metabolites of Vitamin D increase renal excretion of calcium
(e) Vitamin D deficiency results in Pager's disease

58. Which of the following conditions is an indication for the use of calcitonin?

(a) Chronic renal failure
(b) Hypoparathyroidism
(c) Intestinal osteodystrophy
(d) Pager's disease
(e) Rickets

59. Clinical uses of Vitamin D do not include

(a) Chronic renal failure
(b) Hyperparathyroidism
(c) Intestinal osteodystrophy
(d) Nutritional rickets
(e) Osteoporosis

60. Which one of the following drugs, when used chronically, is associated with the development of bone pain and mineralization defects such as osteomalacia?

(a) Calcitonin
(b) Dihydrotachysterol
(c) Ergocalciferol
(d) Etidronate
(e) Norgestrel

61. A 70-year-old man has severe urinary hesitancy associated with benign prostatic hyperplasia. He has tried alpha blockers with little relief. His physician recommends a drug that blocks 5α - reductase in the prostate and writes a prescription for

(a) Atropine (b) Clonidine
(c) Hydralazine (d) Neostigmine
(e) Propranolol

62. Action of norepinephrine and epinephrine are terminated by

(a) Reuptake into nerve terminal
(b) Dilution by diffusion and uptake at extraneuronal site
(c) Metabolic transformation
(d) All of the above

63. Typical results of beta-receptor activation include which one of the following?

(a) Hypoglycemia
(b) Lipolysis
(c) Glycogen synthesis
(d) Decreased skeletal muscle tremor
(e) Decreased rennin secretion

64. A patient is admitted to the emergency room with orthostatic hypotension and evidence of marked GI bleeding. Which of the following most accurately describes the probable autonomic response to this bleeding?

(a) Slow heart rate, dilated pupils, damp skin
(b) Rapid heart rate, dilated pupils, damp skin
(c) Slow heart rate, dry skin, increased bowel sounds
(d) Rapid heart rate, constricted pupils, increased bowel sounds
(e) Rapid heart rate, constricted pupils, warm skin

65. Drugs that block the α receptor on effector cells at adrenergic nerve endings

(a) Antagonize the effects of isoproterenol on the heart rate
(b) Antagonize some of the effects of epinephrine on the blood pressure
(c) Antagonize the effects of epinephrine on adenylyl cyclase
(d) Cause mydriasis
(e) Decreases blood glucose levels

66. Yohimbine is an antagonist of _____ receptors.

(a) α_1 (b) α_2
(c) both (a) and (b) (d) None of the above

67. Which of the following organs is innervated only by parasympathetic nerves ?

(a) Iris muscles (b) Ciliary muscle
(c) Sweat glands (d) Splenic capsule

68. Muscarinic cholinergic receptors

(a) Are located only on parasympathetically innervated effector cells
(b) Mediate responses by opening an instrinsic Na^+ ion channel
(c) Are present on vascular endothelium which has no cholinergic nerve supply
(d) Predominate in the autonomic ganglia

69. The cardiac muscarinic receptors

(a) Are of the M_1 subtype
(b) Are of the M_2 subtype
(c) Are selectively blocked by pirenzepine
(d) Function through the $PIP_2 \rightarrow IP_3$/DAG pathway

70. Atropine does not exert relaxant/ antispasmodic effect on the following muscle

(a) Intestinal (b) Ureteric
(c) Bronchial (d) Laryngeal

71. α_1 – receptors are coupled with _____ G protein.

(a) Gs (b) Gi
(c) Gq (d) Go

72. Hyoscine differs from atropine in that it

(a) Exerts depressant effects on the CNS at relatively low doses
(b) Exerts more potent effects on the heart than on the eye
(c) Is longer acting
(d) Has weaker antimotion sickness activity

73. Which of the following anticholinergic drugs is primarily used in preanaesthetic medication and during surgery

(a) Glycopyrrolate
(b) Pipenzolate methyl bromide
(c) Isopropamide
(d) Dicyclomine

74. Glycopyrrolate is the preferred antimuscannic drug for use before and during surgery because

(a) It is potent and fast acting
(b) It has no central action
(c) It has antisecretory and vagolytic actions
(d) All of the above

75. Which of the following mydriatics has the fastest and briefest action ?

(a) Atropine (b) Homatropine
(c) Tropicamide (d) Cyclopentolate

76. The most suitable mydratic for a patient of corneal ulcer is

(a) Atropine sulfate (b) Homatropine
(c) Cyclopentolate (d) Tropicamide

77. The most effective antidote for belladonna poisoning is

(a) Neostigmine (b) Physostigmine
(c) Pilocarpine (d) Methacholine

78. Atropine is contraindicated in

(a) Cyclic AMP (b) Inositol trisphosphate
(c) Diacyl glycerols (d) G protein

79. Select the correct statement from the following about α_1 – adrenergic receptor agonists

(a) Isoproterenol > epinephrine ≥ norepinephrine
(b) Epinephrine > isoproterenol > norepinephrine
(c) Isoproterenol = epinephrine ≥ norepinephrine
(d) Epinephrine ≥ norepinephrine > isoproterenol

80. The most efficacious inhibitor of catecholamine synthesis in the body is

(a) α - methyl – p - tyrosine
(b) α - methyldopa
(c) α - methyl - norepinephrine
(d) Pyrogallol

81. Tyramine induces release of noradrenaline from adrenergic nerve endings

(a) By depolarizing the axonal membrane
(b) By mobilizing Ca^{2+}
(c) By a nonexocytotic process
(d) Only in the presence of MAO inhibitors

82. Choose the correct statement from the following about α_1 – adrenergic receptor agonists

(a) Norepinephrine > isoproterenol > epinephrine
(b) Norepinephrine < epinephrine > isoproterenol
(c) Epinephrine ≥ norepinephrine >> isoproterenol
(d) Epinephrine > isoproterenol > norepinephrine

83. A sympathomimetic amine that acts almost exclusively by releasing noradrenaline from the nerve endings is

(a) Ephedrine (b) Dopamine
(c) Isoprenaline (d) Tyramine

84. Low doses of adrenaline dilate the following vascular bed

(a) Cutaneous (b) Mucosal
(c) Renal (d) Skeletal muscle

85. α_2–adrenergic receptors are associated with following except

(a) Increase in phospholipase C activity
(b) Increase in potassium channel conductance
(c) Decrease in calcium channel conductance
(d) Increase in adenylyl cyclase activity

86. Adrenaline raises blood glucose level by the following actions except

(a) Inducing hepatic glycogenolysis
(b) Inhibiting insulin secretion from pancreatic β cells
(c) Augmenting glucagons secretion from pancreatic α cells
(d) Inhibiting peripheral glucose utilization

87. Noradrenaline is administered by

(a) Subcutaneous injection
(b) Intramuscular injection
(c) Slow intravenous infusion
(d) All of the above routes

88. Dobutamine differs from dopamine in that

(a) It does not activate peripheral dopaminergic receptors
(b) It does not activate adrenergic β receptors
(c) It causes pronounced tachycardia
(d) It has good blood-brain barrier penetrability

89. Ephedrine is similar to adrenaline in the following feature

(a) Potency
(b) Inability to penetrate blood-brain barrier
(c) Duration of action
(d) Producing both α and β adrenergic effects

90. Continuous exposure of ctecholamine-sensitive cells and tissues to adrenergic agonists causes a progressive diminition in their capacity to respond, this phenomenon is called as

(a) Refractoriness (b) Desensitization
(c) Tachyphylaxis (d) All of the above

91. While undergoing a surgical procedure a patient develops hypotension. Which of the following drugs can be injected intramuscularly to raise his BP

(a) Noradrenaline (b) Isoprenaline
(c) Mephentermine (d) Isoxsuprine

92. Vasoconstrictors should not be used in

(a) Neurogenic shock
(b) Haemorrhagic shock
(c) Secondary shock
(d) Hypotension due to spinal anaesthesia

93. Guanethidine inhibits

(a) Synthesis of transmitter
(b) Metabolism of transmitter
(c) Release of transmitter
(d) Displacement of transmitter from axonal terminal

94. The drug which produces vasoconstriction despite being an α adrenergic blocker is

(a) Phenoxybenzamine
(b) Ergotamine
(c) Dihydroergotoxine
(d) Tolazoline

95. Prazosin is an effective antihypertensive while nonselective α adrenergic blockers are not because

(a) It is the only orally active α blocker
(b) It improves plasma lipid profile
(c) It does not concurrently enhance noradrenaline release
(d) It improves urine flow in males with prostatic hypertrophy

96. Which of the following is true of sildenafil

(a) It enhances sexul enjoyment in normal men
(b) It delays ejaculation
(c) It is indicated only for treatment of erectile dysfunction in men
(d) It blocks cavernosal α_2 adrenoceptors

97. The β-adrenergic blocker which possesses both β_1 selectivity as well as intrinsic sympathomimetic activity is

(a) Alprenolol (b) Atenolol
(c) Acebutolol (d) Metoprolol

98. Propanolol can be used to allay anxiety associated with

(a) Chronic neurotic disorer
(b) Schizopherenia
(c) Short-term stressful situation
(d) Endogenous depression

99. Propranolol does not block the following action of adrenaline

(a) Bronchodilation (b) Lipolysis
(c) Muscle tremor (d) Mydriasis

100. Phenylephrine

(a) Mimics the transmitter at post-synaptic receptors
(b) Displaces transmitter from axonal terminal
(c) Inhibits synthesis of transmitter
(d) None of the above

101. A β adrenergic blocker that is primarily eliminated unchaged by renal excretion is

(a) Propranolol
(b) Metoprolol
(c) Alprenolol
(d) Atenolol

102. In a patient of myocardial infarction, β adrenergic blockers are used with the following aim/aims:

(a) To reduce the incidence of reinfarction
(b) To prevent cardiac arrhythmias
(c) Myocardial salvage
(d) All of the above

103. Congential dopamine-β-hydroxylase deficiency is characterized by

(a) Absence of norepinephrine and epinephrine
(b) Increased concentration of dopamine
(c) Intact cholinergic innervation
(d) All of the above

104. The site of action of d-tubocurarine is

(a) Spinal internuncial neurone
(b) Motor nerve ending
(c) Muscle end-plate
(d) Sodium channels in the muscle fiber

105. The fall in blood pressure caused by d-tubocuranine is due to

(a) Reduced venous return.
(b) Ganglionic blockade
(c) Histamine release
(d) All of the above

106. The neuromuscular blocker having prominent antivagal action is

(a) Pancuronium
(b) Vecuronium
(c) Atracurium
(d) Gallamine triethiodide

107. Neuromuscular blocking drugs do not produce central actions because

(a) Nicotinic receptors are not present in the brain
(b) They do not cross the blood-brain barrier
(c) They are sequestrated in the periphery by tight binding to the skeletal muscles
(d) They do not ionize at the brain pH

108. Pancuronium differs from tubocurarine in that

(a) It is a depolarizing blocker
(b) Its action is not reversed by neostigmine
(c) It can cause rise in BP on rapid I.V. injection
(d) It causes marked histamine release

109. Muscarinic receptors are G-protein coupled receptors, causing

(a) Inactivation of phospholipase C
(b) Activation of adenylyl cyclase
(c) Activation of potassium or inhibition of calcium channels
(d) All of the above

110. Postoperative muscle soreness may be side effect of the following neuromuscular blocker

(a) d-tubocurarine (b) Succinylcholine
(c) Pancuronium (d) Atracurium

111. Following drug enhances the evoked release of acetylcholine

(a) 4-aminopyridine (b) Vesamicol
(c) Magnesium ion (d) None of the above

112. Which of the following muscle relaxants can be used to control spasticity associated with upper motor neurone paralysis ?

(a) d-tubocurarine (b) Succinylcholine
(c) Mephenesin (d) Baclofen

113. Following muscarinic agonist is susceptible to hydrolysis by cholinesterase

(a) Carbachol (b) Methacholine
(c) Bethanechol (d) Muscarine

114. Dihydroergotamine differs from ergotamine in the following respect

(a) It is a more potent oxytocic
(b) It has antiemetic property
(c) It is a less potent a adrenergic blocker but more potent vasoconstrictor
(d) It is a more potent a adrenergic blocker and less potent vasoconstrictor

115. Select the ergot compound which is primarily used for dementia

(a) Bromocriptine (b) Ergotamine
(c) Codergocrine (d) Methysergide

116. The 'amine' ergot alkaloid differs from 'amino acid' ergot alkaloids in that it has

(a) High oral bioavailability
(b) Better CNS penetrability
(c) Weaker oxytocic action
(d) Strong anti – 5 – HT action

117. Select the correct statement in relation to drug therapy of migraine

(a) Simple analgesics like paracetamol are ineffective in migraine
(b) Ergot alkaloids are used for the prophylaxis as well as treatment of migraine attacks
(c) Use of ergot alkaloids is restricted to severe or resistant cases
(d) Ergot alkaloids should be given till 24 hours after an attack has subsided

118. Ergotamine relieves migraine by

(a) Blocking vascular a adrenergic receptors
(b) Blocking vascular 5-HT_2 receptors
(c) Dilating cranial arterio-venous shunt channels
(d) Constricting cranial vessels and reducing perivascular neurogenic inflammation

119. Which of the following drugs is most commonly used for prophylaxis of migraine ?

(a) Ergotamine (b) Propranolol
(c) Methysergide (d) Sumatripitan

120. Stimulation of exocrine glands by muscarinic agonist leads to

(a) Sweating
(b) Salivation
(c) Bronchial secretions
(d) All of the abvoe

121. *Datura stramonium* (thorn apple) mainly contains following muscarinic antagonist

(a) Atropine (b) Hyoscine
(c) Homatropine (d) Dicyclomine

122. β-blockers are contraindicated in

(a) Prophylaxis of anxiety states
(b) Hyperthyroidism
(c) Hypertrophic obstructive cardiomyopathy
(d) Peripheral vascular disease

123. β-blockers are better avoided in

(a) Bronchial astham
(b) Pheochromocytoma
(c) Myocardial infarction
(d) Migraine

124. Preferential beta$_1$ adrenergic blocking agent is

(a) Propranolol (b) Atenolol
(c) Penbutolol (d) Oxprenolol

125. Prazosin

(a) Produces preferential alpha$_1$ adrenergic receptor blockade
(b) Has a half-life of 24 hours
(c) Can worsen lipid profile in hypertensive patients
(d) Does not depress the baroreceptor function

126. The organ extremely sensitive to the action of atropine is

(a) Gastric glands
(b) Salivary glands
(c) Urinary bladder muscle
(d) Heart

127. The antimuscarinic agent preferred in the management of motion sickness is

(a) Atropine methonitrate
(b) Scopolamine
(c) Homatropine methyl bromide
(d) Ipratropium bromide

128. Belladonna poisoning is best treated with

(a) Neostigmine (b) Physostigmine
(c) Acetylcholine (d) Adrenaline

129. The drug that produces neuromuscular blockade by persistent depolarization is

(a) D-tubocurarine (b) Gallamine
(c) Pancuronium (d) Decamethonium

130. Agents that block neuromuscular transmission of acetyl choline acts via

(a) Inhibiting acetyl choline synthesis
(b) Inhibiting acetyl choline release
(c) Inhibiting post-synaptic action of acetyl choline
(d) All of the above

131. The skeletal muscle relaxant causing significant release of histamine is

(a) Pancuronium (b) Atracurium
(c) Gallamine (d) D-tubocurarine

132. The antibiotic that may accentuate the neuromuscular blockade produced by d-tubocurarine is

(a) Pencillin G (b) Erythromycin
(c) Streptomycin (d) Chloramphenicol

133. Centrally acting skeletal muscle relaxant is

(a) Carisoprodol (b) Dantrolene
(c) Gallamine (d) Succinylcholine

134. β-blockers

(a) Relieve symptoms of thyrotoxicosis
(b) Should not be used along with carbimiazole
(c) Reduce the synthesis of hormones in the gland
(d) Should not be given before thyroid surgery

135. Which of the following alpha adrenoceptor blockers is powerful and also has longer duration of action ?

(a) Tolazoline (b) Phenoxybenzamine
(c) Phentolamine (d) Chlorpromazine

136. Heart has beta as sympathetic and vagus as parasympathetic drive. If simultaneously both are blocked by beta blocker and stropine, the heart will

(a) Stop
(b) Beat with very slow rate
(c) Beat with very fast rate
(d) Beat at its intrinsic rate, about 100/min

137. Side effect which is observed only with the use of β blockers and not with other sympathetic blocking agents

(a) Sedation and drowsiness
(b) Congestive heart failure
(c) Bronochoconstriction
(d) Reflex tachycardia

138. Following agent inhibits the release of acetyl choline

(a) Magnesium ion (b) Triethylcholine
(c) Vesamicol (d) All of the above

139. What is composition of vagus nerve ?

(a) Entirely sensory
(b) Purely motor
(c) ¾ sensory ¼ motor
(d) ¼ sensory ¾ motor

140. The ciliary muscle of iris has predominant

(a) Sympathetic inervation
(b) Parasympathetic inervation
(c) Somatic inervation
(d) Mixture of all the above

141. Following is a short-acting anti-cholinesterase

(a) Neostigmine (b) Pyridostigmine
(c) Edrophonium (d) Physostigmine

142. Catecholamine D methyl tranferase is found in all except

(a) Adrenergic neurone
(b) Brain
(c) Kidney
(d) None of the above

143. β_3 receptor is present in

(a) Adipose tissue (b) Smooth muscle
(c) Heart (d) All of the above

144. b_1 receptors are present in

(a) Liver (b) Kidney
(c) Brain (d) None of the above

145. Activity of which adrenergic receptor is linked to activation of G proteins

(a) β_1 (b) β
(c) α_1 (d) α_1
(e) All of the above

146. Which of the following drugs has highest alfa agonist activity ?

(a) Epinephrine (b) Norepinephrine
(c) Ephedrine (d) Amphetamine

147. Atropine is antagonist to which type of muscarinic

(a) M_1 (b) M_2
(c) M_3 (d) M_4

148. Following are irreversible anti-cholinesterases, except

(a) Parathion (b) Pyridostigmine
(c) Dyflos (d) Ecothiopate

149. The order of paralysis with d-tubocuraine is

(a) Fingers, Neck, Eyes, Limbs, Trunk Respiratory
(b) Neck, Limbs, Face, Eyes, Pharynx, Trunk Respiratory
(c) Fingers, Eyes, Limbs, Neck, Trunk Respiratory
(d) Face, Eyes, Fingers, Neck, Limbs, Trunk Respiratory
(e) None of the above

150. Following is a naturally occurring tertiary amine anti-cholinesterase

(a) Edrophonium (b) Neostigmine
(c) Pyridostigmine (d) Physostigmine

151. Which of the following sympathomimetic drugs is a non –catecholamine ?

(a) Adrenaline (b) Noradrenaline
(c) Isoprenaline (d) Ephedrine
(e) All of the above (f) None of the above

152. Which of the following β – adrenoceptor blocker is the least lipid soluble ?

(a) Propanolol (b) Atenolol
(c) Oxprenolol (d) Metoprolol
(e) All of the above (f) None of the above

153. Propanolol is contraindicated / not beneficial in

(a) Parkinsonism tremors

(b) Bronchial asthma
(c) Insulin – treated diabetes
(d) All of the above
(e) None of the above

154. Which of the following adrenoreceptor antagonists has partial agonist activity and also membrane stabilizing activity

(a) Propanolol (b) Atenolol
(c) Oxprenolol (d) Metoprolol
(e) All of the above (f) None of the above

155. Which of the following indirectly acting sympathomimetics is an uptake-1 inhibitor ?

(a) Tyramine (b) Amphetamine
(c) Ephedrine (d) All of the above
(e) None of the above

156. Which of the following drugs is used in cardiogenic shock ?

(a) Noradrenaline (b) Adrenaline
(c) Isoprealine (d) Dobutamine
(e) Salbutamol

157. Pseudo-cholinesterase is present in

(a) Membrane (b) Vesicles
(c) Synaptic cleft (d) Plasma and tissue

158. Which of the following drugs is used as inhalation as a bronchodilator and may be used when cough is a pronounced symptom in asthmatic patient ?

(a) Atropine (b) Homtropine
(c) Ipratropium (d) Tropicamide
(e) All of the above (f) None of the above

159. Activation of sympathetic system leads to _____ except

(a) Contraction of bronchial smooth muscles
(b) Gluconeogenesis
(c) Glycogenolysis
(d) Contraction of radial smooth muscle of iris

160. Which of the following antimuscarinic drugs is short acting mydriatic ?

(a) Atropine (b) Homatropine
(c) Ipratropium (d) Tropicamide
(e) All of the above (f) None of the above

161. Following agent reduces the transmitter release by blocking nerve terminal calcium channels

(a) Botulinum toxin (b) β-bungarotoxin
(c) ω-conotoxin (d) All of the above

162. Atropine in doses of 2.0mg to 5.0mg may cause

(a) Increased heart rate
(b) dryness of mouth
(c) Dilated pupils
(d) Difficulty in micturition
(e) Reduced intestinal peristalsis
(f) All of the above
(g) None of the above

163. Chemically following anti-cholinesterase is an alcohol

(a) Ambenonium (b) Edrophonium
(c) Ecothiophate (d) None of the above

164. Which of the following â-adrenoceptor blockers has the minimal hepatic biotransformation ?

(a) Atenolol (b) Labetalol
(c) Metoprolol (d) Propranolol
(e) Sotalol

165. Which of the following β –adrenoceptor blockers is the drug of choice for treatment of essential tremors ?

(a) Propranolol (b) Nadolol
(c) Timolol (d) Atenolol
(e) All of the above (f) None of the above

166. Which of the following â-adrenoceptor blockers is used as anti-glaucoma agent

(a) Propranolol (b) Nadolol
(c) Timolol (d) Atenolol
(e) All of the above (f) None of the above

167. Concurrent use of atropine will interfere with the anti-glaucoma action of

(a) Pilocarpine (b) Physostigmine
(c) Carbachol (d) All of the above
(e) None of the above

168. To reduce the muscarinic side effects of oral forms of cholinesterase inhibitors they should be administered

(a) On empty stomach
(b) With food
(c) With milk
(d) One hour after food
(e) With food or milk

169. Which of the following cholinesterase inhibitors is said to produce more severe muscarinic side effects

(a) Pyridostigmine (b) Neostigmine
(c) Ambenonium (d) All of the above
(e) None of the above

170. Which of the following cholinesterase inhibitors is preferred in patients hypersensitive to the bromide ion ?

(a) Pyridostigmine (b) Neostigmine
(c) Ambenonium (d) All of the above
(e) None of the above

171. Following is a synthetic analogue of atropine, used as an inhalational drug in asthma

(a) Benztropine (b) Pirenzepine
(c) Ipratropium (d) All of the above

172. All the cholinomimetic alkaloids except one which is a choline ester

(a) Pilocarpine (b) Carbachol
(c) Muscarine (d) Arecoline

173. Which one of the following β – blockers has reduced risk of bronchospasm ?

(a) Propranolol (b) Atenolol
(c) Pindolol (d) None of the above

174. Metoprolol is a cardioselective beta blocker (relatively selective beta$_1$ – blocker)

(a) With membrane stabilizing effect and with partial agonist effect
(b) Without membrane stabilizing effect and with partial agonist effect
(c) Without membrane stabilizing effect and without partial agonist effect
(d) With membrane stabilizing effect, partial agonist effect and direct vasodilator activity

175. Phenylephrine is useful as

(a) Mydriatic to facilitate examination of retina
(b) Decongestant for minor allergic hyperemia of conjunctival membranes
(c) A drug in localizing the lesion in Horner's Syndrome
(d) All of the above
(e) None of the above

176. d-Amphetamine is not used in

(a) Narcolepsy
(b) Hyperkinetic child (specilly attention deficit disorder)
(c) Migraine
(d) Child appetite suppressant

177. Following is a tertiary amine anti-muscarinic drug used for Parkinson's disease

(a) Benztropine (b) Dicyclomine
(c) Pirenzepine (d) Tropicamide

178. d-Amphetamine has most prominent

(a) Beta$_1$ effects
(b) Beta$_2$ effects
(c) Metabolic effects
(d) CNS excitatory effects
(d) None of the above

179. Phenylephrine has most prominent

(a) Alpha$_1$ effects
(b) Beta$_1$ effects
(c) Beta$_2$ effects
(d) Metabolic effects
(e) CNS excitatory effects

180. Following is a tertiary amine anti-muscarinic drug mainly used for mydriatic or cycloplegic action

(a) Benztropine (b) Dicyclomine
(c) Pirenzepine (d) Trpicamide

ANSWERS

1. d	2. c	3. c	4. b	5. a	6. d
7. c	8. b	9. c	10. e	11. d	12. a
13. b	14. b	15. c	16. a	17. b	18. b
19. b	20. e	21. c	22. c	23. b	24. b
25. a	26. b	27. d	28. a	29. e	30. c
31. d	32. e	33. a	34. b	35. d	36. c
37. e	38. b	39. b	40. a	41. a	42. a
43. d	44. a	45. a	46. c	47. e	48. b
49. e	50. b	51. a	52. a	53. a	54. b
55. c	56. e	57. c	58. d	59. b	60. d
61. b	62. d	63. b	64. b	65. b	66. b
67. b	68. c	69. b	70. d	71. c	72. a
73. a	74. d	75. c	76. a	77. b	78. d
79. a	80. a	81. c	82. c	83. d	84. d
85. d	86. d	87. c	88. a	89. d	90. d
91. c	92. c	93. c	94. b	95. c	96. c
97. c	98. c	99. d	100. a	101. d	102. d
103. d	104. c	105. d	106. d	107. b	108. c
109. c	110. b	111. a	112. d	113. b	114. d
115. c	116. a	117. c	118. d	119. b	120. d
121. b	122. d	123. a	124. b	125. a	126. b
127. b	128. b	129. d	130. d	131. d	132. c
133. a	134. a	135. b	136. d	137. a	138. a
139. c	140. b	141. c	142. a	143. a	144. b
145. e	146. a	147. a	148. b	149. c	150. d
151. d	152. b	153. d	154. c	155. b	156. d
157. d	158. c	159. a	160. d	161. c	162. f
163. b	164. a	165. a	166. c	167. d	168. e
169. b	170. c	171. c	172. b	173. b	174. c
175. d	176. c	177. a	178. d	179. a	180. d

EXPLANATIONS FOR THE ANSWERS

2. d The autonomic nervous system consists of sympathetic, parasympathetic and enteric nervous systems. Hence, the ANS is also called as visceral, vegetative or involuntary nervous system.

9. c The sympathetic preganglionic neurons have their cell bodies in the lateral horn of the grey matter of thoracic and lumbar segments of the spinal cord. The fibers leave the spinal cord in the spinal nerve as thoracolumbar sympathetic outflow.

13. b In male reproductive system, the sympathetic nervous system is responsible for ejaculation (α-receptors), and parasympathetic nervous system is responsible for erection via. Muscarinic receptors.

16. a Sympathetic system is active and parasympathetic system is quiescent in 'fight or flight' response i.e. stress.

Parasympathetic system predominates during satiation and repose i.e. 'rest and digest' response.

21. c See explanation of Q. 16

30. c Sympathetic system increases rate of SA node, cause contraction of coronary arteries and constriction of sphincters in GIT.

Sympathetic system relaxes the smooth muscles of GIT, thus decreases the motility.

31. d If a nerve is cut and its terminal are allowed to degenerate, the organ or tissue supplied by it becomes supersensitive to the neurotransmitter released by the nerve terminal. This is called as denervation super-sensitivity and it involves various mechanisms such as proliferation of receptors, loss of mechanism of transmitter removal and increased post-junctional responsiveness.

39. b At rest, the interior of the typical mammalian neuronal axon potential is approximately – 70 mV. It is essentially a diffusion potential based on high potassium inside and high sodium and chloride outside the axon. Axonal membrane is relatively more permeable to potassium than sodium and chloride ions.

40. a Acetylcholine is synthesized from acetyl-CoA and choline through the catalytic action of cholineacetyltransferase.

Acetylcholinesterase splites the acetylcholine into choline and acetate.

46. c There are three types of nicotinic receptors – muscle type, ganglion type and CNS type.

Trimethaphan is an antagonist of ganglion type nicotinic receptors.

Tubocurarine is an antagonist of muscle type and α-bungarotoxin is an antagonist of CNS type nicotinic receptor.

52. a Oxytremorine is a selective agonist of M1 muscarinic receptors present in autonomic ganglia.

Pirenzepine is an antagonist of these receptors.

55. c Coversion of tyrosine to dopa, dopa to dopamine and dopamine to 3, 4 dihydorxyphenyl acetic acid occurs in the cytoplasm.

Dopamine α hydorxylase, which converts dopamine to norepinephrine, is present in storage vesicles. Hence conversion of dopamine to norepinephrine occurs in storage vesicles and not cytoplasm.

62. d Actions of norepinephrine and epinephrine are terminated by:

- Reuptake into nerve terminals.
- Dilution by diffusion out of the junctional cleft and uptake by extraneuronal sites.
- Metabolic transformation by monoamine oxide and catechol –O-methyltransferase.

66. b Yohimbine is an antagonist of α_2-receptors present in nerve terminals, platelets and pancreatic β-cells. Clonidine is an agonist of these receptors.

71. c α_1 – Receptors are coupled with G_q G- proteins and the biochemical affect is increased in either phospholipase C, D or A_2 activity and/or opening of calcium channels.

79. a The affinity of β_1 – adrenergic receptors can be shown as :

Isoproterenol > Epinephrine = Norepinephrine

The specific agonist of this receptor is dobutamine and specific antagonist is metoprolol.

82. c The affinity of α_1 – adrenergic receptors can be shown as:

Epinephrine ≥ Norepinephrine >> Isoproterenol

Phenylephrine is a specific agonist and prazocin is a specific antagonist of this receptor.

85. d Activation of α_2 – adrenergic receptors is associated with:

- Increase in phospholipase activity.
- Increase in potassium channel conductance.
- Decrease in calcium channel conductance
- Decrease (and not increase in adenylyl cyclase activity.

90. d Refractoriness, desensitization or tachchyphylaxis describes the same phenomenon. Because of this, the duration of action and therapeutic efficacy of catecholamines and other agents is significantly limited.

93. c Guanethidine inhibits the release of transmitter. Another agent, which also inhibits the release of transmitter, is bretylium.

Synthesis of transmitter is inhibited by α-methyl tyrosine.

Metabolism of transmitter is inhibited by pargyline and tranylcypromine. Amphetamine and tyramine cause displacement of transmitter from axon terminals.

100. a Phenylephrine is an agonist of α_1-adrenergic receptor and it mimics the transmitter at post-synaptic receptors, producing sympathomimetic effect.

103. d Congenital dopamine β hydroxylase deficiency is characterized by absence of norepinephrine and epinephrine, increased concentration of dopamine and intact cholinergic innervation. These patients suffer from severe postural hypotension and other symptoms.

109. c Muscarinic receptors are G protein coupled receptors, causing:

- Activation of potassium or inhibition of calcium channels.
- Activation of phospholipase C
- Inhibition of adenylyl cyclase

111. a 4-Aminopyridine enhances the evoked release of acetylcholine.

Vesamicol blocks the transport of acetylcholine into storage vesicles.

Magnesium ions block the calcium entry and thus inhibit the release of acetylcholine.

113. b Methacholine, although three times more resistant than acetylcholine, is susceptible to hydrolysis by cholinesterase.

Carbachol and bethanechol are completely resistant to hydrolysis by cholinesterase.

Muscarine is not metabolized by cholinesterase.

120. d Muscarinic agonists stimulate the secretory activity of sweat, lacrimal, salivary and nasopharyngeal glands and hence lead to increased sweating, salivation and bronchial secretions.

121. b *Datura stramonium* mainly contains atropine.

Hyoscine (scopolamine)is mainly found in *Hyoscymus niger*.

Homatropine is a semisynthetuic derivative.

Dicyclomine is a synthetic derivative.

130. d Blockers of neuromuscular transmission of acetylcholineact via various mechanisms:

- Inhibition of acetylcholine synthesis.
- Inhibition of acetylcholine release.
- Inhibition of postsynaptic action of acetylcholine.

138. a Magnesium inhibits the entry of calcium into the nerve terminal and thus inhibits the exocytosis and hence release of acetylcholine.

Triethylcholine inhibits the transport of choline into the nerve terminal.

Vesamicol inhibits the transport of acetylcholine into synaptic vesicles.

141. c Edrophonium is a short-acting anticholinesterase. It is mainly used in the diagnosis of myasthenia gravis.

Neostigmine, pyridostigmine and physostigmine are medium duration anticholinesterase.

148. b Pyridostigmine is a medium duration anticholinesterase. Parathion, dyflos and ecothiopate are irreversible anticholinesterase.

150. d Physiostigmine is a naturally occurring tertiary amine anticholinesterase.

Edrophonium, neostigmine and pyridostigmine are quaternary ammonium compounds.

157. d Pseudocholinesterase (or butyrylcholinesterase) is widely distributed in tissues e.g. liver, skin, brain and gastrointestinal smooth muscles. It is also present in soluble form in plasma. However, it is not present in synaptic cleft, vesicles or membrane.

159. a Activation of sympathetic system lead to;

- Relaxation (and not contraction) of bronchial smooth muscles.

- Gluconeogenesis.
- Glycogenolysis
- Contraction of radial smooth muscle of iris.

161. c ω-Conotoxin is an inhibitor of nerve terminal calcium channels and thus reduces the transmitter release.

Botulinum toxin and β-bungarotoxin reduce transmitter release by cleaving specific proteins involved in the exocytosis.

163. b Edrophonium is an anticholinesterase and is chemically an alcohol. It has - OH group attached to a benzene ring. Ambenonium is a bis-quaternary compound and ecothiophate is an organophosphate anti-cholinesterase.

171. c Ipratropium is a synthetic analogue of atropine and is used as an inhalational drug in the treatment of asthma.

Benzotropine is efficacious in preventing dystonia or parkinsonian symptoms.

Pirenzepine is used as an anticular agent.

177. a Benzotropine is the only antimuscarinic drug with profound CNS effects and hence it is used for the treatment of the Parkinson's disease.

180. d Tropicamide is mainly used for mydriatic or cycloplegic action.

Dicyclomine is antispasmodic.

Pirenzepine is anticular agent.

Benzetropine is used in the treatment of Parkinson's disease.

CHAPTER 4

VITAMINS & MINERALS

1. Thiamine is vitamin

(a) B1 (b) B2
(c) B6 (d) B12

2. The iron stored in intestinal mucosal cells is complexed to

(a) Ferritin (b) Intrinsic factor
(c) Oprelvekin (d) Transcobalamin II
(e) Transferrin

3. Which of the following is most likely to be required by a 5-year-old boy with chronic renal in sufficiency?

(a) Erythropoietin (b) G-CSF
(c) Interleukin - 11 (d) Stem cell factor
(e) Thrombopoietin

4. in adults, approximately _____ mg of thiamine per day is completely degraded by the tissue

(a) 0.01 (b) 0.1
(c) 1 (d) 10

5. The drug of choice for the management of osteoporosis caused by high-dose use of glucocorticoids is

(a) Alendronate (b) Calcitonin
(c) Mestranol (d) Oxandrolone
(e) Vitamin D

6. Which of the following drugs is correctly associated with its clinical application?

(a) Erythropoietin : Macrocytic anemia
(b) Filgrastim : Thrombocytopenia due to myelocytic leukemia
(c) Iron dextran : Severe macrocytic anemia
(d) Ferrous sulfate : Microcytic anemia of pregnancy
(e) Folic acid : Hemochromatosis

7. Conversion of methionine to cysteine depends on vitamin

(a) B1 (b) B2
(c) B6 (d) B12

8. Avidin, a protein found in egg white is an antagonist of

(a) Biotin (b) Pantothenic acid
(c) Choline (d) Pyridoxal

9. All of the following are important functions of magnesium (Mg) except

(a) Nerve conduction
(b) Phospholipid synthesis
(c) Muscle contractility
(d) Carbohydrate, fat, and electrolyte metabolism

10. Factors likely to cause an increase in the blood urea nitrogen (BUN) level include

(a) Intramuscular (IM)injection of diazepam (Valium)
(b) Severe liver disease
(c) Chronic kidney disease

11. Physiologically carnitine plays following role

(a) Important for oxidation of fatty acids
(b) Decreases aerobic metabolism of carbohydrates
(c) Decreases rate of oxidative phosphorylation
(d) All of the above

12. Patients receiving iron therapy should be warned about

(a) Dizziness
(b) Ringing in the ears
(c) Danger of sunlight
(d) Blackening of the stool
(e) Paresthesia

13. Therapeutically vitamin B1 has been employed most successfully in the treatment of

(a) Microcytic anemia
(b) Pellagra
(c) Scurvy
(d) Beriberi
(e) Macrocytic anemia

14. Magnesium ion is necessary in

(a) Stimulating enzyme systems
(b) Muscular contraction
(c) Nerve conduction
(d) All of the above
(e) None of the above

15. The following derivatives of retinal shows the greatest biological potency than others

(a) 9-Cis-retinoic acid (b) All-trans-retinoic acid
(c) All-trans-retinol (d) 11-Cis-retinal

16. The drug used for controlling tetany is

(a) Intravenous diazepam
(b) Intramuscular vitamin D
(c) Intravenous calcium gluconate
(d) Intravenous calcitonin

17. Absorption of oral iron preparations can be facilitated by coadministering

(a) Antacids (b) Tetracyclines
(c) Phosphates (d) Ascorbic acid

18. The gut controls the entry of ingested iron in the body of

(a) Regulating the availability of apoferritin which acts as the carrier of iron across the mucosal cell
(b) Regulating the turnover of apoferritin-ferritin interconversion in the mucosal cell
(c) Complexing excess iron to form ferritin which remains stored in the mucosal cell and is shed off
(d) Regulating the number of transferring receptors on the mucosal cell

19. The percentage of elemental iron hydrated ferrous sulfate is

(a) 5% (b) 10%
(c) 20% (d) 33%

20. In isolated fibroblast or epithelial cells, retinoids enhance the synthesis of following protein

(a) Fibronectin
(b) Collagenase
(c) Certain species of keratin
(d) All of the above

21. The side effect which primarily limits acceptability of oral iron therapy is

(a) Epigastric pain and bowel upset
(b) Black stools
(c) Staining of teeth
(d) Metallic taste

22. Iron sorbitol-citric acid differs from iron dextran in that

(a) It cannot be injected i.v.
(b) It is not excreted in urine
(c) It is not bound to transferritin in plasma
(d) It produces fewer side effects

23. Which of the following is true about iron therapy ?

(a) Haemoglobin response to intramuscular iron is faster than with oral iron therapy
(b) Iron must be given orally except in pernicious anaemia
(c) Prophylactic iron therapy must be given during pregnancy

(d) Infants on breast feeding do not require medicinal iron

24. Concentrations of retinal in plasma in excess of _____ µg/dl usually are diagnostic of hypervitaminosis A

(a) 10 (b) 50
(c) 100 (d) 200

25. Megaloblastic anaemia occurs in

(a) Vitamin B_{12} but not folic acid deficiency
(b) Folic acid but not Vitamin B_{12} deficiency
(c) Either Vitamin B_{12} or folic acid deficiency
(d) Only combined Vitamin B_{12} + folic acid deficiency

26. The daily dietary requirement of Vitamin B_{12} by an adult is

(a) 1–3 µg (b) 50–100 µg
(c) 0.1–0.5 µg (d) 1–3 µg

27. Which of the following factor(s) is/are required for the absorption of Vitamin B_{12} ingested in physiological amounts ?

(a) Gastric acid
(b) Gastric intrinsic factor
(c) Transcobalamine
(d) Both (a) and (b)

28. Hydroxocobalamine differs from cyanocobalamine in that

(a) It is more protein bound and better retained
(b) It is beneficial in tobacco amblyopia
(c) It benefits haematological but not neurological manifestations of Vit B_{12} deficiencey
(d) Both (a) and (b)

29. Megaloblastic anemia is caused by deficiency of

(a) Iron (b) Vitamin B_{12}
(c) Vitamin C (d) All of the above

30. Vitamin B12 is a required co-factor for the following reaction

(a) Conversion of methylmalonyl-CoA to succinyl-CoA
(b) Conversion of 5-CH_3-H_4-folate to H_4-folate
(c) Conversion of homocysteine to methionine
(d) All of the above

31. Vitamin K is indicated for the treatment of bleeding occurring in patients

(a) Being treated with heparin
(b) Being treated with streptokinase
(c) Of obstructive jaundice
(d) Of peptic ulcer

32. Menadione (Vitamin K_3)

(a) Can cause hemolysis in patients with G-6-PD deficiency
(b) Is given in large doses in patients with severe liver disease
(c) Is useful to prevent haemorrhagic disease of the newborn
(d) Is the preparation of choice to antagonize the effect of warfarin overdose

33. Vitamin K promotes the hepatic biosynthesis of following blood clotting factor

(a) Factor I (b) Factor II
(c) Factor VIII (d) All of the above

34. folinic acid is principally used

(a) In pernicious anaemia
(b) In megaloblastic anaemia secondary to Vitamin B_{12}
(c) Along with methotrexate therapy
(d) In treatment of folic acid deficiency

35. Penicillamine

(a) Is effective orally
(b) Can cause anaphylactic reactions in patients allergic to penicillin
(c) Is safe in pregnancy
(d) Is not effective in lead poisoning

36. Succimer

(a) Can significantly mobilize essential metals
(b) Produces less toxicity than Dimercaprol
(c) Is ineffective orally
(d) Is contraindicated in children

Answer

1. c	2. a	3. a	4. c	5. a	6. d
7. c	8. a	9. b	10. c	11. a	12. d
13. d	14. d	15. c	16. c	17. d	18. c
19. c	20. a	21. a	22. a	23. c	24. c
25. c	26. a	27. d	28. d	29. b	30. d
31. c	32. a	33. b	34. c	35. a	36. b

EXPLANATIONS FOR THE ANSWERS

1. a Thiamine is vitamin B_1 and was the first member of vitamin B complex to be identified. Vitamin B_6 – Pyridoxine, pyridoxal and pyridoxamine. Medically used vitamin B_{12} is hydroxycobalamine. Vitamin B_2 is riboflavin

4. c In adults, approximately 1 mg of thiamine per dayis completely degraded by the tissues and 1mg is roughly the minimal daily requirement of thiamine.

7. c Conversion of methionine to cysteine depends on vitamin B6. Vitamin B1, B2 and B12 do not play any role in this conversion. Vitamin B6 is also involved in various metabolic transformations of amino acids e.g. decarboxylation, transamination and racemization.

8. a Avidin, a protein found in egg white, is an antagonist of biotin. Avidin is a glycoprotein and it binds with biotin with great affinity and thus prevents its absorption.

11. a Carnitine has several physiological roles:
- It is important for oxidation of fatty acids.
- It increases aerobic metabolism of carbohydrates.
- It increases rate of oxidative phosphorylation.
- It enhances the excretion of certain organic acids.

15. c Of all known derivatives of retinal, *all-trans*-retinol (and its aldehyde, retinal) has the greatest biological potency.

20. a In isolated fibroblasts and epithelial cells, retinoids enhance the synthesis of fibronectin and reduce the synthesis of collagen and certain species of keratin. These effects are mediated by change in the nuclear transcription.

Retinoic acid is more potent than retinal in mediating these effects.

24. c Concentrations of retinal in plasma in excess of 100µg/dl. usually are diagnostic of hypervitminosis A. Such hypervitaminosis is generally seen during the therapeutic use of retinoids in the treatment of skin disorders.

29. b Megaloblastic anemia is caused by deficiency of vitamin B12. It is characterized by macocytic anemia, mild to moderate leukopenia and/or thrombocytopenia, hypercellular bone marrow with megaloblastic maturation or erythroid and other precursor cells.

30. d Vitamin B12 is a cofactor for various biochemical reactions:
- Conversion of methylmalonyl CoA to succinyl CoA. This reaction requires deoxyadenosylcobolamin as a cofactor.
- Conversion of 5-methyl tetrahydrofolate to tetrahydro-olate and conversion of homocysteine to methionine. These two reactions use methylcobolamine as a cofactor.

33. b Vitamin K promotes the hepatic biosynthesis of factor II (prothrombin)and also factors VII, IX and X.

Vitamin K does not play important role in the biosynthesis of factors I and VIII.

CHAPTER 5

ANALGESICS & ANTIPYRETICS

1. â-Aminoethylimidazole is?

(a) 2-methyl histamine
(b) Histamine
(c) 2-pyridyl ethylamine
(d) 4-methyl histamine

2. Agents that often cause vasoconstriction include all of the following except

(a) Angiotensin II (b) Methysergide
(c) $PGF_{2\alpha}$ (d) Prostacyclin
(e) Thromboxane

3. Inflammation is a complex tissue reaction that includes the release of cytokines, leukotrienes, prostaglandins, and peptides. Prostaglandins involved in inflammatory processes are produced from arachidonic acid by

(a) Cyclooxygenase 1
(b) Cyclooxygenase 2
(c) Glutathione – S – transferase
(d) Lipoxygenase
(e) Phospholipase A_2

4. A 60-year-old woman has glaucoma following cataract surgery. Which of the following can be used to reduce intraocular pressure?

(a) Leukotriene LTD_4 or its analogs
(b) Prostaglandin E_2 or its analogs
(c) Prostaglandin $F_{2\alpha}$ or its analogs
(d) Slow-reacting substance of anaplylaxis (SRS-A)
(e) Thromboxane A_2 or its analogs

5. Which of the following is a reversible inhibitor of platelet cyclooxygenase?

(a) Alprostadil (b) Aspirin
(c) Ibuprofen (d) LTC_4
(e) Misoprostol

6. Vasodilation by prostaglandins involves

(a) Arterioles
(b) Precapillary sphincters
(c) Postcapillary venules
(d) All of the above

7. Fentanyl transdermal patches have been used postoperatively to provide transdermal analgesia. The most dangerous adverse effect of this mode of administration is

(a) Cutaneous reactions
(b) Diarrhea
(c) Hypertension
(d) Relaxation of skeletal muscle
(e) Respiratory depression

8. Opioid analgesics are either contraindicated or must be used with extreme caution in several clinical situations. For morphine, such situations do not include

(a) Aqueous diffusion

(b) Aqueous hydrolysis
(c) Lipid diffusion
(d) Pinocytosis or endocytosis
(e) Special carrier transport

9. Following is an example of paraaminophenol NSAID

(a) Diclofenac (b) Acetaminophen
(c) Piroxicam (d) Celecoxib

10. This drug, which does not activate opioid receptors, has been proposed as a maintenance drug in treatment programs for opioid addicts; a singly oral dose will block the effects of injected heroin for up to 48 hours

(a) Amphetamine (b) Buprenorphine
(c) Naloxone (d) Naltrexone
(e) Propoxyphene

11. Which one of the following statements about dextromethorphan is accurate?

(a) Activates kappa receptors
(b) Analgesia equivalent to pentazocine
(c) Highly effective antiemetic
(d) Less constipation than codeine
(e) Use requires a prescription

12. Which one of the following effects does not occur in salicylate intoxication ?

(a) Hyperventilation
(b) Hypothemia
(c) Metabolic acidosis
(d) Respiratory alkalosis
(e) Tinnitus

13. Which one of the following drugs is not useful in dysmenorrhea?

(a) Aspirin (b) Colchicine
(c) Ibuprofen (d) Rofecoxib
(e) Naproxen

14. Following gold compound is generally administered orally

(a) Aurothioglucose
(b) Auronafin
(c) Gold sodium thiomalate
(d) All of the above

15. The main advantage of ketorolac over aspirin is that ketorolac

(a) Can be combined more safely with an opioid such as codeine
(b) Can be obtained as an over-the-counter agent
(c) Does not prolong the bleeding time
(d) Is available in a parenteral formulation that can be injected intramuscularly or intravenously
(e) Is less likely to cause acute renal failure in patients with some preexisting degree of renal impairment

16. A 45-year-old surgeon has developed symmetric early morning stiffness in her hands. She wishes to take a nonsteroidal anti-inflammatory drug to relieve these symptoms and wants to avoid gastrointestinal side effects. Which one of the following drugs is most appropriate?

(a) Aspirin (b) Celecoxib
(c) Ibuprofen (d) Indomethacin
(e) Piroxicam

17. Following is an example of preformed and not lipid derived mast cell mediator of inflammatory process

(a) LTC4 (b) PGD2
(c) PAF (d) Histamine

18. The toxicity spectrum of aspirin does not include

(a) Increased risk of encephalopathy in children with viral infections
(b) Increased risk of peptic ulcers
(c) Hyperprothrombinemia
(d) Metabolic acidosis
(e) Respiratory alkalosis

19. Accidental poisonings are common with both aspirin and ibuprofen, two OC drugs available in tasty chewable tablets. In cases of overdose, aspirin is more likely than ibuprofen to cause

(a) Autonomic Instability
(b) Hepatic necrosis
(c) Metabolic acidosis
(d) Thrombocytopenia
(e) Ventricular arrhythmias

20. A drug that decreases blood pressure and has analgesic and spasmolytic effects when given intrathecally is

(a) Atenolol (b) Clonidine
(c) Morphine (d) Nitroprusside
(e) Prazosin

21. Cyclooxygenase-1 and –2 are responsible for

(a) The synthesis of prostaglandins from arachidonate
(b) The synthesis of leukotrienes from arachidonate
(c) The conversion of ATP to cAMP
(d) The metabolic degradation of cAMP
(e) The conversion of GTP to cGMP

22. Following agent is generally used in allergic rhinitis

(a) Beclomethasone (b) Fluticasone
(c) Triamcinolone (d) All of the above

23. The primary objective for designing drugs that selectively inhibit *COX* – 2 is to

(a) Decrease the risk of nephrotoxicity
(b) Improve anti-inflammatory effectiveness
(c) Lower the risk of gastrointestinal toxicity
(d) Reduce the cost of treatment of rheumatoid arthritis
(e) Selectively decrease thromboxane A_2 without effects on other eicosanoids

24. A newborn was diagnosed as having a congenital abnormality that resulted in transposition of her great arteries. While preparing the infant for surgery, the medical team needed to keep the ductus arteriosus open. They did this by infusing

(a) Cortisol (b) Indomethacin
(c) Ketorolac (d) Misoprostol
(e) Tacrolimus

25. Acetyl salicylic acid is soluble in

(a) An aqueous base (b) Water
(c) An aqueous acid

26. Decomposition of the acetyl salicylic acid at room temperature most likely would occur by

(a) Oxidation of the ester
(b) Reduction of the carboxylic acid
(c) Hydrolysis of the ester

27. Diamprit is an agonist of _____ receptors, except

(a) H_1 (b) H_2
(c) H_3 (d) All of the above

28. Which of the following enzymes is ultimately responsible for the production of prostaglandins associated with inflammatory reactions?

(a) Phospholipase
(b) Lipoxygenase
(c) Cyclooxygenase-I
(d) Cyclooxygenase II
(e) Xanthine oxidase

29. Which of the following prostaglandin analogs is used specifically for the treatment of NSAID induced gastrointestinal ulcertation?

(a) Alprostadil (b) Misoprostol
(c) Carboprost (d) Dinoprostone
(e) Epoprostenol

30. Which of the following compounds is most likely to lower circulating levels of leukotrienes?

(a) Zileuton (b) Montelukast
(c) Carprofen (d) Aspirin
(e) Allopurinol

31. The action of aspirin that results in its greater efficacy as an antithrombotic (anti-platelet) drug is its ability to

(a) Inhibit lipoxygenase as well as cyclooxygenase
(b) Selectively inhibit cyclooxygenase I
(c) Inhibit leukocyte migration
(d) Promote uric acid excretion
(e) Acetylate cyclooxygenase

32. Which of the following drugs may be effective in the treatment of gouty arthritis by acting by two separate and distinct mechanisms?

(a) Allopurinol (b) Probenecid
(c) Colchicine (d) Indomethacin
(e) Sulfinpyrazone

33. Acute or chronic colchicine toxicity may be identified by which of the following signs/symptoms?

(a) Alopecia
(b) Blood dyscrasias
(c) Severe gastrointestinal upset
(d) All of the above
(e) None of the above

34. Patients taking chronic doses of non-selective nonsteroidal anti-inflammatory drugs (NSAIDs) should periodically be screened for which of the following toxicities?

(a) Nephrotoxicity
(b) Peripheral neuropathy
(c) Cardiotoxicity
(d) All of the above
(e) None of the above

35. Which of the following medications would represent arthritis therapy that is least likely to cause gastric ulceration?

(a) Aspirin (b) Acetaminophen
(c) Piroxicam (d) Meclofenamate
(e) Rofecoxib

36. In addition to their ability to decrease inflammatory prostaglandin synthesis, some non-steroidal anti-inflammatory drugs (NSAIDs) may owe part of their effects to their ability to

(a) Inhibit leukocyte migration
(b) Inhibit leukotriene synthesis
(c) Stabilize lysosmal membranes
(d) All of the above
(e) None of the above

37. The termination of heparin activity by protamine sulfate is due to

(a) A chelating action
(b) The inhibition of gastrointestinal absorption of heparin
(c) The displacement of heparin-plasma protein binding
(d) An acid-base interaction
(e) The prothrombin-like activity of protamine

38. In gastrointestinal tract, serotonin causes

(a) Contraction of gastrointestinal muscles
(b) Decreased muscle tone
(c) Decreased peristalsis
(d) All of the above

39. A FDA – approved ingredient for protection against painful sensitivity of the teeth due to cold, heat, acids, sweets or contact is

(a) Dicalcium phosphate
(b) Sodium lauryl sulfate
(c) 5% potassium nitrate
(d) Zinc chloride
(e) Calcium carbonate

40. Which local anesthetic should be used to treat symptoms of pain, itching, burning, and disconfort in patients with an established lidocaine allergy?

(a) Tetracaine (b) Dibucaine
(c) Pramoxine (d) Benzocaine

41. What is the most commom sign/symptom of hemorrhoids?

(a) Bleeding (b) Pain
(c) Seepage (d) Pruritus

42. Which of the following agents is designated as a safe and effective analgesic, anesthetic and antipruritic by the Food and Drug Administration?

(a) Witch hazel (b) Juniper tar
(c) Hydrocortisone (d) Phenylephrine

43. A 65-year-old is interested in taking ginkgo. Which of the following statements is correct regarding ginkgo?

(a) Ginkgo is contraindicated in diabetes and pregnancy
(b) There is a drug-herb interaction between ginkgo and aspirin
(c) Toxic effects include hypertension and cardiac arrest
(d) There is a drug-herb interaction between ginkgo and phenelzine
(e) Ginkgo is contraindicated in patients with gallstone pain

44. All of the following medications should not be used routinely in pregnant patients during the third trimester except

(a) Acetaminophen
(b) Nonsteroidal anti-inflammatory drugs
(c) Warfarin
(d) Lithium
(e) Aspirin

45. Which of the following statements best describes the usual course of rheumatoid arthritis?

(a) It is an acute exacerbation of joint pain treated with short-term anti-inflammatory therapy
(b) It is a chronic disease characterized by acute changes within nonsynovial joints
(c) It is an acute disease that is characterized by rapid synovial changes due to inflammation
(d) It is a chronic disease characterized by acute exacerbations followed by remissions with consequences associated with chronic inflammatory changes
(e) It is a joint disease characterized by a marked loss of calcium from the bones and a resultant thinning of the bones

46. Match the drug characteristic with the appropriate agent.

(a)	Corticosteroids	(1)	Persistent platelet function effect
(b)	Lbuprofen	(2)	Oral form of gold
(c)	Aspirin	(3)	Given on an empty stomach
(d)	Aurancfin	(4)	May be used intra-articularly
(e)	Penicillamine	(5)	May cause drowsiness

47. Match the phrase below with the appropriate agent used to treat rheumatoid arthritis.

(a) Indomethacin
(b) Aspirin
(c) Hydroxychloroquine
(d) Methotrexate
(e) Cyclophosphamide

(1) May cause hemorrhagic cystitis
(2) May cause more severe central nervous system (CNS)adverse effects than other nonsteroidal anti-inflammatory drugs (NSAIDS)
(3) Enteric – coated form may be useful in treating some patients
(4) Aspirin may slow this drug's rate of excretion
(5) Vision should be monitored every 3–6 months

48. All of the following statements concerning an acute gouty arthritis attack are correct except

(a) The diagonosis of gout is assured by a good therapeutic response to colchicines because no other form of arthritis responds to this drug
(b) To be assured of the diagnosis, monosodium urate crystals must be identified in the synovial fluid of the affected joint
(c) Attacks frequently occur in the middle of the night
(d) An untreated attack may last up to 2 weeks
(e) The first attack usually involves only one joint, most frequently the big toe (first metatarsophalangeal joint)

49. TNF-$\alpha$is an example of eicosanoids

(a) Interleukins
(b) Cytotoxic factors
(c) Interferons
(d) Colony stimulating factors

50. Potential adverse effects associated with aspirin include all of the following except

(a) Gastrointestinal ulceration
(b) Renal dysfunction
(c) Enhanced methotrexate toxicity
(d) Cardiac arrhythmias
(e) Hypersensitivity asthma

51. All of the following facts are true about non-steroidal anti-inflammatory drugs (NSAIDs) except

(a) They are antipyretic
(b) There is a celling effect to their analgesia
(c) They can cause tolerance
(d) They do not cause dependence
(e) They are anti-inflammatory

52. Which of the following narcotics has the longest duration of effect?

(a) Methadone
(b) Controlled-release morphine
(c) Levorphanol
(d) Transdermal fentanyl
(e) Dihydromorphone

53. Cylcoocygenase-II specific inhibitors block the following

(a) Production of cytoprotective prostaglandins
(b) Tumor necrosis factor - α
(c) Production of prostaglandins responsible for pain and inflammation

54. The emetic action of morphine is due to

(a) Irritation of gastrointestinal tract
(b) Stimulation of cerebral cortex
(c) Stimulation of medullary vomiting center
(d) Stimulation of emetic chemoreceptor trigger zone
(e) None of the above

55. Colchicine is used mainly to treat

(a) Gout (b) Arthiritis
(c) Diabetes (d) Carcinomas
(e) High blood pressure

56. Which type of patient is most likely to hypersensitive to aspirin?

(a) Intrinsic asthamatic
(b) Extrinsic asthamatic
(c) Chronic bronchitic
(d) Patient with viral injection
(e) Both (c) and (d)

57. Codeine acts as a cough sedative by

(a) Producing mild nausea
(b) Depressing bronchiolar secretions
(c) Depressing pulmonary action
(d) Depressing cough center
(e) Paralyzing sensory nerves of bronchi

58. The greatest threat from morphine poisoning is

(a) Renal shutdown
(b) Paralysis of spinal cord
(c) Respiratory depression
(d) Cardiovascular collapse
(e) None of the above

59. A very common side effect of morphine is

(a) Allergic response (b) Blood dyscrasias
(c) Constipation (d) Liver damage
(e) Visceral pain

60. Eicosanoids are a group of _____ carbon unsaturated fatty acids

(a) 20 (b) 10
(c) 25 (d) 35

61. Which of the following durgs is a monamine oxidase inhibitor, but is used to treat hypertension?

(a) Tranylcypromine (Parnate)
(b) Reserpine
(c) Propranolol (Inderal)
(d) Pargyline (Eutonyl)
(e) Imipramine (Tofranil)

62. Autacoids differ from hormones in that

(a) Autacoids are involved only in the causation of pathological states
(b) Autacoids do not have a specific cell/ tissue of origin
(c) Autacoids generally act locally at the site of generation and release
(d) Both (b) and (c)

63. Which of the following eicosanoids is generated through the lipozygenase pathway ?

(a) Prostaglandin E_2 (b) Thromboxane A_2
(c) Prostacyclin (d) Leukotriene C_4

64. The cyclooxygenase isoenzymes COX-1 and COX-2 differ from each other in that

(a) They catalyse different pathways in prostanoid biosynthesis
(b) COX–1 is inhibited by aspirin but not COX–2
(c) COX–2 is inhibited by ibuprofen but not COX–1
(d) COX–1 is constitutive while COX–2 is inducible

65. Which of the following is an irreversible inhibitor of cyclooxygenase ?

(a) Aspirin (b) Phenylbutazone
(c) Indomethacin (d) Piroxicam

66. The prostanoid that consistently constricts blood vessels is

(a) Prostaglandin E_2 (b) Prostaglandin F_{2a}
(c) Thromboxane A_2 (d) Prostacyclin

67. The following prostanoid is a potent inducer of platelet aggregation

(a) Prostacyclin (b) Prostaglandin E_2
(c) Prostaglandin D_2 (d) Thromboxane A_2

68. Aspirin in low doses produces longlasting inhibition

(a) Platelets contain low quantity of COX
(b) Platelets cannot synthesize fresh COX molecules
(c) Platelets bind aspirin with high affinity
(d) Platelet COX is inducible

69. The early pregnancy uterus is sensitive to the following oxytocic

(a) Oxytocin
(b) Methylergometrine
(c) Prostaglandin F2α
(d) Both (a) and (b)

70. Cervical priming with prostaglandin results in

(a) Facilitation of sperm movement through cervical canal
(b) Increased cervical tone
(c) Softening of cervix
(d) Increased cervical secretions

71. Corticosteroids exert anti-inflammatory action by inhibiting the following enzyme

(a) Cycloxygenase
(b) Lipozygenase
(c) Phospholipase - A
(d) Phosphodiesterase

72. Main effect of sulphinpyrazone in hyperuricaemia is

(a) Suppress the symptoms
(b) Promote the elimination of urate
(c) prevent urate synthesis
(d) All of the above

73. Which of the following glucocorticoids has significant mineralocorticoid activity also ?

(a) Hydrocortisone
(b) Triamcinolone
(c) Dexamethasone
(d) Betamethasone

74. Corticosteroid therapy is practically mandatory in the following condition.

(a) Septic shock
(b) Renal transplant
(c) Rheumatoid arthritis
(d) Ulcerative colitis

75. For limiting cerebral edema due to brain tumour, the preferred corticosteroids are betamenthasone/dexamethasone because

(a) They do not cause Na^+ and water retention
(b) They are more potent
(c) They can be administered intravenously
(d) They inhibit brain tumours

76. Systemic corticosteroid therapy is not used routinely and is reserved only for severe cases of

(a) Exfoliative dermatitis
(b) Posterior uveitis
(c) Acute rheumatic fever
(d) Hodgkin's disease

77. The following adverse effect of corticosteroids is due to their mineralocorticoid action

(a) Osteoporosis
(b) Rise in blood pressure
(c) Moon face
(d) Increased susceptibility to infection

78. Which of the following bones is affected more by glucocorticoid induced osteoporosis ?

(a) Femur (b) Humerus
(c) Radius (d) Lumber vertebra

79. Morphine produces analgesia by acting at

(a) Peripheral pain receptors
(b) A spinal site
(c) Suspraspinal sites
(d) Both (b) and (c)

80. In man sedation caused by morphine is characterized by

(a) Initial excitement
(b) Little or no motor incoordination
(c) Rise in seizure threshold
(d) All of the above

81. Instead of depressing, morphine stimulates

(a) Vasomotor centre
(b) Edinger westphal nucleus
(c) Temperature regulating centre
(d) Cough centre

82. In a comatose patient suspected of poisoning, which of the following findings would be against the drug being morphine

(a) Selegiline (b) Chlorgiline
(c) Moclobemide (d) Tranylcypromine

83. Instead of being effective in hyperuricaemia following drug is contradictred in the treatment of gout

(a) Indomethacin (b) Diclofenac
(c) Piroxicam (d) Aspirin

84. Morphine dependence is characterized by

(a) Marked drug seeking behavior
(b) Physical dependence without psychic dependence
(c) Physical as well as psychic dependence
(d) Both (a) and (c)

85. Morphine is contraindicated in head injury because

(a) It does not relieve the pain of head injury
(b) It can raise intracranial tension
(c) It can cause constipation
(d) It is liable to cause addiction

86. Which of the following opioids is more potent than morphine ?

(a) Pethidine
(b) Fentanyl
(c) Dextropropoxyphene
(d) Tramadol

87. Which of the following opioid analgesics is similar to codeine in pharmacological profile but is less constipating ?

(a) Methadone
(b) Buprenorphine
(c) Butorphanol
(d) Dextropropoxyphene

88. Select the analgesic which acts through opioids as well as additional spinal monoaminergic mechanisms.

(a) Tramadol
(b) Ethoheptazine
(c) Dextropropoxyphene
(d) Alfentanil

89. An opioid analgesic is preferred over aspirin like analgesic in the following condition.

(a) Acute gout (b) Burn
(c) Toothache (d) Neuralgia

90. Morphine has high affinity for the following opioid receptor(s).

(a) μ (Mu) (b) k (Kappa)
(c) d (Delta) (d) All of the above

91. Which of the following is an agonist-antagonist type of opioid analgesic

(a) Pethidine (b) Pentazocine
(c) Fentanyl (d) Buprenorphine

92. Pentazocine differs from morphine in that

(a) It is inactive by the oral route
(b) It does not produce physical dependence
(c) It has a lower ceiling of analgesic effect
(d) Its action is not blocked by naloxone

93. Which action of morphine is incompletely reversed by naloxone ?

(a) Analgesia
(b) Respiratory depression
(c) Sedation
(d) Miosis

94. Lower dose of naloxone is required to

(a) Antagonise the actions of nalorphine
(b) Antagonise the actions of pentazocine
(c) Precipitate withdrawal in mildly morphine dependent subjects
(d) Precipitate withdrawal in highly morphine dependent subjects

95. Following mediators are involved in acute inflammation except

(a) Histamine (b) Leukotrienes
(c) Interferons (d) Bradykinin

96. The distinctive feature of the isoenzyme cyclooxygenase-2 is

(a) It is not inhibited by indomethacin

(b) It is inducible
(c) It generates cytoprotective prostagladins in gastric mucosa
(d) It is found only in foetal tissues

97. Aspirin produces analgesia by

(a) Preventing sensitization of peripheral pain receptors
(b) Affecting gating of pain impulses at spinal level
(c) Raising pain threshold at subcortical level
(d) Both (a) and (b)

98. Aspirin reduces fever by

(a) Decreasing heat production in the body
(b) Enhancing cutaneous blood flow
(c) Inducing sweating
(d) Both (b) and (c)

99. In the treatment of chronic inflammatory diseases, the most important limitation of aspirin is

(a) Acid – base and electrolytc disturbances
(b) Hypersensitivity and idiosyncratic reactions
(c) Gastric mucosal damage
(d) Salicylism

100. Generally the earliest manifestation of salicylism is

(a) Visual disturbance (b) Excitement
(c) Hyperventillation (d) Tinnitus

101. Aspirin is contraindicated in children suffering from influenza or similar viral infection because of increased risk of

(a) Gastric bleeding
(b) Thrombocytopenia
(c) Fancony syndrome
(d) Reye's syndrome

102. Aspirin is contraindicated in pregnant women near term because

(a) Labour may be delayed and prolonged
(b) Blood loss during delivery may be more
(c) Foetus may suffer premature closure of ductus arteriosus
(d) All of the above risks

103. Phenylbutazone should be used only in patients not responding to other nonsteroidal anti-inflammatory drugs (NSAIDs) because

(a) It has lower anti-inflammatory efficacy than other NSAIDs
(b) It has potential to cause agranulocytosis
(c) It has weak analgesic action
(d) It alters the protein binding and metabolism of many drugs

104. The non-steroidal anti-inflammatory drug which is contraindicated in drivers and machine operators is

(a) Phenylbutazone (b) Indomethacin
(c) Naproxen (d) Diclofenac sodium

105. In overall assessment, which non-steroidal anti-inflammatory drug has been considered to be the safest

(a) Aspirin (b) Naproxen
(c) Ibuprofen (d) Piroxicam

106. The constellation of adverse effects associated with non-steroidal anti-inflammatory drugs does not include the following

(a) Sedation (b) Gastric irritation
(c) Fluid retention (d) Rashes

107. Histamine induced edema results from the action on _____ receptors

(a) H_3 (b) H_2
(c) H_1 (d) All of the above

108. The following nonsteroidal anti-inflammatory drug is a relatively selective cycloodygenase-2 inhibitor

(a) Tenoxicam (b) Meloxicam
(c) Diclofenac sod (d) Ketoprofen

109. What is the true of nimesulide

(a) It exerts anti-inflammatory action by several mechanisms in addition to cyclooxygenase inhibition
(b) It is preferred for long-term use in rheumatoid arthritis
(c) It is contraindicated in aspirin intolerant asthma patients
(d) All of the above

110. The distinctive feature of nimesulide is

(a) It does not inhibit prostaglandin synthesis
(b) It does not cause gastric irritation
(c) It is well tolerated by aspirin intolerant asthama patients
(d) It is not bound to plasma proteins

111. 5-HT produces contraction of smooth muscle and platelet aggregation via _____ receptors

(a) 5-HT_1 (b) 5-HT_2
(c) 5-HT_3 (d) 5-HT_4

112. N-acetyl cysteine is beneficial in acute paracetamol poisoning because

(a) It reacts with paracetamol to form a nontoxic complex
(b) It inhibits the generation of the toxic metabosite of paracetamol
(c) It is a free readical scavenger
(d) It replenishes hepatic glutathione which in turn binds the toxic metabolite of paracetamol

113. For a patient of peptic ulcer, the safest nonopioid analgesic is

(a) Ketorolac (b) Diclofenac sodium
(c) Paracetamol (d) Ibuprofen

114. Which of the following anti-inflammatory analgesics has been cleared for pediatric use

(a) Indomethacin (b) Ibuprofen
(c) Ketorolac (d) Piroxicam

115. Which of the following statements is correct about gold therapy of rheumatoid arthiritis

(a) It is indicated only in rapidly progressing disease, not controlled by nonsteroidal anti-inflammatory drugs
(b) It is indicated only in severe cases after both nonsteroidal anti-inflammatory drugs and corticosteroids have failed
(c) When gold therapy is started, nonsteroidal anti-inflammatory drugs should be discontinued
(d) Intramuscular gold is the most rapidly acting drug in severe rheumatoid arthritis

116. Sulfasalazine is used in the following disease(s)

(a) Bacillary dysentery
(b) Ulcerative colitis
(c) Rheumatoid arthritis
(d) Both (b) and (c)

117. Which component of sulfasalazine is responsible for the therapeutic effect in rheumatoid arthritis ?

(a) Sulfapyridine
(b) 5–aminosalicylic acid
(c) Both (a) and (b)
(d) Intact sulfasalazine molecule

118. Among the rheumatoid arthritis disease modifying drugs, fastest symptom relief is obtained with

(a) Auranofin (b) Penicillamine
(c) Sulfasalazine (d) Methotrexate

119. Strong nonsteroidal anti-inflammatory drugs are more commonly used than colchicines in acute gout because

(a) They are more effective
(b) They act more rapidly
(c) They have additional uricosutic action
(d) They are better tolerated

120. Select the drug which is neither analgesic, nor antiinflammatroy nor uricosuric, but is highly efficacious in acute gout

(a) Prednisolone (b) Colchicine
(c) Naproxen (d) Sulfinpyrazone

121. The most important dose-limiting adverse effect of colchicines is

(a) Sedation (b) Kidney damage
(c) Diarrhoea (d) Muscle paralysis

122. Probenecid has the following action(s)

(a) Uricosuric (b) Analgesic
(c) Antiinflammatory (d) Both (a) and (c)

123. Vasodilation mediated by 5-HT1 receptors involve following mechanism

(a) Direct relaxant effect on smooth muscle
(b) Inhibition of norepinephrine
(c) Nitric oxide release from endothelial cells
(d) All of the above

124. Allopurinol decreases the plasma concentration of

(a) Hypoxanthine (b) Xanthine
(c) Uric acid (d) All of the above

125. Allopurinol is indicated in the following category of chronic gout patients

(a) Over producers of uric acid
(b) Under excretors of uric acid
(c) Those with tophi and/or renal urate stones
(d) All of the above

126. Nonsteroidal anti-inflammatory drugs reduce the diuretic action of furosemide by

(a) Preventing prostaglandin mediated intrarenal haemodynamic actions
(b) Blocking the action in ascending limb of loop of Henle
(c) Enhancing salt and water reabsorption in distal tubule
(d) Increasing aldosterone secretion

127. The glucocorticoid described as highly potent anti-inflammatory agent is

(a) Methyl prednisolone
(b) Cortisone
(c) Triamcinolone
(d) Dexamethasone

128. The corticosteroid with a longer duration of action is

(a) Cortisone (b) Prednisone
(c) Betamethasone (d) Fludrocortisone

129. Gold in rheumatoid arthritis

(a) Can cause regression of degenerative lesions of this disease
(b) Can reduce the concentrations of rheumatoid factor
(c) Does not halt the progress of the disease
(d) Is employed as first line therapy

130. Use of gold compounds in rheumatoid arthritis is beneficial in

(a) Early active disease not responding to NSAIDs
(b) Mild disease
(c) Advanced disease
(d) As first line therapy

131. Following 5-HT receptors is a ligand gated ion channel

(a) 5-HT_{1A} (b) 5-HT_{2A}
(c) 5-HT_{3} (d) 5-HT_{4}

132. In a person suffering from hepatic disease, the dose of pethidine should be

(a) Reduced because it shows idiosyncratic reaction
(b) Reduced because the clearance is reduced
(c) Increased because the clearance is increased
(d) Increased because patient becomes resistant to pethidine

133. Kinins play a role in which of the following

(a) Pain (b) Inflammation
(c) Asthma (d) Vasodilatation
(e) All of the above

134. The term eicosanoid refers to which of the following compounds

(a) Prostaglandins (b) Leukotrienes
(c) Interleukins (d) A + B

135. Which of the following is a side effect of NSAID ?

(a) GI ulceration
(b) Blockade of platelet agregation
(c) Inhibition of uterine motility
(d) Renal vasoconstriction
(e) All of the above

136. Which of the following has minimal anti-inflammatory action ?

(a) Piroxicam (b) Oxaprozin
(c) Enalapril (d) Amrinone

137. Probenecid increases excretion of

(a) Digoxin (b) Furosemide
(c) Enalapril (d) Amrinone

138. Which of the following is involved in pathobiology of inflammatory process ?

(a) Cytokines
(b) Cell adhension molecules
(c) Phospholipoase A_2
(d) All of the above

139. Following is the effect of histamine on small vessels

(a) Outward passage of plasma protein and fluid into the extracellular spaces
(b) Increase in the flow of lymph and its protein content
(c) Formation of edema
(d) All of the above

140. Earliest sign of aspirin toxicity is

(a) Tinnitus
(b) Metabolic acidosis
(c) Reye syndrome
(d) Respiratory depression

ANSWERS

1. b	2. d	3. b	4. c	5. c	6. d
7. e	8. e	9. b	10. d	11. d	12. b
13. b	14. b	15. d	16. b	17. d	18. c
19. c	20. b	21. a	22. d	23. c	24. d
25. a	26. c	27. a	28. d	29. b	30. a
31. e	32. d	33. d	34. a	35. e	36. d
37. d	38. a	39. c	40. c	41. a	42. b
43. b	44. a	45. d			
46. 1.c, 2.d, 3.c, 4.a, 5.b		47.1.e, 2.a, 3.b, 4.d, 5.c		48. a	49. b
50. e	51. c	52. d	53. c	54. d	55. a
56. a	57. d	58. c	59. c	60. a	61. d
62. d	63. d	64. d	65. a	66. c	67. d
68. b	69. c	70. c	71. c	72. b	73. a
74. b	75. a	76. c	77. b	78. d	79. b
80. b	81. b	82. a	83. d	84. d	85. b
86. b	87. d	88. a	89. b	90. a	91. b
92. c	93. c	94. d	95. c	96. b	97. d
98. d	99. c	100. d	101. d	102. d	103. b
104. b	105. c	106. a	107. c	108. b	109. a
110. c	111. b	112. d	113. c	114. d	115. a
116. d	117. a	118. d	119. d	120. b	121. c
122. a	123. d	124. c	125. d	126. a	127. d
128. c	129. b	130. a	131. c	132. b	133. e
134. d	135. e	136. c	137. c	138. d	139. d
140. a					

EXPLANATIONS FOR THE ANSWERS

1. b β-Aminoethylimidazole is a chemical name of histamine

6. d Prostaglandins are potent vasodilators and this action involves arterioles, precapillary sphincters and postcapillary venules. Prostaglandins have no effect on large veins.

9. b Acetaminophen or paracetamol is a para-aminophenol derivative.

Diclofenac is a phenylacetic acid derivative.

Piroxicam is an oxicam derivative.

Celecoxib is a benzenesulphonamide derivative.

9. b Auronofin is more hydrophilic gold compound than aurothioglucose and gold sodium thiomalate and hence is administered orally.

Aurothioglucose and gold sodium thiomalate show erratic absorption when administered orally and are generally administered intramuscularly.

17. d Histamine is an example of preformed mast cell mediator of inflammatory process. It produces vasodilation, vasopermeability, itch, cough and bronchoconstriction. PAF, LTC_4 and PGD_2 are lipid – derived mediators.

22. d Topical glucocorticoids e.g. beclomethasone, fluticasone, triamcinolone, budesonide, flunisolide or cromolyn are quite effective in allergic rhinitis.

27. a Dimaprit is a selective agonist of H_2 and H_3 receptors but not H1 receptors.

38. a In gastrointestinal tract, serotonin causes:

- Contraction of GI smooth muscles.
- Increase in muscle tone.
- Increase in peristalsis.

49. b TNF-α is a cytotoxicfactor and plays important role in the inflammatory response.

60. a Eicosa means twenty and hence the genral name eicosanoids for prostaglandins, thromboxanes and leukotrienes which contains 18, 20 and 22 carbon skeleton.

72. b Sulphinpyrazone inhibits the renal tubular reabsorption of uric acid and thus promotes the elimination of urate.

83. d Aspirin (in general salicylates) are contraindicated in the treatement of gout as they elevate uric acid levels and they also antagonize the actions of probenecid and sulfinpyrazone.

Indomethacin, diclofenac and piroxicam have no such effects and hence are not contraindicated.

95. c Histamine, leukotrienes and bradykinin are mediators of acute inflammation.

Interferons are involved in chronic inflammatory conditions.

107. c Histamine induced edema results from the action of H_1 receptors. This H_1 receptor effect results in outward passage of plasma protein and fluid from capillaries into extracellular spaces and increase in the flow of lymph and its protein content.

H_2 and H_3 receptors are not involved in these effects.

111. b 5-HT2 receptors are involved in the 5-HT mediated smooth muscle contraction and platelet aggregation.

123. d Vasodilation mediated by 5-HT_1 receptors involve various mechanisms:

- Direct relaxant effect on smooth muscles
- Release of NO from endothelial cells.
- Inhibition of norepinephrine from sympathetic nerve terminals.

131. c 5-HT_3 receptors are ligand gated ion channels.

5-HT_{1A}, 5-HT_{2A} and 5-HT_4 receptors are coupled to second messenger system as follows:

5-HT_{1A} : Decrease in cAMP

5-HT_{2A} : Increase in IP3/DAG

5-HT_4 : Increase in cAMP.

139. d In general, histamine dilates blood vessels in humans. It produces variety of effects on small blood vessels such as outward passage of plasma protein and fluid into the extracellular spaces, increase in the flow of lymph and its protein content and finally formation of edema.

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CHAPTER 6

CARDIOVASCULAR DRUGS

1. Relationship between arterial blood pressure (BP), cardiac outpur (CO) and peripheral vascular resistance (PVR) can be described as

(a) BP = COxPVR (b) BP = CO/PVR
(c) BP = PVR/CO (d) None of the above

2. If a fibrinolytic drug is used for treatment of acute myocardial infarction, the adverse drug effect that is most likely to occur is

(a) Acute renal failure
(b) Development of antiplatelet antibodies
(c) Encephalitis secondary to liver dysfunction
(d) Hemorrhagic stroke
(e) Neutropenia

3. Increased serum levels of which of the following may be associated with a decreased risk of atherosclerosis?

(a) Very low-density lipoproteins (VLDL)
(b) Low-density lipoproteins (LDL)
(c) Intermediate – density lipoproteins (IDL)
(d) High-density lipoproteins (HDL)
(e) Cholesterol

4. If the patient has a history of gout, which of the following drugs is most likely to exacerbate this condition?

(a) Colestipol
(b) Gemfibrozil
(c) Lovastatin
(d) Niacin
(e) Simvastatin

5. After being counseled about lifestyle and dietary changes, the patient was started on atorvastatin. During his treatment with atorvastatin, it is important to routinely monitor serum concentrations of

(a) Blood urea nitrogen (BUN)
(b) Alanine and aspartate aminotransferase
(c) Platelets
(d) Red blood cells
(e) Uric acid

6. Six months after beginning atorvastatin, the patient's total and LDL cholesterol concentrations remained above normal and he continued to have anginal attacks despite good adherence to his antianginal medications. His physician decided for niacin. The major recognized mechanism of action of niacin is

(a) Decreased lipid synthesis in adipose tissue
(b) Decreased oxidation of lipids in endothelial cells
(c) Decreased secretion of VLDL by the liver
(d) Increased endocytosis of HDL by the liver
(e) Increased lipid hydrolysis by lipoprotein lipase

7. Following drugs act on imidazoline receptor

(a) Moxonidine (b) Dexmedetomidine
(c) Tizanidine (d) All of the above

8. Which one of the following drugs increase digoxin plasma concentration by a pharmacokinetic mechanism?

(a) Captopril (b) Hydrochorothiazide
(c) Lidocaine (d) Quinidine
(e) Sulfasalazine

9. A 55-year-old patient currently receiving other drugs for another condition is to be started on diuretic therapy for mild heart failure. Thiazides are known to reduce the excretion of

(a) Diazepam (b) Fluoxetine
(c) Imipramine (d) Lithium
(e) Potassium

10. A hypertensive patient has been using nifedipine for some time without untoward effects. If he experiences a rapidly developing enhancement of the antihypertensive effect of the drug, it is probably due to

(a) Concomitant use of antacids
(b) Fods containing tyramine
(c) Grapefruit juice
(d) Induction of drug metabolism
(e) Over – the – counter decongestants

11. A drug lacking vasodilator properties that is useful in angina is

(a) Isosorbide dinitrate
(b) Metoprolol
(c) NIfedipine
(d) Nitroglycerin
(e) Verapamil

12. Aldosterone release is stimulated by

(a) Angiotensin I (b) Angiotensin
(c) Angiotensin III (d) Both (b) and (c)

13. Which one of the following drugs is used in the treatment of male impotence and activates prostaglandin E_1 receptors?

(a) Alprostadil (b) Fluoxetine
(c) Mifepristone (d) Sildenafil
(e) Zafirlukast

14. A treatment of angina that consistently decreases the heart rate and can prevent vasospastic angina attacks is

(a) Isosorbide dinitrate
(b) NIFedipine
(c) Nitroglycerin
(d) Propranolol
(e) Verapamil

15. In a patient receiving digoxin for congestive heart failure, condition that may facilitate the appearance of toxicity include

(a) Hyperkalemia (b) Hypernatremia
(c) Hypocalcemia (d) Hypomagnesemia
(e) All of the above

16. Activation of endothelin receptor ET_A, leads to

(a) Vasoconstriction
(b) Bronchoconstriction
(c) Aldosterone release
(d) All of the above

17. Methylxanthine drugs such as aminophylline cause which one of the following?

(a) Vasoconstriction in many vascular beds
(b) Decrease in the amount of cAMP in mast cells
(c) Bronchodilation
(d) Activation of the enzyme phosphodiesterase
(e) Sedation

18. Drugs used in asthma that often cause tachycardia and tremor include

(a) Beclomethasone (b) Cromolyn sodium
(c) Ipratropium (d) Metaproterenol
(e) All of the above

19. Following potassium sparing diuretic inhibits action of aldosterone

(a) Amiloride (b) Triamterene
(c) Spironolactone (d) All of the above

20. In patients with chronic granulomatous disease which of the following agents increases the synthesis of tumor necrosis factor, leading to activation of phagocytosis?

(a) Aldesleukin (b) Cyclosporine
(c) Filgrastim (d) Infliximab
(e) Interferon gamma

21. The mechanism of action of cyclosporine involves

(a) Activation of calcineurin
(b) Binding to cyclophilin to cause inhibition of a cytoplasmic phosphatase
(c) Blockade of interleukin – 2- receptors
(d) Inhibition of phospholipase A_2
(e) Suppression of bone marrow progenitors

22. Which one of the following drugs predictably prolongs the PR interval and increases cardiac contractility?

(a) Digoxin (b) Lidocaine
(c) Propranolol (d) Quinidine
(e) Verapamil

23. Which of the following is the drug of choice for management of cardiac arrhythmias that occur in digitalis toxicity?

(a) Amiodarone (b) Lidocaine
(c) Propranolol (d) Sotalol
(e) Prazosin

24. A 54-year-old woman with severe hypercholesterolemia is to be treated with a combination of niacin and atorvastatin. With this drug combination, it is important that the patient be monitored closely for signs of

(a) Agranulocytosis (b) Gallstones
(c) Lactic acidosis (d) Myopathy
(e) Thyrotoxicosis

25. Regarding verapamil, which one of the following statements is false?

(a) Angina pectoris is an important indication for the use of verapamil
(b) Contraindicated in the asthmatic patient
(c) Relaxes vascular smooth muscle
(d) Slows the depolarization phase of the action potential in AV nodal cells
(e) Used in management of supraventricular tachycardias

26. What drug is used to prevent embolism in the lung and during myocardial infarction?

(a) Alteplase
(b) Human growth hormone
(c) Granulocyte–macrophage colony – stimulating factor (GM–CSF)
(d) EPOGEN (EPO)
(e) None of the above

27. Which of the following cardiovascular agents is classified chemically as a glycoside?

(a) Nifedipine (b) Digoxin
(c) Flecainide (d) Cholestyramine
(e) Warfarin

28. Inhibition of carbonic anhydrase results in

(a) Abolition of $NaHCO_3$ reabsorption in proximal tubule
(b) Enhanced of $NaHCO_3$ reabsorption in proximal tubule
(c) Enhanced $NAHCO_3$ secretion in distal tubule
(d) None of the above

29. Which of the following cyclotron produced radiopharmaceuticals is used for assessing regional myocardial perfusion as part of an exercise stress test?

(a) Thallous chloride ^{201}TI USP
(b) Sodium iodide ^{123}I
(c) Gallium citrate ^{67}Ga USP
(d) Indium ^{111}In pentetate
(e) Cobalt ^{57}Co cyanocobalamin

30. Mary has a family history of heart disease and wonders if garlic would be beneficial to her. Which of the following statements is correct about garlic?

(a) Enteric-coated tablets release their contents in the stomach
(b) Side effects include heartburn, flatulence, and sweating
(c) The safety of garlic in pregnancy is unknown
(d) Garlic does not interact with warfarin

31. Exertion–induced angina, which is relieved by rest, nitroglycerin, or both, is referred to as

(a) Prinzmetal's angina
(b) Unstable angina
(c) Classic angina
(d) Variant angina
(e) Preinfarction angina

32. Myocardial oxygen demand is increased by all of the following factors except

(a) Exercise
(b) Smoking
(c) Cold temperatures
(d) Isoproterenol
(e) Propranolol

33. Which of the following agents used in prinzmetal's angina has spasmolytic actions, which increase coronary blood supply?

(a) Nitroglycerin
(b) Nifedipine
(c) Timolol
(d) Isosorbide mononitrate
(e) Propranolol

34. The oral absorption of following osmotic diuretic is negligible

(a) Glycerin (b) Mannitol
(c) Isosorbide (d) All of the above

35. Maximal medical therapy for treating angina pectoris is represented by which of the following choices?

(a) Diltiazem, verapamil, nitroglycerin
(b) Atenolol, isoproterenol, diltiazem
(c) Verapamil, nifedipine, propranolol
(d) Isosorbide, atenolol, diltiazem
(e) Nitroglycerin, isosorbide, atenolol

36. The term ischemic heart disease (IHD) is used to designate all of the following conditions except

(a) Angina pectoris
(b) Sudden cardiac death
(c) Congestive heart failur (CHF)
(d) Arrhythmias

37. Which of the following thrombolytic agents would be appropriate at this time?

(a) Anisoylated plasminogen streptokinase activator complex (APSAC)
(b) Streptokinase (SK)
(c) Recombinant tissue-type plasminogen activator (t-PA)

38. Strong anticholinergic effects limit the antiarrhythmic use of

(a) Quinidine (b) Procainamide
(c) Tocainide (d) Flecainide
(e) Disopyramide

39. Following loop diuretic is a phynoxy acetic acid derivative

(a) Furosemide (b) Bumetanide
(c) Ethacrynic acid (d) All of the above

40. Following potassium sparing diuretic is a mineralocorticoid receptor antagonist

(a) Amiloride (b) Triamterene
(c) Spironolactone (d) All of the above

41. A patient receiving a class I antiarrhythmic agent on a chronic basis complains of fatigue, low-grade fever, and joint pain suggestive of systemic lupus erythematosus (SLE). The patient is most likely receiving

(a) Lidocaine (b) Procainamide
(c) Quinidine (d) Flecainide
(e) Propranolol

42. Which of the following drugs is a class IV antiarrhythmic that is primarily indicated for the treatment of supraventricular tachyarrhythmias?

(a) Lbutilide (b) Mexiletine
(c) Diltiazem (d) Quinidine
(e) Propranolol

43. Which of the following agents has a direct effect on the AV mode, delaying calcium-channel depolarization?

(a) Lidocaine (b) Diltiazem
(c) Bretylium (d) Quinidine
(e) Lbutilide

44. Which of the following drugs is a class III

antiarrhythmic agent that is effective in the acute management of atrial fibrillation or atrial flutter of recent onset ?

(a) Bretylium (b) Lbutilide
(c) Metoprolol (d) Disopyramide

45. Which of the following groups of symptoms is most often associated with a patient who has right-sided heart failure?

(a) Nocturia, rales, paroxysmal nocturnal dyspnea
(b) Paroxysmal nocturnal dyspnea, pedal edema, jugular venous distention, hepatojugular reflux
(c) Jugular venous distention, hepatojugular reflux, pedal edema, shortness of breath
(d) Hepatojugular reflux, jugular venous distension, pedal edema, abdominal distention
(e) Paroxysmal nocturnal dyspnea, jugular venous distention, abdominal distention, shortness of breath

46. Which of the following combinations of drugs, when used together, reduce both preload and afterload?

(a) Nitroglycerin and isosorbide dinitrate
(b) Hydralazine and isosorbide dinitrate
(c) Captopril and methyldopa
(d) Prazosin and angiotension II
(e) Hydralazine and methyldopa

47. When digoxin is used in a patient with congestive heart failure (CHF), it works by exerting a positive effect on

(a) Stroke volume
(b) Total peripheral resistance
(c) Heart rate
(d) Blood pressure
(e) Venous return

48. Because of proven beneficial effects on "cardiac remodeling", these agents are now indicated as first line therapy in CHF patients. Which of the following is representative of this group of drugs?

(a) Hydrochlorothiazide
(b) Enalapril
(c) Furosemide
(d) Carvedilol
(e) Bumetanide

49. For treating the patient with congestive heart failure (CHF), which of the following dosages of dopamine is selected for its positive inotropic effects?

(a) 2.0 mg/kg/min
(b) 5–10 mg/kg/min
(c) 10–20 mg/kg/min
(d) 40 mg/kg/min
(e) 40 mg/kg/min

50. Milrinone is an example of

(a) Phosphodiesterase I inhibitor
(b) Phosphodiesterase II inhibitor
(c) Phosphodiesterase III inhibitor
(d) Phosphodiesterase IV inhibitor

51. Situations that predispose a digitalis-treated patient to toxicity include

(a) Hypercalcemia
(b) Hyperkalemia
(c) Hypermagnesemia

52. Unfractionated heparin binds to antithrombin III and inactivates clotting factor(s)

(a) Xa (b) Ixa
(c) Iia (d) All of the above
(e) None of the above

53. A patient to be commenced on oral anticoagulant therapy for DVT would be treated with

(a) Oral anticoagulant therapy with warfarin for a goal intenational normalized ration (INR) of 2–3
(b) Oral anticoagulant therapy with warfarin for a goal INR of 2.5–3.5
(c) Oral anticoagulant therapy with aspirin for a goal INR of 2–3

54. A patient on oral anticoagulant therapy is commenced on sulfamethoxazole-trimethoprim, double-strength twice daily. One may expect to see the international normalized ratio

(a) Increase
(b) Decrease
(c) Remain unchanged

55. When compared to unfractionated heparin, low molecular weight heparins have

(a) Preferential binding affinity to factor Xa relative to Iia (thrombin)
(b) Shorter half-lives
(c) Dose – dependent renal clearance

56. Acute renal failure (ARF) may be caused by all of the following except

(a) Acute tubular necrosis (ATN) due to drug therapy (e.g., aminoglycosides, contrast media)
(b) Severe hypotension or circulatolry collapse
(c) Decreased cardiac output, as from congestive heart failure
(d) Hemolysis, myoglobinuria
(e) Hyperkalemia

57. During Phase 2 of action potential in cardiac cell, depolarizing current through calcium channels is balanced by

(a) Delayed rectifier potassium current
(b) outward chloride channel
(c) Both (a) and (b)
(d) None of the above

58. The action of quinidine differs from that of digitalis in

(a) Decreasing irritability of cardiac muscle
(b) Preventing passage of impulses to the ventricle
(c) Increasing irritability of heart muscle
(d) Reducing conductivity
(e) None of the above

59. Overuse of digitalis may result in

(a) Habituation (b) Tolerance
(c) Addiction (d) Physical dependence
(e) Cummulative poisoning

60. The action of digitalis is enhanced by

(a) Sodium (b) Calcium
(c) Magnesium (d) Potassium
(e) Chloride

61. In case of acute pain of angina pectoris the most effective treatment would be to administer

(a) Mannitol hexanitrate
(b) Erythrityl tetranitrate
(c) Sodium nitrate
(d) Pentaerythritol tetranitrate
(e) Nitroglycerin

62. Which of the following is used to lower blood lipid levels?

(a) Trimethadione (b) Clofibrate
(c) Flucytosine (d) Coumarin
(e) Propranolol

63. The chief use of levoarterenol is to treat

(a) Shock (b) Diabetes
(c) Hypertension (d) Cardiac arrhythmias
(e) Iron deficiencies

64. Tolerance to nitroglycerin may be overcome by

(a) Initially using the largest safe dose of the drug
(b) Using other nitrites
(c) Temporarily discontinuing the drug for one or two weeks
(d) Use of higher doses
(e) None of the above

65. Quinidine can cause paradoxical tachycardia in a patient of

(a) Stick sinus syndrome
(b) Auricular extrasystoles
(c) Auricular fibrillation
(d) Ventricular extrasystoles

66. Quinidine is now used primarily for

(a) Conversion of auricular fibrillation to sinus rhythm
(b) Control of ventricular rate in atrial flutter
(c) Termination of ventricular tachycardia
(d) Prevention of recurrences of atrial and ventricular extrasystoles/tachycardias

67. Procainamide differs from quinidine in the following respect

(a) It does not cause paradoxical tachycardia
(b) It has no alfa adrenergic blocking activity
(c) It has little antivagal action
(d) Both (b) and (c)

68. In heart, potassium channels determine

(a) Pacemaker function
(b) Resting potential
(c) Action potential duration
(d) All of the above

69. Lidocaine is the preferred antiarrhythmic for emergency control of cardiac arrhythmias following acute myocardial infarction because

(a) It has a rapidly developing and titratable antiarrhythmic action
(b) It casues little myocardial depression and hypotension
(c) It has broad spectrum antiarrhythmic efficacy in atrial as well as ventricular arrhythmias
(d) Both (a) and (b)

70. Hypothyroidism is a possible consequence of prolonged therapy with

(a) Procainamide (b) Mexiletine
(c) Sotalol (d) Amiodarone

71. Which of the following drugs is preferred for termination of paroxysmal supraventricular tachycardia

(a) Digoxin (b) Quinidine
(c) Propranolol (d) Verapamil

72. The following drug is used to reduce the frequency of angina pectoris as well as to terminate an acute attack

(a) Digoxin (b) Furosemide
(c) Enalapril (d) Amrinone

73. Antianginal drugs afford the following benefit/benefits

(a) Terminate anginal attacks
(b) Decrease the frequency of anginal attacks
(c) Retard the progression of coronary artery disease
(d) Both (a) and (b)

74. Choose the correct statement about the action of nitrates on coronary vessels

(a) They mitigate angina pectoris by increasing total coronary flow
(b) They preferentially dilate conducting arteries without affecting resistance arterioles
(c) They preferentially dilate autoregulatory arterioles without affecting the larger arteries
(d) They increase subepicardial blood flow without affecting subendocardial blood flow

75. Organic nitrates relax vascular smooth muscle by

(a) Increasing intracellular cyclic AMP
(b) Increasing intracellular cyclic GMP
(c) Decreasing intracellular cyclic AMP
(d) Both (b) and (c)

76. Select the organic nitrate which undergoes minimal first-pass metabolism in the liver

(a) Glyceryl trinitrate
(b) Isosorbide dinitrate
(c) Isosorbide mononitrate
(d) Erythrityl tetranitrate

77. The primary mechanism of beneficial effect of glyceryl trinitrate in classical angina pectoris is

(a) Increase in total coronary blood flow
(b) Redistribution of coronary blood flow
(c) Reduction of cardiac preload
(d) Reduction of cardiac after load

78. Enhanced automaticity in cardiac cells may occur because of

(a) β-adrenergic stimulation
(b) Hypokalemia
(c) Mechanical stretch of cardiac muscles
(d) All of the above

79. Glyceryl trinitrate is administratered by all of the following routes except

(a) Oral (b) Sublingual
(c) Intramuscular (d) Intravenous

80. A patient of acute myocardial infarction being treated in intensive care unit developed left ventricular failure with raised central venous pressure. It was decided to use glyceryl trinitrate. Which route/method of administration would be most suitable.

(a) Sublingual
(b) Oral
(c) Intravenous bolus injection
(d) Slow intravenous infusion

81. A patient suffers from spisodic pain diffusely localized over the chest and upper abdomen, which is relieved by sublingual glyceryl trinitrate. He could be suffering from

(a) Angina pectoris
(b) Biliary colic
(c) Esophageal spasm
(d) All of the above

82. The dihydropyridines block the following type of calcium channels.

(a) L-type voltage sensitive channels
(b) T-type voltage sensitive channels
(c) N-type voltage sensitive channels
(d) Receptor operated calcium channels

83. Which of the following drugs is most likely to accentuate varient (Prinzmetal) angina ?

(a) Digoxin (b) Furosemide
(c) Enalapril (d) Amrinone

84. In cardiac cells, adenosine

(a) Causes shortening of action potential duration
(b) Depolarization
(c) Increase in normal automaticity
(d) All of the above

85. Which of the following antianginal drugs is most likely to produce tachycardia as a side effect ?

(a) Amlodipine (b) Nifedipine
(c) Diltiazem (d) Verapamil

86. Which of the following is not an attribute of amlodipine ?

(a) High and consistent oral bioavailability
(b) Large volume of distribution
(c) Generation of an active metabolite
(d) Long elimination half-life

87. Propranolol should not be prescribed for a patient of angina pectoris who is already receiving

(a) Nifedipine
(b) Felodipine
(c) Verapamil
(d) Isosorbide mononitrate

88. Which of the following drugs is a potassium channel opener ?

(a) Pinacidil (b) Hydralazine
(c) Glibenclamide (d) Amiloride

89. Though nitrates and calcium channel blockers are both vasodilators, they are used concurrently in angina pectoris because

(a) They antagonize each other's side effects
(b) Nitrates primarily reduce preload while calcium channel blockers primarily reduce after load
(c) Nitrates increase coronary flow while calcium
(d) Both (b) and (c)

90. 'Coronary steal phenomenon' has been noted most frequently with

(a) Glyceryl trinitrate (b) Dipyridamole
(c) Propranolol (d) Diltiazem

91. Which of the following drugs is believed to improve microcirculation in peripheral vascular diseases by promoting RBC flexibility ?

(a) Cyclandelate (b) Theophyline
(c) Pentoxiphyline (d) Nicotinic acid

92. Higher incidence of myocardial infarction and increased mortality has been noted with the use of the following antihypertensive drug

(a) Nifedipine (b) Verapamil
(c) Diltiazem (d) Lisinopril

93. Cardiac glycosides are obtained from following plant source.

(a) Rauwolfia serpentina
(b) Strophanthus gratus
(c) Ricinus commounts.
(d) Atropa belladonna

94. Therapeutic dose of digoxin in a normal individual has the following effects, except

(a) Increase in the speed of myocardial contractility
(b) No significant change in cardiac output
(c) Relaxation of peripheral vascular bed
(d) Increase in the force of myocardial contractility

95. Digoxin given for cardiac failure is extremely valuable in patients of

(a) Thyrotoxicosis (b) Beriberi
(c) Cor pulmonale (d) Atrial fibrillation

96. The agent given sublingually in an acute attack of angina pectoris is

(a) Glyceryl trinitrate
(b) Amyl nitrite
(c) Erythrital tetranitrate
(d) Pentaerythritol tetranitrate

97. Following statement is true about lidocaine

(a) Reduce the slope of Phase 4
(b) Threshold excitability is not altered
(c) Action potential is not affected
(d) All of the above

98. Aspirin in small doses (50 to 150 mg per day)

(a) Is of benefit in patients of unstable angina
(b) Has thrombolytic action
(c) PREFerentially inhibits prostacyclin synthetase enzyme
(d) MAY Alleviate need for Verapamil in variant angina

99. Major beneficial effect of nitrates in classical angina is due to

(a) Dilation of veins more than arteries
(b) Increase in total coronary blood flow
(c) An increase in the end diastolic size of the heart
(d) An increase in the heart rate

100. Major lipid class present in chylomicrons is

(a) Endogenous triglycerides
(b) Cholesterol esters
(c) Dietary triglycerides
(d) All of the above

101. Polymorphic ventricular tachycardia can occur when terfenadine

(a) Is coadministered with azithromycin
(b) Is coadministered with fluconazole
(c) Is given in higher doses
(d) Reduces QT interval

102. Digitalis was discovered by

(a) William Withering
(b) Ottolewi
(c) Walksman
(d) Dale

103. The cardiac slowing by digitalis in atrial fibrillation and congestive failure

(a) Is due partly to increased vagal activity
(b) Is due partly to decreased sympathetic activity
(c) Is due partly to depression of S.A. Node
(d) May be partly related to a vagal mediated increse in atrial frequency

104. After oral administration peak concentration of digoxin is reached in

(a) 1 to 2 mins (b) 30 to 60 mins
(c) 5 to 10 mins (d) 4 to 6 hours

105. The normal therapeutic plasma concentration of digitalis is

(a) 0.5 to 1.5 ng/ml and toxicity appears above 3 mg/ml
(b) 1 to 5 ng/μl and toxicity appears above 50 mg/ml
(c) 0.1 to 0.5 αg mg/ml and toxicity appears above 5
(d) 0.5 to 1.5 αg mg/ml and toxicity appears above 5 αg mg/ml

106. Drug of choice for digitalis induced arrhythmia is

(a) Propranolol (b) Phenytoin
(c) Xylocaine (d) Phenylephrine

107. In which of the following conditions, digitalis is most likely to be beneficial?

(a) Heart failure from valvular lesions
(b) Furosemide
(c) Heart disease with anaemia
(d) Heart failure from thyrotoxicosis

108. Nicotinic acid

(a) Decreases production of VLDL
(b) Decreases LDL levels
(c) Increases HDL levels
(d) All of the above

109. Which of the following would least likely benefit a patient in acute pulmonary edema due to congestive heart failure?

(a) Intravenous morphine
(b) Digoxin
(c) Oxygen
(d) Rotating tourniquets

110. Monoamine oxidase inhibitors

(a) Do not cause postural hypotension
(b) Are known to reduce blood pressure by depleting catecholamines
(c) Have a prompt hypotensive action
(d) Generally do not cause tachycardia

111. Digitalis is given before quinidine in the treatment of atrial fibrillation, because digitalis increase A-V conduction and counteracts

(a) The "Vagotonic" effect of quinidine and prevents "paradoxic" tachycardia
(b) The "Vagolytic" effect of quinidine and prevents "paradoxic" bradycardia
(c) The "Vagotonic" effect of quinidine and prevents paradoxic bradycardia
(d) The "Vagolytic" effect of quinidine and prevents paradoxic tachycardia

112. The earliest toxic symptom of chronic digitalis administration is

(a) Altered color vision
(b) Psychic symptoms
(c) Anorexia, nausea, vomiting
(d) Retrosternal pain

113. In normal condition sequence of conduction of cardiac action potential is

(a) SA node to AV node to bundle of His to atrium
(b) SA node to atrium to AV node to bundle of His
(c) SA node to atrium to bundle of His to AV node
(d) SA node to AV node to atrium to bundle of His

114. While treating a CHF patient with cardiac glycoside, one notices that the patient's resting heart rate, which previously had been 86/min is now 40/min. This would

(a) Probably be unrelated to drug administration
(b) Be the desired response of the drug
(c) Probably be the result of drug-induced heart block
(d) Be an indication for increasing the drug dose.

115. Digoxin differs from digitoxin in that digoxin

(a) Has a longer half life
(b) Is completely absorbed from the GI tract
(c) Is bound extensively to plasma proteins
(d) Its half-life is more dependent on the adequacy of renal function

116. Diazoxide is administered by slow IV-injection in emergency treatment of hypertension because

(a) The drug is rapidly biotransformed by hepatic microsomal enzymes
(b) The drug is highly lipid-soluble and quickly deposited in natural fat
(c) This measure is necessary to prevent severe hyperglycemia
(d) The drug is quickly inactivated by serum protein binding

117. Glyceryl trinitrate is generally taken by

(a) Oral route (b) Intravenous route
(c) Sublingual route (d) Subcutaneous route

118. Which of the following is longest acting nitrate?

(a) Glyceryl trinitrate
(b) Ethyt tetranitrate
(c) Octyl nitrite
(d) Pentaerythritol tetranitrate

119. Methaemoglobinaemia can occur with high doses of

(a) Digitalis (b) Nitrites
(c) Propranolol (d) All of the above

120. Cardiac glycoside consists of

(a) Aminoacids and sugar
(b) A steroid combined with sugar residue
(c) A polypeptide and sugar
(d) None of the above

121. Vascoconstriction is produced by following agent

(a) Sympathomimetic amines
(b) Eicosanoids
(c) Endothelin
(d) All of the above

122. Perhexillene meleate is a

(a) Vasodilator drug
(b) Cardiotonic drug
(c) Antihyperlipidaemic drug
(d) Urinary antiseptic

123. The dose of verapamil is

(a) 4 to 6 gms per day
(b) 40 to 80 gms thrice daily
(c) 1 to 10 mg thrice daily
(d) 250 mg once daily

124. Chronic use of nitrites may lead to

(a) Allergic response
(b) Addietion
(c) Atherosclerotic changes
(d) Tolerance

125. While treating auricular fibrillation, digitalization is necessary prior to quinidine because

(a) It prevents paradoxical increase in ventricular rate
(b) Quinidine is only effective in the presence of digitalis
(c) It reduces the dose and side effects of quinidine
(d) It antagonizes the extracardiac effects of quinidine

126. Which of the following pharmacological properties of quinidine is not useful clinically?

(a) Shorterning of A-V nodal refractory period due to vagolytic action
(b) Depression of cardiac contractility
(c) Decrease in the automaticity of the normal pacemaker
(d) Reduction in the slope of slow diastolic depolarization

127. Resperine is used in hypertension, only in low doses because

(a) It is a very strong antihypertensive
(b) Side effects become disproportionately marked
(c) High doses on chronic use cause addiction
(d) It has a very long duration of action

128. There is no rationale of giving digitoxin parenterally because

(a) It is very painful if given parenterally
(b) Its total initial oral and parenteral digitalization dose is same
(c) It is quickly metabolized if given I.V. or I.M.
(d) It is always preferred by I.V. route

129. For a longer duration of action nitroglycerine can be administered by which of the following routes

(a) Sublingual
(b) Inhalation
(c) Intravenous
(d) Cutaneous application

130. Activation of prothrombin to thrombin is carried out by

(a) Factor VIII (b) Factor V
(c) Factor IX (d) All of the above

131. Which of the following is not a calcium channel blocker?

(a) Verapamil (b) Diltiazam
(c) Prenylamine (d) Propranolol

132. In the treatment of cardiac shock, the drug of choice is

(a) Dopamine
(b) Propranolol
(c) Phenoxybenzamine
(d) Metaraminol

133. Polymorphic ventricular tachycardia can be a complication of

(a) Loratadine (b) Cetirizine
(c) Astemizole (d) C + D

134. In hypertension which drug besides lowering blood pressure arrests and even reverses cardiac hypertrophy

(a) ACE inhibitors
(b) Betablockers
(c) Calcium channel blockers
(d) Diuretics

135. The ACE inhibitor useful in hypertensive emergencies is

(a) Enalaprilat (b) Benzalaprilat
(c) Fosinoprilat (d) Quinoprilat

136. Effect of decreased vitamin K on action of warfarin is

(a) Enhanced anticoagulatory effect
(b) Decreased anticoagulatory
(c) No effect
(d) Unpredictable effect

137. Nitroglycerin ointment in clinical use is

(a) 1% (b) 2%
(c) 5% (d) 10%

138. Which of the following is directly acting vascular smooth muscle relaxant ?

(a) Verapamil (b) Minoxidil
(c) Clonidine (d) Diazoxide

139. The most potent stimulant for heart is

(a) Adrenaline (b) Noradrenaline
(c) Dopamine (d) Ephedrine

140. Fibrinolysis is mainly carried out by

(a) Tissue – type plasminogen activator
(b) Urokinase – type plasminogen activator
(c) Both (a) and (b)
(d) None of the above

141. Following is a phenothiazine analog with sodium channel blocking properties

(a) Moricizine (b) Mexiletine
(c) Tocainide (d) Propafenone

ANSWERS

1. a	2. d	3. d	4. d	5. d	6. c
7. a	8. d	9. d	10. c	11. b	12. d
13. a	14. e	15. d	16. d	17. c	18. d
19. c	20. e	21. b	22. a	23. b	24. d
25. b	26. a	27. b	28. a	29. a	30. b
31. c	32. e	33. b	34. b	35. d	36. c
37. c	38. e	39. c	40. c	41. b	42. c
43. b	44. b	45. d	46.b	47.a	48. b
49. b	50. c	51. a	52. d	53. a	54. a
55. a	56. e	57. a	58. a	59. e	60. b
61. e	62. b	63. a	64. c	65. c	66. d
67. d	68. d	69. d	70. d	71. d	72. a
73. d	74. b	75. b	76. c	77. c	78. d
79. c	80. d	81. d	82. a	83. a	84. a
85. b	86. c	87. c	88. a	89. b	90. b
91. c	92. a	93. b	94. c	95. d	96. a
97. a	98. a	99. a	100. c	101. c	102. a
103. a	104. d	105. a	106. b	107. a	108. b
109. d	110. d	111. d	112. c	113. b	114. c
115. d	116. d	117. c	118. d	119. b	120. b
121. d	122. a	123. b	124. d	125. a	126. a
127. b	128. b	129. d	130. b	131. d	132. a
133. d	134. a	135. a	136. b	137. b	138. a
139. a	140. c	141. a			

EXPLANATIONS FOR THE ANSWERS

1. a Arterial blood pressure is directly proportional to the blood flow, i.e., cardiac output and peripheral vascular resistance. This relationship is correctly represented by equation in 'A'

7. d Moxonidine acts mainly on imidazline I_1 receptors and produces antihypertensive effect.

Dexmedetomidine is a α_2-adrenergic receptor agonist.

Tizanidine is a spasmolytic agent.

12. d Both angiotensin II and III promote aldosterone release. Aldosterone promotes the reabsorption of sodium by distal renal tubules and this may increase the plasma volume and hypertension. Angiotensin I is inactive.

16. d Activation of ET_A receptors leads to vasoconstriction, bronchoconstriction and stimulation of aldosterone release.

Affinity of various endothelins for ET_A receptor is $ET_1 = ET_2 > ET_3$.

19. c Spironolactone binds with cytoplasmic mineralocorticoid receptors. It also decreases the interacellular formation of active metabolites of aldosterone.

Triamterene and amiloride directly interfere with sodium entry.

28. a Carbonic anhydrase inhibitors inhibit both the membrane and cytoplasmic forms of carbonic anhydrase and thus completely inhibit reabsorption of sodium bicarbonate in the proximal tuble.

34. b Both glycerin and isosorbide are orally active osmotic diuretics and hence show good oral absorption.

Mannitol shows negligible absorption.

39. c Ethacrynic acid is a phenoxy acetic acid derivative. Furosemide and bumetanide contain sulfonamide moiety in their structure.

40. c Spironolactone is an aldosterone antagonist. Aldosterone is a mineralocorticoid and mineralcorticoid receptors are present in epithelial cells of late distal tubule and collecting duct.

50. c Milrinone is an inhibitor of phosphodiesterase III and it produces positive inotropism via inhibition of cGMP. Examples of inhibitors of other phosphodiesterase isoforms are as follows:

Phosphodiesterase I : Vinopocetine

Phosphodiesterase II : Not available

Phosphodiesterase IV : Rolipram

57. a Phase 2 of action potential, also known as 'plateau phase' involves inward calcium current, which has a slower inactivation. This inward calcium current is balanced by outward delayed rectifier potassium current.

68. d Potassium channels play an important role in various aspects of action potential in the heart viz. pacemaker function, resting potential and action potential duration.

78. d β-Adrenergic stimulation, hypokalemia and mechanical stretch produce increase in phase 4 slope, leading to acceleration of pacemaker rate, which results in enhanced automaticity.

84. a In cardiac cells, adenosine acts on its specific membrane receptors and activates acetylcholine-sensitive potassium current, specifically in atrium, sinus and AV node. This results in shortening of action potential duration. Activation of potassium current also results in hyperpolarization and slowing of automaticity.

97. a Lidocaine blocks both open and inactivated cardiac sodium channels. It decreases automaticity mainly by reducing the slope of phase 4 and alters the threshold for cardiac excitability.

Lidocaine may shorten the duration of action potential because of blockade of sodium channels, which get inactivated late during action potential,

100. c Chylomicrons contain dietary triglycerides as the major lipid class.

VLDL contains endogenous triglycerides and IDL, LDL and HDL contain cholesterol esters as major lipid class.

108. d Nicotinic acid produces decrease in LDL levels because of decreased VLDL production and enhanced clearance of LDL precursors in liver. VLDL levels are decreased because of decreased delivery of free fatty acids to liver, decrease in triglyceride synthesis and decrease in VLDL-

triglyceride transport. Mechnism of increased levels of HDL by nicotinamide is not known but decreased clearance of apo A-I and decreased synthesis of apoA-II may play important role.

113. b The entire sequence of conduction of action potential under normal condition is as follows: SA node → Atria → AV node → Bundle of His, Purkinje fibers → Ventricles.

221. d Sympathomimetic amines, eicosanoids and endothelins act on their respective receptors and increase the calcium influx thereby production contraction of smooth muscles and hence vasoconstriction.

130. b Prothrombin, which is bound to phospholipid surface of platelets, is activated by factor Xa in the presence of actor V to thrombin.

136. a Warfarin acts as an anticoagulant by inhibiting enzymatic reduction of vitamin K to its active hydroquinone form and the inhibition is competitive. Thus, if there are decreased levels of vitamin K obviously there will be less competition for inhibition resulting in enhanced anticoagulatory effect of warfarin.

140. c Fibrinolysis (thrombolysis) is carried out by various endogenous plasminogen activators e.g. tissue-type plasminogen activator, urokinase-type plasminogen activator and also kallikrein and neutrophil elastase.

141. a Moricizine is a phenothiazine analogue with sodium channel blocking activity and is used in the treatment of ventricular arrhythmias.

Mexiletine and tocainide are analogous of lidocaine.

Propafenone has some structural similarities to propranolol.

CHAPTER 7

DRUGS USED IN RESPIRATORY DISORDERS

1. Which of the following terms best describes the antagonism of leukotriene's bronchoconstrictor effect (mediated at leukotriene receptors) by terbutaline (acting α adrenoceptors) in a patient with asthma?

(a) Pharmacologic antagonist
(b) Partial agonist
(c) Physiologic antagonist
(d) Chemical antagonist
(e) Noncompetitive antagonist

2. If therapy with multiple drugs causes induction of drug metabolism in your asthma patient, it will

(a) Result in increased smooth endoplasmic reticulum
(b) Result in increased rough endoplasmic reticulum
(c) Result in decreased enzymes in the soluble cytoplasmic fraction
(d) Require 3-4 months to reach completion
(e) Be irreversible

3. The Symptoms of allergen-mediated asthma result from which of the following?

(a) Increased release of mediators from mast cells
(b) Increased adrenergic responsiveness of the airways
(c) Increased vascular permeability of bronchial tissue
(d) Decreased calcium influx into the mast cells
(e) Decreased prostaglandin production

4. Which of the following will result from blockade of H_2 receptors?

(a) Decreased camp in cardiac muscle
(b) Increased camp in cardiac muscle
(c) Decreased IP_3 in gastric mucosa
(d) Increased IP_3 in gastric mucosa
(e) Increased IP_3 in smooth muscle

5. Toxicities of H_2 antihistamines include which one of the following?

(a) Blurred vision
(b) Diarrhea
(c) Orthostatic hypotension
(d) P450 inhibition
(e) Sleepiness

6. A patient undergoing cancer chemotherapy is vomiting frequently. A drug that might help in this situation is

(a) Bromocriptine (b) Cimetidine
(c) Ketanserin (d) Loratadine
(e) Ondansetron

7. Which of the following is most useful in the treatment of hyperprolactinemia ?

(a) Bromocriptine (b) Cimetidine
(c) Ergotamine (d) Ketanserin
(e) LSD

8. Drugs that can dilate bronchi during an acute asthmatic attack include all of the following except

(a) Epinephrine (b) Terbutaline
(c) Nedocromil (d) Theophyline
(e) Ipratropium

9. Which of the following is a nonselective but very potent and efficacious bonchodilator that is not active by the oral route?

(a) Aminophyline (b) Cromolyn
(c) Epinephrine (d) Ipratropium
(e) Metaproterenol

10. Which of the following is a prophylactic agent that appears to stabilize mast cells?

(a) Aminophyline (b) Cromolyn
(c) Epinephrine (d) Ipratropium
(e) Metaproterenol

11. Which of the following is a direct bronchodilator that is most often used in asthma by the oral route?

(a) Aminophyline (b) Cromolyn
(c) Epinephrine (d) Ipratropium
(e) Metaproterenol

12. Acute exacerbations of asthma can be triggered by all of the following except

(a) Bacterial of viral pneumonia
(b) Hypertsensitivity reaction to penicillin
(c) Discontinuation of asthma medication
(d) Hot, dry weather
(e) Stressful emotional events

13. Which of the following has overdose toxicity that includes insomnia, arrhythmias, and convulsions?

(a) Aminophyline (b) Cromolyn
(c) Epinephrine (d) Ipratropium
(e) Metaproterenol

14. Which of the following is a very long-acting β_2 – selective agonist that is used for asthma prophylaxis?

(a) Aminophyline (b) Cromolyn
(c) Epinephrine (d) Ipratropium
(e) Salmeterol

15. Which one of the following drugs is most suitable for management of essential tremor in a patient who has pulmonary disease?

(a) Diazepam (b) Levodopa
(c) Metoprolol (d) Propranolol
(e) Terbutaline

16. A drug useful in the treatment of asthma but lacking bronchodilator action, is

(a) Cromolyn (b) Ephedrine
(c) Isoproterenol (d) Metaproterenol
(e) Metoprolol

17. Relative to fexofenadine, diphenhydramine is more likely to

(a) Be used for treatment of asthma
(b) Be used for treatment of gastroesophageal reflux disease
(c) Cause cardiac arrhythmias in overdose
(d) Have efficacy in the prevention of motion sickness
(e) Increase the serum concentration of warfarin

18. Bacteria that make either a fementative or respiratory set of enzymes are known as

(a) Obligate anacerobes
(b) Obligate aerobes
(c) Microacerophiles
(d) Facultative organisms

19. The symptoms of allergen-mediated asthma result from which of the following?

(a) Increased release of mediators from mast cells
(b) Increased adrenergic responsiveness of the airways
(c) Inceased vascular permeability of bronchial tissue
(d) Decreased calcium influx into the mast cell
(e) Decreased prostaglandin production

20. Acute exacerbations of asthma can be triggered by all of the following except

(a) Bacterial or viral pneumonia
(b) Hypersensitivity reaction to penicillin
(c) Discontinuation of asthma medication

(d) Hot, dry weather
(e) Stressful emotional events

21. In the emergency department, the preferred first-line therapy for asthma exacerbation is

(a) Theophyline (b) A β-agonist
(c) A corticosteroid (d) Cromolyn sodium
(e) An antihistamine

22. Which of the following tests is used at home to assess therapy and determine if a patient with asthma should seek emergency care?

(a) Forced expiratory volume in one second (FEV_1)
(b) Forced vital capacity (FVC)
(c) Total lung capacity (TLC)
(d) Peak expiratory flow rate (PEFR)
(e) Residual volume (RV)

23. Which of the following agents and dosage regimens is the best choice of treatment for an asthma patient with rheumatoid arthritis who is considered sensitive to aspirin (experiences bronchospasm with use)?

(a) Lbuprofen, 800 mg three times daily
(b) Acetaminophen, 650 mg every 4 hours
(c) Gold injections, 25 mg intramuscularly once a week
(d) Azathioprine, 75 mg daily
(e) Cyclophosphamide, 100 mg daily

24. A drug administered by inhalation of powder as a prophylactic for asthma is

(a) Ephedrine (b) Disodium cromolyn
(c) Isoproterenol (d) Ocytriphylline
(e) Epinephrine

25. Which of the following may precipitate an asthma attack?

(a) Respiratory acidosis
(b) Viran and bacterial infections
(c) Respiratory alkalosis
(d) Cranberry jiuce
(e) Chocolate or Coca Cola

26. Terbutaline has a preference for stimulation of which of the following receptors?

(a) Alpha (b) Gamma
(c) Beta 1 (d) Beta 2
(e) Dopaminergic

27. The National Institutes of Health (NIH) guidelines for the treatment of asthma recommended institution of routine inhaled corticosteroids when patients are classified as having greater than or equal to which type of asthma?

(a) Mild intermittent
(b) Mild persistent
(c) Moderate persistent
(d) Severe persistent

28. Isoxuprine is used to treat

(a) Asthma (b) Severe hypotension
(c) Nasal congestion (d) Premature labor
(e) Hypertension

29. The most likely complication of prolonged use of nasal decongestant drops is

(a) Atrophic rhinitis
(b) Hypertrophy of nasal mucosa
(c) Naso-pharyngeal moniliasis
(d) Blockage of Eustachian tubes

30. Which of the following is a selective H_1 receptor agoinist ?

(a) 4-methyl histamine
(b) Impromidine
(c) 2-Thiazolyl ethylamine
(d) Mepyramine

31. Fall in blood pressure caused by larger doses of histamine is blocked by

(a) H_1 antihistaminics alone
(b) H_2 ANTAgonists alone
(c) Combination of H_1 and H_2 antagonists
(d) None of the above

32. Histamine is involved as a mediator in the following pathological conditon

(a) Cocaine (b) Dibucaine
(c) Lidocaine (d) Procaine

33. In the emergency department, the preferred first-line therapy for asthma exacerbation is

(a) Theophylline (b) A β-agonist
(c) A corticosteroid (d) Cromolyn sodium
(e) An antihistamine

34. The capacity of an antihistaminic to produce sedation depends on the following except

(a) Relative affinity for central versus peripheral H_1 receptors
(b) Ability to penetrate blood-brain barrier
(c) Individual susceptibility
(d) Ratio of H_1 : H_2 blockade produced by the drug

35. While prescribing the conventional H_1 antihistaminics the patient should be advised to avoid

(a) Driving motor vehicles
(b) Consuming processed cheese
(c) Strenuous physical exertion
(d) All of the above

36. The antihistaminc which has calcium channel blocking and labyrinthine suppressant property is

(a) Cyproheptadine (b) Cinnarizine
(c) Clemastine (d) Cetirizine

37. Erythromycin should not be given to patient being treated with terfenadine because

(a) Erythromycin induces the metabolism of terfenadine
(b) Dangerous ventricular arrhythmias can occur
(c) Terfenadine inhibits metabolism of erythromycin
(d) Terfenadine antagonizes the antimicrobal action of erythromycin

38. Select the H_1 antihistaminic which is used topically in the nose for allergic rhinitis

(a) Deep intra-abdominal operation
(b) Trachial intubation
(c) Tetanus
(d) Diagonosis of myasthenia gravis

39. H_1 antihistaminics are beneficial in

(a) All types of allergic disorders
(b) Certain type I allergic reactions only
(c) Anaphylactic shock(d) Bronchial asthma

40. The action of 5-Hydroxy tryptamine mediated by the 5-HT_3 receptor is

(a) Vasoconstriction (b) Bradycardia
(c) EDRF release (d) Platelet aggregation

41. Tachyphylaxis to many actions on repeated injection is a feature of the following autocoid

(a) Histamine (b) 5-Hydroxytryptamine
(c) Bradykinin (d) Angiotensin

42. The smooth muscle stimulating action of 5-HT is most marked in the

(a) Bronchi (b) Intestines
(c) Ureter (d) Billary tract

43. The 5-HT antagonist that has anti-hypertensive property is

(a) Methysergide (b) Cyproheptadine
(c) Ketanserin (d) Ondansetron

44. The most important receptor involved in cytotoxic drug induced vomiting is

(a) Histamine H_1 receptor
(b) Serotonin 5-HT_3 receptor
(c) Dopamine D2 receptor
(d) Opioid μ receptor

45. Which of the following expectorants acts both directly on the airway mucosa as well as reflexly ?

(a) Potassium iodide (b) Guaiphenesin
(c) Terpin hydrate (d) Bromhexine

46. Bromhexine acts by

(a) Inhibiting cough center
(b) Irritating gastric mucosa and reflexly increasing bronchial secretion
(c) Depolymerizing mucopolysaccharides present
(d) Desensitizing stretch receptors in the lungs

47. The primary goals of asthma therapy include all of the following except

(a) maintain normal activity levels
(b) maintain control of symptoms
(c) avoid adverse effects of asthma medications
(d) prevent acute exacerbations and chronic symptoms
(e) prevent destruction of lung tissue

48. Antitussives act by

(a) Liquifying bronchial secretions
(b) Raising the threshold of cough centre
(c) Reducing cough inducing impulses from the lungs
(d) Both (b) and (c)

49. Which of the following antitussive is present in opium but has no analgesic or addicting properties ?

(a) Noscapine (b) Codeine
(c) Pholcodeine (d) Ethylmorphine

50. Bronchodilators are useful in cough

(a) Only when cough is non-productive
(b) Only when cough is associated with thick sticky secretions
(c) Only when reflex bronchoconstriction is associated
(d) Irrespective of nature of cough or associated features

51 The common and dose related side effect of salbutamol is

(a) Rise in blood pressure
(b) Muscle tremor
(c) Hyperglycaemia
(d) Central nervous system stimulation

52. Which of the following tests is used at home to assess therapy and determine if a patient with asthma should seek emergency care?

(a) Forced expiratory volume in one second (FEV_1)
(b) Forced vital capacity (FVC)
(c) Total lung capacity (TLC)
(d) Peak expiratory flow rate (PEFR)
(e) Residual volume (RV)

53. In a patient of bronchial asthma, inhaled salbutamol produces the following effect(s).

(a) Inhibits antigen-antibody reaction in the lungs
(b) Causes bronchodilatation
(c) Reduces bronchial hyperreactivity
(d) Both (b) and (c)

54. Select the correct statement about salmeterol.

(a) It is a long acting selective β_2 agonist bronchodilator
(b) It is a bronchodilator with anti-inflammatory property
(c) It is a β blocker that can be safely given to asthmatics
(d) It is an antihistaminic with mast cells stabilizing property

55. Caffeine is more powerful than theophylline in exerting the following action

(a) Bronchodilatation
(b) Cardiac stimulation
(c) Diuresis
(d) Augmentation of skeletal muscle contractility

56. Methylxanthines exert the following action (s) at cellular/molecular level

(a) Intracellular release of Ca^{2+}
(b) Antagonism of adenosine
(c) Inhibition of phosphodiesterase
(d) All of the above

57. Relatively higher dose of theophylline is required to attain therapeutics plasma concentration in

(a) Smokers
(b) Congestive heart failure patients
(c) Those receiving erythromycin
(d) Those receiving cimetidine

58. The antiasthma drug which cannot be administered by inhalation is

(a) Theophylline (b) Ipratropium bromide
(c) Budesonide (d) Terbutaline

59. A 10 year old child suffers from exercise induced asthma: Which is the most suitable first line drug for regular prophylactic therapy ?

(a) Oral salbutamol
(b) Oral theophylline
(c) Inhaled sodium cromoglycate
(d) Inhaled beclomethasone dipropionate

60. Which of the following drugs is neither bronchodilator nor anti-inflammatory, but has antihistaminic and mast cell stabilizing activity ?

(a) Sodium cromoglycate
(b) Ketotifen

(c) Beclomethasone dipropionate
(d) Mepyramine maleate

61. The most consistent, pronounced and sustained relief of symptoms in chronic bronchial asthma is afforded by

(a) β_2 sympathomimetics
(b) Anticholinergics
(c) Sodium cromoglycate
(d) Corticosteroids

62. Intransasal spray of budesonide is indicated in

(a) Common cold
(b) Acute vasomotor rhinitis
(c) Perennial vasomotor rhinitis
(d) Epistaxis

63. In patients of bronchial asthma inhaled corticosteroids achieve the following except

(a) Reduce the need for bronchodilator medication
(b) Control an attack of refractory asthma
(c) Reduce bronchial hyperreactivity
(d) Reverse diminished responsiveness to sympathomimetic bronchodilators

64. Budesonide is a

(a) Nonsteroidal anti-inflammatory drug
(b) High ceiling diuretic
(c) Inhaled corticosteroid for asthma
(d) Contraceptive

65. In an asthma patient treated with systemic corticosteroids, bronchodilator drugs

(a) Are not needed
(b) Are contraindicated
(c) May be used on 'as and when required' basis
(d) Are ineffective

66. To be a useful inhaled glucocorticoid the drug should have

(a) High oral bioavailability
(b) Low oral bioavailability
(c) Additional bronchodilator activity
(d) Prodrug character

67. Histamine

(a) May be released from mast cells by a number of therapeutic agents
(b) Causes sedation
(c) Decreases the force of contraction of ventricular muscle
(d) Can cause strong contractions of the gravid human uterus

68. Chronic Bronchitis is characterized by

I. the distruction of central and peripheral portions of the acinus
II. an increased number of mucous glands and goblet cells
III. edema and inflammation of the bronchioles

(a) only I is correct
(b) only III is correct
(c) I and II are correct
(d) II and III are correct
(e) I, II and III are correct

69. Smooth muscle relaxation is due to stimulation of which type of histamine receptors

(a) H_1 (b) H_2
(c) H_3 (d) All of the above

70. All the following are employed in inhalation therapy of asthma except

(a) Beclomethasone (b) Budesonide
(c) Dexamethasone (d) Triamcinolone

71. Which xanthine derivative has no function in asthma ?

(a) Theophylline (b) Pentoxyphyllin
(c) Enprofylin (d) None of the above

72. What is symport ?

(a) Counter transport
(b) Contransport
(c) Carrier mediated diffusion
(d) Solvent drug

73. Pyridostigmine differs from neostigmine in that

(a) More potent orally
(b) Longer acting
(c) Less muscarinic side effects
(d) All of the above

ANSWERS

1. c	2. a	3. a	4. a	5. d	6. e
7. a	8. c	9. c	10. b	11. a	12. d
13. a	14. e	15. c	16. a	17. d	18. d
19. a	20. d	21. b	22. d	23. c	24. b
25. b	26. d	27. b	28. d	29. a	30. c
31. c	32. b	33. b	34. d	35. a	36. b
37. b	38. d	39. b	40. b	41. b	42. b
43. c	44. b	45. a	46. c	47. e	48. d
49. a	50. c	51. b	52. d	53. b	54. a
55. d	56. d	57. a	58. a	59. c	60. b
61. d	62. c	63. b	64. c	65. c	66. b
67. d	68. c	69. b	70. c	71. b	72. b
73. b					

EXPLANATIONS FOR THE ANSWERS

3. a In asthma, airborne antigen binds to the mast cell, activating the immunoglobulin E (IgE)-mediated process. Mediators (e.g., histamine, leukotrienes, prostaglandins) are then released, causing bornchoconstriction and tissue edema.

12. d Exacerbations of asthma can be triggered by allergens, respiratory infections, occupational stimuli (e. g., fumes from gasoline or paint), emotions, and environmental factors. Studies have shown that cold air can cause release of mast cells mediators by an undetermined mechanism. Hot, dry air does not cause this release.

27. b The National Institutes of Health (NIH) guidelines recommend routine use of inhaled corticosteroids in patients who have mild persistent asthma. Short-acting β-agonist administered in a nebulizer or administered as a subcutaneous agent is the most appropriate first line therapy.

33. b In an emergency situation, the most rapidly acting agent is used first. Selection of the route of administration depends on the severity of the attack. An inhaled β-agonist administered in a nebulizer or administered as a subcutaneous agent is the most appropriate first-line therapy.

47. e Asthma is characterized by reversible airway obstruction in response to specific stimuli. Mast cells release mediators, which trigger bronchoconstriction. After an acute attack, in most cases symptoms are minimal, and pathological changes are not permanent. Unlike asthma, chronic obstructive pulmonary disease does cause progressive airway destruction, chronic bronchitis by excessive mucus production and other changes, and emphysema by destruction of the acinus.

52. d In monitoring of asthma therapy at home, peak expiratory flow rate (PEFR) is the best test for assessment of therapy, trigger identification, and the need for referral to emergency care. It is recommended for patients who have had severe exacerbations of asthma, who are poor perceivers of asthma symptoms, and those with moderate to severe disease.

68. d Chronic bronchitis is characterized by an increase in the number of mucous and goblet cells due to bronchial irritation. This results in increased mucus production. Other changes include edema and inflammation of the bronchioles and changes in smooth muscle and cartilage. Emphysema is a permanent destruction of the central and peripheral portions of the acinus distal to the bronchioles. In this disease, adequate oxygen reaches the alveolar duct, due to increased rate of breathing, but perfusion is abnormal.

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CHAPTER 8

ANTIBIOTICS

1. **Isoniazid is a primary antitubercular agent that**
   (a) Requires pyridoxine supplementation
   (b) May discolor the tears, saliva, urine or feces orange-red
   (c) Causes ocular complications that are reversible if the drug is discontinued
   (d) May be ototoxic and nephrotoxic
   (e) Should never be used due to hepatotoxic potential

2. **A 36-year-old woman recently treated for leukemia is admitted to hospital with malaise, chills and high fever. Gram stain of blood reveals the presence of gram-negative bacilli. The initial diagnosis is bacteremia and parenteral antibiotics are indicated. The records of the patient reveal that she had a severe uriticarial risk, hypotension, and respiratory difficulty following oral penicillin V about 6 months ago. The most appropriate drug regimen for empiric treatment is**
   (a) Ampicillin plus sulbactam
   (b) Aztreonam
   (c) Cefazolin
   (d) Imipenem plus cilastatin
   (e) Ticarcillin plus clavulanic acid

3. **Which one of the following statements about cefotetan is accurate?**
   (a) It is active against MRSA strains
   (b) It is the drug of choice in community-acquired pneumonia
   (c) It is a fourth-generation cephalosporin
   (d) It decreases prothrombin time
   (e) Its antibacterial spectrum include Bacteroides fragilis

4. **A patient needs antibiotic treatment for native valve, culture-positive infective enterococcal endocarditis. His medical history includes a severe anaphylactic reaction to penicillin G during the past year. The best approach would be treatment with**
   (a) Amoxicillin/clavulanate
   (b) Aztreonam
   (c) Cefazolin plus genatamicin
   (d) Meropenem
   (e) Vancomycin

5. **This drug has activity against many strains of Pseudomomas aeruginosa. However, when it is used alone, resistance has emerged during the course of treatment. The drug should not be used in penicillin-allergic patients. Its activity against gram-negative rods is enhanced if it is given in combination with tazobactam**
   (a) Amoxicillin (b) Aztreonam
   (c) Imipenem (d) Piperacillin
   (e) Vancomycin

6. Which of the following statements about vancomycin is accurate?

(a) It is bacteriostatic
(b) It binds to PBPs
(c) It is not susceptible to penicillinase
(d) It has the advantage of oral bioavailability
(e) Staphylococcal enterocolitis occurs commonly with its use

7. Which one of the following statements about ampicillin is false?

(a) Its activity is enhanced by sulbactam
(b) It causes maculopapular rashes
(c) It is the drug of choice for Listeria monocytogenes infection
(d) It eradicates most strains of MRSA
(e) Pseudomembranous colitis may occur with its use

8. The mechanism of antibacterial action of tetracycline involves

(a) Binding to a component of the 50S ribosomal subunit
(b) Inhibition of translocase activity
(c) Blockade of binding of aminoacyl – tRNA to bacterial ribosomes
(d) Selective inhibition of ribosomal peptidyl transferases
(e) Inhibition of DNA–dependent RNA polymerase

9. Clarithromycin and erythromycin have very similar spectrums of antimicrobial activity. The major advantage of clarithromytcin is that it

(a) Eradicates mycoplasmal infections in a single dose
(b) Is active against strains of streptococci that are resistant to erythromycin
(c) Is more active against Mycobacterium avium complex
(d) Does not inhibit live drug-metabolizing enzymes
(e) Acts on methicillin-resistant strains of staphylococci

10. The primary mechanism underlying the resistance of gram-positive organisms to macrolide antibiotics is

(a) Methylation of binding sites on the 50S ribosomal subunit
(b) Formation of esterases that hydrolyze the lactone ring
(c) Increased activity of efflux mechanisms
(d) Formation of drug-inactivating acetyltranferases
(e) Decreased drug permeability of the cytoplasmic membrane

11. The appearance of markedly vacuolated, nucleated red cells in the marrow, anemia, and reticulocytopenia are characteristic dose-dependent side effects of

(a) Azithromycin (b) Chloramphenicol
(c) Clindamycin (d) Doxycycline
(e) Linezolid

12. In a patient with culture-positive enterococcal endocarditis who has failed to respond to vancomycin because of resistance, the treatment most likely to be effective is

(a) Clarithromycin (b) Erythromycin
(c) Linezolid (d) Minocycline
(e) Ticarcillin

13. All of the following factors may increase the risk of nephrotoxicity from gentamicin therapy except

(a) age over 70 years
(b) prolonged courses of gentamicin therapy
(c) concurrent amphotericin B therapy
(d) trough gentamicin levels below 2 mg/ml
(e) concurrent cisplatin therapy

14. Which one of the following antibiotics is likely to be most effective agent in the treatment of an infection due to enterococci if used in conjuction with penicillin G?

(a) Amikacin (b) Gentamicin
(c) Netilmicin (d) Streptomycin
(e) Tobramycin

15. Regarding the antibacterial action of gentamicin, which one of the following statements is most accurate?

(a) Efficacy is directly proportionate to the time that the plasma level of the drug is greater than the minimal inhibitory concentration

(b) The antibacterial action of gentamicin is not concentration - dependent
(c) Gentamicin continues to exert antibacterial effects even after plasma levels decrease below detectable levels
(d) Antibacterial activity is often reduced by the presence of an inhibitor of cell wall synthesis
(e) The antibacterial action of gentamicin is time – dependent

16. Which one of the following drugs is most likely to be effective against multidrug – resistant strains of M tuberculosis, including those resistant to streptomycin?

(a) Amikacin (b) Clarithromycin
(c) Gentamicin (d) Meropenem
(e) Spectinomycin

17. Sterptomycin has no useful activity in the treatment of

(a) Bubonic plague (b) Brucellosis
(c) Lyme disease (d) Tuberculosis
(e) Tularemia

18. Your 23-year-old female patient is pregnant and has gonorrhea. The past medical history includes anaphylaxis following exposure to amoxicillin. Worried about compliance, you would like to treat this patient with a singly dose, so you chose

(a) Cefixime (b) Ceftriaxone
(c) Ciprofloxacin (d) Spectinomycin
(e) Tetracycline

19. In the empiric treatment of severe bacterial infections of unidentified entiology, this drug, often used in combination with an aminoglycoside, provides coverage against many staphylococci

(a) Amoxicillin (b) Clavulanic acid
(c) Erythromycin (d) Nafcillin
(e) Tetracycline

20. Which one of the following statements about "one daily" dosing with aminoglycosides is false ?

(a) It is convenient for outpatient therapy
(b) Adjustment of dosage is less important in renal insufficiency
(c) Less nursing time is required
(d) It is often less toxic than conventional (multiple)dosing regimens
(e) Under-dosing is less of a problem

21. Regarding the recently introduced lipid formulation of amphotericin B, which one of the following statements is accurate?

(a) Affinity of amphotericin B for these lipids is greater than affinity for ergosterol
(b) They are less expensive to use than conventional amphotericin B
(c) They are more effective in fungal infections because they increase tissue uptake of amphotericin B
(d) They may decrease nephrotoxicity of amphotericin B
(e) They have wider spectrums of antifungal activity than conventional formulations of amphotericin B

22. Which one of the following antimicrobial drugs does not require supplementation of dosage following hemodialysis?

(a) Ampicillin (b) Cefazolin
(c) Ganciclovir (d) Tobramycin
(e) Vancomycin

23. The persistent suppression of bacterial growth that may occur following limited exposure to some antimicrobial drugs is called

(a) Time-dependent killing
(b) The post antibiotic effect
(c) Clinical synergy
(d) Concentration – dependent killing
(e) Sequential blockade

24. In which of the following groups do all four drugs warrant careful monitoring for drug-related seizures in high-risk patients?

(a) Penicillin G, imipenem, amphotericin B, metronidazol
(b) Penicillin G, chlormphenicol, tetracycline, vancomycin
(c) Imipenem, tetracycline, vancomycin, sulfadiazine
(d) Cycloserine, metronidazole, vancomycin, sulfadiazine
(e) Metronidazole, imipenem, doxycycline, erythromycin

25. Which one of the following antibiotics is a potent inducer of hepatic drug-metabolizing enzymes?

(a) Ciprofloxacin (b) Cyclosporine
(c) Erythromycin (d) Rifampin
(e) Tetracycline

26. Beta – lactamase production by strains of Haemophilus influenzae, Moraxella catarrhalis, and Neissera gonorrhoeae confers resistance against penicillin G. which one of the following antibiotics is most likely to be effective against all strains of each of the above organisms?

(a) Ampicillin (b) Ceftriaxone
(c) Clindamycin (d) Gentamicin
(e) Piperacillin

27. A 19-year-old woman with recurrent sinusitis has been treated with different antibiotics on several occasions. During the course of one such treatment she developed a severe diarrhea and was hospitalized. Sigmoidoscopy revealed colitis, and pseudomembranes, were confirmed histologically. Which of the following drugs, administered orally, is most likely to be effective in the treatment of colitis due to C difficile?

(a) Ampicillin (b) Cefazolin
(c) Clindamycin (d) Metonidazole
(e) Tetracycline

28. Bleomycin is used in most effective drug combination regiment for the chemotherapy of testicular carcinoma. Which one of the following statements about the drug is accurate?

(a) Acts mainly in the M phase of the cell cycle
(b) Derived from the bark of yew trees
(c) Myelosuppression is dose-limiting
(d) Peripheral neuropathy occurs in more than 50% of patients
(e) Pulmonary infiltrates and fibrosis may occur

29. A high school student presents with headache, fever, and cough of 2 day's duration. Sputum is scant and nonpurulent and a Gram stain reveals many white cells but no organisms. Since this patient appears to have atypical pneumonia. You should initiate treatment with

(a) Cefazolin (b) Clindamycin
(c) Erythromycin (d) Gentamicin
(e) Trovafloxacin

30. Chloramphenicol is particularly effective in the treatment of

(a) Diphtheria (b) Tuberculosis
(c) Emphysema (d) Rickettsial diseases
(e) Streptomyces pyogenes infections

31. An advantage of bleomycin over most antineoplastic drugs is its

(a) Rapid onset of action
(b) Lack of toxicity to all normal cells
(c) Relative lack of bone marrow toxicity
(d) Very broad spectrum of activity
(e) Both (a) and (b)

32. The drug of choice for scarlet fever is

(a) Tetracycline (b) Sulfonamides
(c) Penicillin (d) Chloromycetin
(e) Novobiocin

33. An advantge of betamethasone acetate over betamethasone sodium phosphate is

(a) Fewer allergic reactions
(b) Prompter action
(c) More sustained action
(d) Greater solubility
(e) There is no advantage

34. Cyclosporine is used for

(a) Allergies
(b) Angina
(c) Prevention of transplant rejection
(d) Steroid deficiency
(e) Treating led poisoning

35. The plasma half life of pencillin-G is longer in the new born because their

(a) Plasma protein level is low
(b) Drug metabolizing enzymes are immature

(c) Glomerular filtration rate is low
(d) Tubular transport mechanisms are not well developed

36. Choose the correct statement about the role of opioid antimotility drugs in the management of diarrhoeas

(a) They are used to control diarrhoea irrespective of its etiology
(b) They should be used only as a short-term measure after ensuring that enteroinvasive organisms are not involved
(c) They are used as adjuvants to antimicrobial therapy of diarrhoea
(d) They are the drugs of choice in irritable bowel syndrome diarrhoea

37. Spectinomycin is an aminoglycoside-like antibiotic indicated for the treatment of

(a) Gram-negative bacillary septicemia
(b) Tuberculosis
(c) Penicillin-resistant gonococcal infections
(d) Syphilis
(e) Gram-negative meningitis due to susceptible organisms

38. Select the antibiotic with a high therapeutic index

(a) Streptomycin (b) Doxy
(c) Cephalexin (d) Polymyxin B

39. Which of the following organisms is notorious for developing antimicrobial resistance rapidly ?

(a) Streptococcus pyogenes
(b) Meningococcus
(c) Treponema pallidum
(d) Escherichia coli

40. Widespread and prolonged used of an antibiotic leads to emergence of drug resistant strains because antibiotics

(a) Induce mutation in the bacteria
(b) Promote conjugation among bacteria
(c) Allow resistant strains to propagate preferentially
(d) All of the above

41. Of the following which is the most important mechanism of concurrent acquisition of multidrug resistance among bacteria ?

(a) Mutation (b) Conjugation
(c) Transduction (d) Transformation

42. Methicillin resistant staphylococci do not respond to β-lactam antibiotics because

(a) They produce a β-lactamase which destroys methicillin and related drugs
(b) They elaborate an amidase which destroys methicillin and related drugs
(c) They have acquired a penicillin binding protein which has low affinity for β-lactam antibiotics
(d) They are less permeable to β-lactam antibiotics

43. A man has an Escherichia coli bacteremia with a low-grade fever (101.6°F). Appropriate management of his fever would be

(a) Give acetaminophen 650 mg orally every 4 hours
(b) Give aspirin 650 mg orally every 4 hours
(c) Give alternating doses of aspirin and acetaminophen every 4 hours
(d) Withhold antipyretics, and use the fever curve to monitor his response to antibiotic therapy
(e) Use tepid water baths to reduce the fever

44. Superinfections are more common with

(a) Use of narrow spectrum antibiotics
(b) Short courses of antibiotics
(c) Use of antibiotics that are completely absorbed from the small intestines
(d) Use of antibiotic combinations covering both gram positive and gram negative bacteria

45. Select the antibiotic whose dose must be reduced in patients with renal insufficiency

(a) Ampicillin (b) Chloramphenicol
(c) Tobramycin (d) Erythromycin

46. Which antimicrobial should be avoided in patients of liver disease ?

(a) Chlortetracycline
(b) Cotrimoxazole
(c) Cephalexin
(d) Ethambutol

47. What is break point concentration of an antibiotic ?

(a) Concentration at which the antibiotic lyses the bacteria
(b) Concentration of the antibiotic which demarks between sensitive and resistant bacteria
(c) Concentration of the antibiotic which overcomes bacterial resistance
(d) Concentration at which a bacteriostatic antibiotic becomes bactericidal

48. Which type of antimicrobial drug combination is most likely to exhibit antagonism ?

(a) Bactericidal + Bactericidal
(b) Bactericidal + Bacteriostatic for a highly sensitive organism
(c) Bactericidal + Bacteriostatic for a marginally sensitive organism
(d) Bacteriostatic + Bacteriostatic

49. Indicate the sulfonamide whose sodium salt yields a nearly neutral solution which is suitable for topical use in the eye

(a) Sulfadiazine (b) Sulfacetamide
(c) Sulfamerazine (d) Sulfamethizole

50. Sulfamethoxypyridazine and other related long acting sulfonamides have now gone into disuse because

(a) They have produced serious cutaneous reactions
(b) They have produced high incidence of crystalluria
(c) They interact with many drugs
(d) They do not penetrate blood-brain barrier

51. Which of the following is not true of sulfonamides ?

(a) They are primarily metabolized by acetylation
(b) They are more likely to produce crystalluria in alkaline urine in which they are less soluble
(c) They may exert bactericidal action in the urinary tract
(d) Used alone, they have become therapeutically unreliable for serious infections

52. Adverse effects of ciprofloxacin are referable primarily to the following except

(a) Gastrointestinal tract
(b) Kidney
(c) Skin
(d) Nervous system

53. A single oral dose of the following drug can cure most cases of uncomplicated gonorrhoea

(a) Ciprofloxacin (b) Cotrimoxazole
(c) Spectinomycin (d) Doxycycline

54. Which fluoroquinolone has markedly enhanced activity against gram positive bacteria and anaerobes ?

(a) Pefloxacin (b) Ciprofloxacin
(c) Sparfloxacin (d) Norfloxacin

55. A woman has an upper respiratory infection. Six years ago, she experienced an episode of bronchospasm follwing penicillin V therapy. The cultures now reveal a strain of streptococcus pneumoniae that is sensitive to all of the following drugs. Which of these drugs would be the best choice for this patient?

(a) Amoxicillin/clavulanate
(b) Erythromycin
(c) Ampicillin
(d) cefaclor
(e) Cyclacillin

56. Important microbiological features of ciprofloxacin include the following except

(a) Long postantibiotic effect
(b) Marked suppression of intestinal anaerobes
(c) MBC values close to MIC values
(d) Slow development of resistance

57. Currently the drug of choice for emperic treatment of typhoid fever is

(a) Chloramphenicol (b) Cotrimoxaxole
(c) Ciprofloxacin (d) Ampicillin

58. In the treatment of typhoid fever, ciprofloxacin has the following advantage(s)

(a) It is effective in nearly all cases
(b) Early abetment of fever and other symptoms

(c) Development of carrier state is less likely
(d) All of the above

59. Penicillins interfere with bacterial cell wall synthesis by

(a) Inhibiting synthesis of N-acetyl muramic acid pentapeptide
(b) Inhibiting conjugation between N-acetyl muramic acid and N-acetyl glucosamine
(c) Inhibiting transpeptidases and carboxy peptidases which cross link the peptidoglycan residues
(d) Counterfeiting for D-alanine in the bacterial cell wall

60. All of the following drugs are suitable oral therapy for a lower urinary tract infection due to Pseudomonas aeruginosa except

(a) Norfloxacin
(b) Trimethoprim-sulfamethxazole
(c) Ciprofloxacin
(d) Carbenicillin
(e) Methenamine mandelate

61. Gram negative organisms are largely insensitive to benzyl penicillin because

(a) They produce large quantities of penicillinase
(b) They do not utilize D-alanine whose incorporation in the cell wall is inhibited by benzyl penicillin
(c) Benzyl penicillin is not able to penetrate deeper into the lipoprotein-peptidoglycan multiplayer cell wall of gram-negative bacteria
(d) Both (a) and (b)

62. The penicillin G preparation with the longest duration of action is

(a) Benzathine penicillin
(b) Sodium penicillin
(c) Potassium penicillin
(d) Procaine penicillin

63. If a patient gives history of urticaria, itching and swelling of lips following injection of penicillin G, then

(a) He will develop similar reaction whenever penicillin is injected
(b) He can be given ampicillin safely
(c) He can be given oral phenoxymethyl penicillin safely
(d) All natural and semisynthetic penicillins are contraindicated for him

64. The most important reason for highly restricted use of penicillin G injections in present day therapeutics is its

(a) Narrow spectrum of activity
(b) Potential to cause hypersensitivity reaction
(c) Short duration of action
(d) Neurotoxicity

65. Benzathine penicillin injected once every 4 weeks for 5 years or more is the drug of choice for

(a) Agranulocytosis patients
(b) Prophylaxis of bacterial endocarditis in patients with valvular defects
(c) Prophylaxis of rheumatic fever
(d) Treatment of anthrax

66. Which of the following is not a semisynthetic penicillin ?

(a) Procaine penicillin (b) Ampicillin
(c) Cloxacillin (d) Carbenicillin

67. Cloxacillin is indicated in infections caused by the following organism(s)

(a) Staphylococci (b) Streptococci
(c) Gonococci (d) All of the above

68. The most frequent side effect of oral ampicillin is

(a) Nausea and vomiting
(b) Loose motions
(c) Constipation
(d) Urticaria

69. Amoxicillin is inferior to ampicillin for the treatment of the following infection

(a) Typhoid
(b) Shigella enteritis
(c) Subacute bacterial endocarditis
(d) Gonorrhoea

70. Piperacillin differs from carbenicillin in the following respect(s)

(a) It is more active against pseudomonas aeruginosa
(b) It is active against Klebsiella also
(c) It is acid resistant
(d) Both (a) and (b)

71. Clavulanic acid is combined with amoxicillin because

(a) It kills bacteria that are not killed by-moxicillin
(b) It reduces renal clearance of amoxicillin
(c) It counteracts the adverse effects of amoxicillin
(d) It inhibits beta lactamases that destroy amoxicillin

72. Amoxicillin + Clavulanic acid is active against the following organism except

(a) Methicillin resistant Staph. aureus
(b) Penicillinase producing Staph. aureus
(c) Penicillinase producing n. gonorrhoeae
(d) β-lactamase producing E. coli

73. A woman's neglected hangnail has developed into a mild staphylococcal cellulites. Which of the following regimens would be appropriate oral therapy?

(a) Dicloxacillin 125 mg q6h
(b) Vancomycin 250 mg q6h
(c) Methicillin 500 mg q6h
(d) Cefazolin 1 g q8h
(e) Penicillin V 500 mg q6h

74. Cefotaxime has the following properties except

(a) It is highly active against aerobic gram negative bacteria
(b) It is the most active cephalosporin against Pseudomonas aeruginosa
(c) It produces an active metabolite
(d) It has achieved high cure rates in serious hospital acquired infections

75. Select the fourth generation cephalosporin among the following

(a) Cefpirome (b) Ceftizoxime
(c) Ceftazidime (d) Cefuroxime

76. The most important mechanism by which tetracycline antibiotics exert antiimicrobial action is

(a) They chelate Ca^{2+} ions and alter permeability of bacterial cell membrane
(b) They bind to 30S ribosomes and inhibit bacterial protein synthesis
(c) They bind to 50S ribosomes and interfere with translocation of the growing peptide chain in the bacteria
(d) They interfere with DNA mediated RNA synthesis in bacteria

77. Select the most potent tetracycline antibiotic

(a) Demeclocycline (b) Methacycline
(c) Minocycline (d) Doxycycline

78. An 8-year-old child presented with brownish discoloured and deformed anterior teeth. History of having received an antibiotic about 4 years earlier was obtained. Which antibiotic could be responsible for the condition ?

(a) Chloramphenicol (b) Tetracycline
(c) Erythromycin (d) Genetamicin

79. The most suitable tetracycline for use in a patient with impaired renal function is

(a) Chlortetracycline (b) Demeclocycline
(c) oxytetracycine (d) Doxycycline

80. Compared to older tetracyclines, doxycycline produces a lower incidence of superinfection diarrhoea because

(a) It is completely absorbed in the small intestines so that drug concentration in the colonic contents is low
(b) It is inactivated by the gut microflora
(c) It is not active against the microbes of the normal gut flora
(d) It is a potent tetracycline and inhibits the superinfection causing microbes as well

81. Tetracyclines are still the first choice drugs for the following disease.

(a) Granuloma linguinale
(b) Chancroid
(c) Syphilis
(d) Gonorrhoea in patients allergic to penicillin

82. Chloramphenicol is more active than tetracyclines against

(a) Bateroides fragilis
(b) Treponema pallidum
(c) Streptococci
(d) Staphylococci

83. Which out of the following antibiotics penetrates blood-CSF barrier the best

(a) Erythromycin (b) Gentamicin
(c) Tetracycline (d) Chloramphenicol

84. The most important mechanism by which gram negative bacilli acquire chloramphenicol resistance is

(a) Decreased permeability into the bacterial cell
(b) Acquisition of a plasmid encoded for chloramphenicol acetyl transferase
(c) Lowered affinity of the bacterial ribosome for chloramphenicol
(d) Switching over from ribosomal to mitochondrial protein synthesis

85. What is the most important reason for restricted clinical use of chloramphenicol ?

(a) Its narrow spectrum of activity
(b) Emergence of chloramphenicol resistance
(c) Its potential to cause bone marrow depression
(d) Its potential to cause superinfections

86. Aminoglycoside antibiotics have the following common property

(a) They are primarily active against gram-negative bacilli
(b) They are more active in acidic medium
(c) They readily enter cells and are distributed in total body water
(d) They are nearly completely metabolized in liver

87. Which aminoglycoside antibiotic causes more hearing loss than vestibular disturabance as toxic effect ?

(a) Streptomycin (b) Gentamicin
(c) Kanamycin (d) Sisomicin

88. Which of the following drugs has demonstrated in vitro activity against Mycobacterium avium-intracellular (MAI)?

(a) Vancomycin
(b) Clarithromycin
(c) Erythromycin base
(d) Troleandomycin
(e) Erythromycin estolate

89. The most important mechanism of bacterial resistance to an aminoglycoside antibiotic is

(a) Plasmid mediated acquisition of aminoglycoside conjugating enzyme
(b) Mutational acquisition of aminoglycoside hydrolyzing enzyme
(c) Mutation reducing affinity of ribosomal protein for the antibiotic
(d) Mutational loss of porin channels

90. Which toxic effect of aminoglycoside antibiotics is most irreversible in nature ?

(a) Vestibular damage
(b) Hearing loss
(c) Neuromuscular blockade
(d) Kidney damage

91. Streptomycin sulfate is not absorbed orally because it is

(a) Degraded by gastrointestinal enzymes
(b) Destroyed by gastric acid
(c) Highly ionized at a wide range of pH values
(d) Insoluble in water

92. The aminoglycoside antibiotic which is distinguished by its resistance to bacterial aminoglycoside inactivating enzymes is

(a) Kanamycin (b) Sisomicin
(c) Amikacin (d) Tobramycin

93. An aminoglycoside antibiotic should not be used concurrently with the following drug

(a) Ampicillin (b) Vancomycin
(c) Ciprofloxacin (d) Rifampin

94. All of the following statements regarding pentamidine isethionate are true except

(a) it is indicated for treatment or prophylaxis of infection due to Pneumocystis carinii
(b) it may be administered intramuscularly, intravenously or by inhalation
(c) it has no clinically significant effect on serum glucose
(d) it is effective in the treatment of leishmaniasis

95. Prolonged oral therapy with the following antibiotic can damage intestinal villi resulting in statorrhoea and loose motions

(a) Ampicillin (b) Tetracycline
(c) Neomycin (d) Nystatin

96. Hepatitits with cholestatic jaundice occurs most frequently as an adverse reaction to the following preparation of erythromycin

(a) Erythromycin base
(b) Erythromycin stearate
(c) Erythromycin estolate
(d) Erythromycin ethylsuccinate

97. The following antibiotic is a first line drug for treatment of Mycobacterium avium complex infection in AIDS patients

(a) Clindamycin (b) Clarithromycin
(c) Roxithromycin (d) Erythromycin

98. Roxithromycin has the following advantages over erythromycin except

(a) It is more effective in whooping cough
(b) It causes less gastric irritation
(c) It has longer plasma half-life
(d) It is unlikely to precipitate theophylline toxicity

99. Highest incidence of antibiotic associated pseudo membranous enterocolitis has been noted with the use of

(a) Ampicillin (b) Chloramphenicol
(c) Vancomycin (d) Clindamycin

100. The drug of choice for treatment of methicillin resistant Staphylococcus aureus infection is

(a) Cloxacillin (b) Vancomycin
(c) Erythromycin (d) Amikacin

101. 'Red man syndrome' has been associated with rapid intravenous injection of the following antibiotic

(a) Vancomycin (b) Clindamycin
(c) Cefoperazone (d) Piperacillin

102. Clarithromycin is used for the following

(a) Multidrug resistant M.tuberculosis infection
(b) M.avium complex infection in AIDS patient
(c) M.tuberculosis infection in a patient who develops jaundice due to first line antitubercular drugs
(d) Both (a) and (b)

103. A 23-year-old male with a history of influenza A infection. An outbreak of influenza A has just been reported in his community and he is exhibiting initial symptoms of influenza A. Which agent would be the most useful to treat him?

(a) Cidofovir (b) Famciclovir
(c) Rimantidine (d) Foscarnet
(e) Ribavirin

104. Addition of clavulanic acid to amoxicillin is to

(a) Decrease the renal excretion of amoxicillin
(b) Enhance the anti-bacterial activity of amoxicillin
(c) Decrease the biotransformation of amoxicillin
(d) To increase oral absorption of amoxicillin

105. The aminoglycoside that can be used in amoebiasis is

(a) Paromomycin (b) Framycetin
(c) Amikacin (d) Netilmicin

106. Tetracyclines are avoided in pregnancy because they can

(a) Cause abortions
(b) Cause excessive postpartum hemorrhage
(c) Affect the bones and teeth of the fetus
(d) Cause excessive vomiting in the mother

107. Ciprofloxacin inhibits the bacterial enzyme

(a) Transpeptidase
(b) DNA gyrase
(c) DNA dependent RNA polymerase
(d) Dihydrofolate reductase

108. Erythromycin is the drug of choice in

(a) Pertussis
(b) Gonococcal urethritis
(c) Prophylaxis of bacterial endocarditis
(d) Chlamydial infections

109. Cyclosporine

(a) Is derived from a bacterium
(b) Has a selective inhibitory effect on T-lymphocytes
(c) Is not absorbed orally
(d) Is excreted unchanged from the body

110. Tetracycline is stored in the body in

(a) Protein bound form
(b) In hairs, nails and skin
(c) In muscular tissues
(d) In bones

111. Drug which interfere with the bacterial cell wall synthesis is

(a) Chloramphenicol
(b) Tetracyclines
(c) Colistin
(d) Penicillins and cephalosporins

112. Antibiotic(s) which inhibit the protein synthesis in cells is/are

(a) Sulphonamides and PAS
(b) Isonized and PAS
(c) Tetracyclines and chloramphenicol
(d) Penicillin and cephalosporins

113. Penicillins are not effective against

(a) Gram-positive cocci
(b) Gram-positive bacilli
(c) Gram-negative bacilli
(d) Gram-negative cocci

114. Pseudomonas aeruginosa organism is always sensitive to

(a) Streptomycin (b) Colistin
(c) Penicillin (d) Tetracyclines

115. Drug of choice for Brucella infection is

(a) Tetracycline
(b) Gentamycin
(c) Ampicillin
(d) Sulfonamides

116. Streptomycin is more active at

(a) pH 5.5 than pH 8.5 of urine
(b) pH 8.5 than pH 5.5 of urine
(c) Equally active at all pH of urine
(d) All of the above

117. Dr. Jones requests your help in prescribing a protease inhibitor for his patient. He has heard that not all agents are the same and asks for your recommendation as to which agent would penetrate the blood-brain barrier. Which agent would you recomment?

(a) Saquinavir (b) Ritonavir
(c) Indinavir (d) Nelfinavir
(e) Amprenavir

118. Which of the following agents is not a broad spectrum antibiotic

(a) Ampicillin
(b) Tetracycline
(c) Chlorempheniсol
(d) Gentamycin

119. Probenacid increases the plasma concentration of penicillin because

(a) It blocks the renal tubular excretion of penicillin
(b) It prevents the metabolism of penicillin
(c) It displaces penicillin from protein binding sites and thus increases free drug concentration
(d) It acts by all above mechanisms

120. Benzylpenicillin is not used orally because

(a) It is destroyed by acid in stomach and absorption is also incomplete
(b) It is well absorbed from intestine but is unpredictable
(c) It produces severe diarrhoea on oral administration
(d) All of the above

121. Penicillins should not be given by

(a) Intramuscular route
(b) Intravenous route
(c) Intrathecal route
(d) Intra – articular route

122. Anaphylactic shock to penicillin occurs

(a) Almost at once after administration
(b) Between 6 to 12 hrs of administration
(c) Between 4 to 6 hrs of administration
(d) After 12 hrs of administration

123. Drugs usually active against penicillinase producing Staphylococcus aureus include which of the following?

I. Timentin (ticarcillin-clavulanate)
II. Augmentin (amoxicillin-clavulanate)
III. Oxacillin

(a) Only I is correct
(b) Only III is correct
(c) I and II are correct
(d) II and III are correct
(e) I, II and III are correct

124. Cephalosporins

(a) Are more vulnerable to beta–lactamase enzyme
(b) Are less vulnerable to beta–lactamase enzyme
(c) Do not possess beta lactam ring
(d) Have multiple beta lactam rings

125. Which of the following antibiotics possess neuromuscular blocking action

(a) Ampicillin (b) Streptomycin
(c) Chloramphenicol (d) Sulphonamides

126. Oral neomycin and streptomycin are used for sterlization of bowel and for dysentery because

(a) They are least absorbed from oral route
(b) The peak concentration in blood is achieved quickly
(c) They are least toxic to G.I.T
(d) None of the above

127. Chloramphenicol is the drug of choice in

(a) Staphylococcal infection
(b) Salmonella infection
(c) Viral infection
(d) Amoebic dysentry

128. Drug of choice for ringworm infection is

(a) Griseofulvin (b) Amphotericin B
(c) Nystatin (d) Neomycin

129. In renal failure safest tetracycline is

(a) Oxytetracycline
(b) Chlortetracycline
(c) Doxycycline
(d) Demethyl chlortetracycline

130. Penicillin was first used clinically for systemic infections in the year

(a) 1926 (b) 1935
(c) 1941 (d) 1957

131. Antiviral agents that are active against cytomegalovirus (CMV) include which of the following?

I. Ganciclovir
II. Foscarnet
III. Acyclovir

(a) Only I is correct
(b) Only III is correct
(c) I and II are correct
(d) II and III are correct
(e) I, II and III are correct

132. Which of the following is a steroidal antibiotic

(a) Nalidixic acid (b) Fusidic acid
(c) Spectinomycin (d) Nitrofurantoin

133. The antibiotic that enters brain freely is

(a) Tetracycline (b) Erythromycin
(c) Chloramphenicol (d) Gentamicin

134. The tetracycline safe in renal failure is

(a) Digoxin (b) Furosemide
(c) Enalapril (d) Amrinone

135. The semisynthetic penicillin which is destroyed by acid is

(a) Phenoxymethyl penicillin
(b) Ampicillin
(c) Carbenicillin
(d) Coxacillin

136. Why benzyl penicillin is ineffective in gram negative infections ?

(a) Is destroyed by penicillinase of gram negative organisms
(b) Gram negative organisms donot utilize D-alanine whose incorporation is inhibited by benzyl penicillin
(c) The lipoprotein – peptidoglycan cell wall of gram negative organisms prevents entry of penicillin
(d) All of the above

ANSWERS

1. a	2. b	3. e	4. e	5. d	6. c
7. d	8. c	9. c	10. a	11. b	12. c
13. d	14. d	15. c	16. a	17. c	18. d
19. d	20. b	21. d	22. e	23. b	24. a
25. d	26. b	27. d	28. e	29. c	30. d
31. c	32. c	33. c	34. c	35. d	36. b
37. c	38. c	39. d	40. c	41. b	42. c
43. d	44. d	45. c	46. a	47. b	48. b
49. b	50. a	51. b	52. b	53. a	54. c
55. b	56. b	57. c	58. d	59. c	60. b
61. c	62. a	63. d	64. b	65. c	66. a
67. a	68. b	69. b	70. d	71. d	72. a
73. a	74. b	75. a	76. b	77. c	78. b
79. d	80. a	81. a	82. a	83. d	84. b
85. c	86. a	87. c	88. b	89. a	90. b
91. c	92. c	93. b	94. c	95. c	96. c
97. b	98. a	99. d	100. b	101. a	102. b
103. c	104. b	105. a	106. c	107. b	108. a
109. b	110. d	111. d	112. c	113. c	114. c
115. d	116. b	117. d	118. d	119. a	120. a
121. b	122. a	123. e	124. b	125. b	126. a
127. b	128. a	129. c	130. c	131. c	132. b
133. c	134. b	135. c	136. c		

EXPLANATIONS FOR THE ANSWERS

1. a Isoniazid increases the excretion or pyridoxine, which can lead to peripheral neuritis, particularly in poorly nourished patients. Pyridoxine (a form of vitamin B6) deficiency may cause convulsions as well as the neuritis, involving synovial tenderness and swelling. Treatment with the vitamin can reverse the neuritis and prevent or cure the seizures.

13. d Trough serum levels below 2 mg/ml are considered appropriate for gentamicin and are recommended to minimize the risk of toxicity from this aminoglycoside. Because aminoglycosides accumulate in the proximal tubule of the kidney, nephrotoxicity can occur.

24. a Seizures have been attributed to the use of penicillin G, imipenem, amphotericin B and metronidazole. Seizures are especially likely with high doses in patients with a history of seizures and in patients with impaired drug elimination.

37. c Although active against various gram-negative organisms, spectinomycin is approved only for the treatment of gonorrhea and is particularly recommended for treatment of uncomplicated forms of the disease.

43. d The fever curve is very useful for monitoring a patient's response to antimicrobial therapy. Antipyretics can be used to reduce high fever in patients at risk for complications (e. g., seizures) or in some cases to make the patient more comfortable.

55. b Amoxicillin, ampicillin and cyclacillin are all penicillins and should be avoided in patients with histories of hypersensitivity to other penicillin compounds. Although the risk of cross-reactivity with cephalosporins (e. g., cefaclor)

is now considered very low, most clinicians avoid the use of these agents in patients with histories of type I hypersensitivity reactions (e.g., anaphylaxis, bronchospasm, giant hives)

60. b Norfloxacin, ciprofloxacin, carbenicillin and methenamine mandelate achieve urine concentrations high enough to treat urinary tract infections due to Pseudomonas aeruginosa. Trimethoprim-sulfamethoxazole is not useful for treating infections due to this organism, although the combination is useful for treating certain other urinary tract infections.

73. a Although vancomycin, methicillin and cefazolin have excellent activity against staphylococci, they are not effective orally for systemic infections. Vancomycin is prescribed orally for infections limited to the gastrointestinal tract, but because it is poorly absorbed orally, it is not effective for systemic infections. Most hospital and community acquired staphylococci are currently resistant to penicillinV. Thus, of the drugs listed in the question, the most appropriate drug for oral therapy of staphylococcai cellulites is dicloxacillin.

88. b Clarithromycin, an alternative to erythromycin, has demonstrated in vitro activity against Mycobacterium avium-intracellulare (MAI). Clarithromycin is also used against Toxoplasma gondii and Cryptosporidium species, and it is more active than erythromycin against staphylococci and streptococci. Vancomycin is used to treat staphylococci and streptococci, but has no demonstrated activity versus MAI. Troleandomycin is similar to erythromycin but is generally less active against these organisms.

94. c Pentamidine isethionate is indicated for both treatment and prophylaxis of infection due to Pneumocystis carinii. It can be administered intramuscularly, intravenously or by inhalation. Inhalation may produce bronchospasm. Blood glucose should be carefully monitored because pentamidine may produce either hyperglycemia or hypoglycemia.

103. c Cidofovir, famciclovir and foscarnet have little or no in vivo activity agains influenza A. Ribavirin has some activity but is a second line agent for influenza A and is mainly indicated for treatment of RSV. Rimantidine is a derivative of amantidine with excellent activity against influenza A. it is indicated for the prophylaxis and treatment of influenza A viral infections.

117. d All are protease inhibitors, but only nelfinavir has been shown to cross the blood-brain barrier, a known reservoid for HIV viruses.

123. e Timentin and augmentin each include a β-lactamase inhibitor, combined with ticarcillin and amoxicillin respectively. These combinations offer activity against Staphylococcus aureus similar to that of the penicillinase-resistant penicillins, such as oxacillin.

131. c Only ganciclovir and foscarnet are active against cytomegalovirus (CMV) infections. These agents are virustatic and arrest DNA synthesis by inhibiting viral DNA polymerase. Although ganciclovir in the treatment of CMV infections in the CNs has not been successful. Foscarnet is a broad-spectrum antiviral agent and is used in patients with ganciclovir resistance. Acyclovir is not clinically useful for the treatment of CMV infections because CMV is relatively resistant to acyclovir in vitro.

CHAPTER 9

DRUGS USED IN GASTROINTESTINAL TRACT DISORDERS

1. Which of the following is most effective in the treatment of peptic ulcer disease?

(a) Bromocriptine (b) Cimetidine
(c) Ergotamine (d) Ketanserin
(e) LSD

2. Which laxative should not be used to treat acute constipation because of its slow onset of action?

(a) Glycerin
(b) Bisacodyl suppository
(c) Psyllium
(d) Milk of magnesia

3. Which of the following–if given intravenously–will cause increased gastrointestinal motility and diarrhea?

(a) Angiotensin II (b) Bethanechol
(c) Bradykinin (d) Renin
(e) All of the above

4. A peptide that causes increased capillary permeability and edema is

(a) Angiotensin II (b) Bradykinin
(c) Captopril (d) Histamine
(e) Losartan

5. A vasodilator that can be inactivated by proteolytic enzymes is

(a) Angiotensin I (b) Isoproterenol
(c) Histamine (d) Neuropeptide Y
(e) Vasoactive intestinal peptide

6. Which of the following is released in traumatized tissue, causes pain and edema, and is inactivated by angiotensin converting enzyme?

(a) Angiotensin I
(b) Angiotensin II
(c) Atrial natriuretic peptide
(d) Bradykinin
(e) Calcitonin gene-related peptide

7. Which of the following is a decapeptide precursor of a vasoconstictor substance?

(a) Angiotensin I
(b) Angiotensin II
(c) Atrial natriuretic peptide
(d) Bradykinin
(e) Calcitonin gene-related peptide

8. Which is not a risk factor for hyperphosphatemia and death from sodium phosphate enemas when used in children?

(a) Renal insufficiency
(b) Hirschsprung's disease
(c) Anorectal malformations
(d) Children 6 to 12 years of age

9. Which of the following is the most potent vasodilator discovered to date and is found in high concentration in the thyroid?

(a) Angiotensin I
(b) Angiotensin II
(c) Atrial natriuretic peptide
(d) Bradykinin
(e) Calcitonin gene-related peptide

10. Which of the following statements adequately describes bulk-forming laxaties?

(a) Can cause diarrhea if not taken with water
(b) Are derived from polysaccharides and rersemble fiber (bran) in mechanism of action
(c) Onset of action is in 4–8 hours
(d) Produce much more complete evacuation of constipation than stimulant products

11. Cardiac arrhythmias have occurred when this drug was used by patients taking the gastrointestinal promotility agent cisapride

(a) Amphotericin B (b) Clotrimazole
(c) Griseofulvin (d) Ketoconazole
(e) Voriconazole

12. Metronidazole is least likely to be effective in the treatment of

(a) Amebiasis (b) Giardiasis
(c) Pneumocystosis colitis (d) Psudomembranous
(e) Trichomoniasis

13. Which of the following statements about non-drug therapies for acute diarrhea is not correct?

(a) Breast feeding should be continued as normal
(b) Even if the patient is not vomiting, food should be withheld for 6–12 hours
(c) Fluids can be given to patients who experience vomiting, but small amounts of fluid should be used.
(d) Replacement fluids mainly consist of water, sugar, potassium, sodium and bicarbonates

14. A 2-year-old child was brought to the emergency room 1 hour after ingestion of tablets he had managed to obtain from a bottle on top of the refrigerator. His symptoms included marked gastro-intestinal distress, vomiting (with hematemesis), and epigastric pain. Metabolic acidosis and leukocytosis were also present. This patient is most likely to have ingested tablets containing

(a) Acetaminophen
(b) Aspirin
(c) Diphenhydramine
(d) Iron
(e) Vitamin C

15. A patient is broght to the emergency room suffering from nausea, vomiting, and abdominal pain. He has muscle weakness, which seems to be progressing downward from the head and neck. The patient has difficulty talking clearly and has ptosis and ophthalmoplegia. The most likely cause of these symptoms is

(a) Accidental ingestion of paraquat
(b) An overdose of phenobarbital
(c) Excessive consumption of ethanol
(d) Food poisoning
(e) Organophosphate poisoning

16. A 55-year-old woman with insulin-dependent diabetes of 40 years' duration complains of severe bloating and abdominal distress, especially after meals. Evaluation is consistent with diabetic gastroparesis. The drug you would be most likely to recommend is

(a) Docusate (b) Dopamine
(c) Loperamide (d) Metoclopramide
(e) Sucralfate

17. A patient who must take verapamil for hypertension and angina has become severely constipated. Which of the following drugs would be most suitable as a cathartic?

(a) Aluminum hydroxide
(b) Diphenoxylate
(c) Magnesium hydroxide
(d) Metoclopramide
(e) Mineral oil

18. Your cousin is planning a three-week trip overseas and asks your advice regarding medications for traveler's diarrhea. A drug suitable for noninfectious diarrhea is

(a) Aluminum hydroxide
(b) Diphenoxylate
(c) Magnesium hydroxide
(d) Metoclopramide
(e) Mineral oil

19. Which of the following products should not be used to replenish lost fluids from acute diarrhea?

(a) Pedialyte solution
(b) Kool-Aid
(c) Gatorade (half-strength diluted with water)
(d) The world Health Organization (WHO) solution

20. A drug associated with the long QT syndrome and cardiac arrhythmias is

(a) Aluminum hydroxide
(b) Cisapride
(c) Granisetron
(d) Loperamide
(e) Metromidazole

21. On your way to an examination you experience that vulnerable feeling that an attack of diarrhea is imminent. If you stopped at a drugstore, you could buy this antidiarrheal drug without a prescription even though it is related chemically to the strong opioid – analgesic meperidine

(a) Aluminum hydroxide
(b) Diphenoxylate
(c) Loperamide
(d) Magnesium hydroxide
(e) Metoclopramide

22. This antibiotic is not appropriate for use as an oral agent in the treatment of recurrent peptic ulcer associated with Helicobacter pylori

(a) Amoxicillin (b) Clarithromycin
(c) Metronidazole (d) Tetracycline
(e) Vancomycin

23. Which of the following statements about adsorbant drugs used for diarrhea is true?

(a) Useful for treatment of severe diarrhea
(b) Very unsafe because not absorbed systemically
(c) In general, small doses are needed to relieve diarrhea
(d) Kaolin is now generally recognized as a safe and effective OTC antidiarrheal agent.

24. Which one of the following drugs has no effect on prothrombin but increases the likelihood of bleeding in patients who are also taking warfarin?

(a) Carbamazepine (b) Cholestyramine
(c) Naproxen (d) Rifampin
(e) Vitamin K

25. Which one of the following drugs has resulted in severe hematotoxicity when administered to a patient being treated with azathioprine?

(a) Allopurinol (b) Cholestyramine
(c) Digoxin (d) Lithium
(e) Theophyline

26. Which one of the following antibodies has the longest half-life?

(a) Black widow spider antivenin
(b) Botulinum antitoxin
(c) Diphtheria antitoxin
(d) Hepatitits B immune globulin
(e) Snake bite antivenin

27. Hepatitis B vaccine is least likely to be recommended for prophylactic use in

(a) Dialysis patients
(b) Intravenous drug abusers
(c) Newborns
(d) Raw oyster eaters
(e) Surgeons

28. Which of the following statements concerning traveler's diarrhea (TD) is true?

(a) TD can usually be avoided by not eating raw vegetables, seafood or eggs when traveling to third-world countries
(b) TD can be prevented by taking one dose of antibiotic 1 day before a trip

(c) A specific of Helicobacter pylori is the primary pathogen responsible for TD
(d) Phillip's milk of magnesia is used to prevent/ treat TD

29. Dietary supplementation with DHEA is best documented to have therapeutic value in the treatment of

(a) Acne
(b) Diabetes insipidus
(c) Hirsutism in female patient
(d) Postmenopausal osteoporosis
(e) Systemic lupus erythematosus

30. Which one of the following compounds has been shown to have value in managing symptoms of jet lag?

(a) DHEA (b) Garlic
(c) Ginseng (d) Melatonin
(e) Sassfras

31. A patient with Zollinger–Ellison syndrome has been receiving high doses of cimetidine for 7 weeks. A frequent adverse effect of cimetidine is

(a) Agranulocytosis
(b) Systemic lupus erythematosus
(c) Inhibition of hepatic metabolism of other drugs
(d) Antiestrogenic effects
(e) Hypertension

32. Most weak acid drugs as well as weak base drugs are absorbed primarily from the small intestine after oral administration because

(a) Both types are more ionized in the small intestine
(b) Bothe types are less ionized in the small intestine
(c) The blood flow is greater in the small intestine than that of other parts of the gut
(d) The surface area of the small intestine is greater than other parts of the gut
(e) The small intestine has nonspecific carriers for most drugs

33. A patient with a 30-year history of type 1 diabetes comes to you with a complaint of bloating and sour bleaching after meals. On several occasions, vomiting has occurred after a meal. Evaluation reveals delayed emptying of the stomach, and you diagnose diabetic gastro paresis. Which of the following drugs would be most useful in this patient?

(a) Famotidine (b) Metoclopramide
(c) Misoprostol (d) Omeprazole
(e) Ondansetron

34. Which one of the following agents is least likely to protect the upper gastrointestinal tract from ulcer formation?

(a) Antacids (b) Celecoxib
(c) Cimetidine (d) Misoprostol
(e) Sucralfate

35. This agent is the drug of choice in severe amebic disease and for hepatic abscess. It is activated to toxic intermediates by the pyruvate – ferredoxin oxidoreductase enzyme system present in the parasite.

(a) Diloxanide furoate
(b) Emetine
(c) Iodoquinol
(d) Metronidazole
(e) Paromomycin

36. All of the following agents are considered close to ideal laxatives except

(a) emollient laxatives
(b) bulk-forming laxatives
(c) fiber
(d) stimulant laxatives

37. Which solution is used as an astringent?

(a) Strong iodine solution USP
(b) Aluminum acetate topical solution USP
(c) Acetic acid NE
(d) Aromatic ammonia spirit USP
(e) Benzalkonium chloride

38. Mechanistically, which of the following drugs will decrease stomach acid secretion by blockade of H_2 histaminic receptors?

(a) Pyrilamine (b) Hydroxyzine
(c) Cisapride (d) Omeprazole
(e) Ranitidine

39. Lansoprazole would be effective in the treatment of

(a) Gastroesophageal reflux disease
(b) Peptic ulcer disease
(c) Zollinger-Ellison syndrome
(d) All of the above
(e) None of the above

40. All of the following statements about stool softners are true except

(a) There is minimal systemic absorption
(b) the onset of action is usually 1–2 days
(c) they are useful in patients with constipation who have experienced an acute myocardial infractioon
(d) they can be taken with little or no water

41. All of the following statements adequately describe bulk-forming laxatives except

(a) they produce a much more complete evacuation of constipation than stimulant products
(b) they can cause constipation if not taken with water
(c) they are derived from polysaccharides and resemble fiber (bran)in the mechanism of action
(d) the onset of action is 24–72 hours

42. Which of the following statements adequately describes bulk-forming laxatives?

(a) Can cause diarrhea if not taken with water
(b) Are derived from polysaccharides and resemble fiber (bran)in mechanism of action
(c) Onset of action is in 4–8 hours
(d) Produce much more complete evacuation of constipation than stimulant products

43. Which of the following statements about adsorbent drugs used for diarrhea is true?

(a) Useful for treatment of severe diarrhea
(b) Very safe because not absorbed systemically
(c) In general, small doses are needed to relieve diarrhea
(d) Kaolin and pectin are considered to be very effective (category I)adsorbents

44. Which of the following statements concerning traveler's diarrhea (TD) is true?

(a) TD can usually be avoided by not eating raw vegetables, seafood, or eggs when traveling to third-world countries.
(b) TD can be prevented by taking one dose of antibiotic one day before a trip
(c) A specie of Helicobacter pylori is the primary pathogen responsible for TD
(d) Phillip's Milk of Magnesia is used to prevent / treat TD

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(b) The onset of action is usually 1–2 days
(c) They are useful in patients with constipation who have experienced an acute myocardial infarction
(d) They can be taken with little or no water

46. Which of the following is an appropriate non-pharmacologic recommendation for patients with gastroesophageal reflux disease (GERD)?

(a) Eat larger but fewer meals
(b) Avoid meals high in protein
(c) Eat evening meals at least 3 hours before bed
(d) Prop a patient's head up with 2 pillows at night

47. Which of the following organisms has been implicated as a possible cause of chronic gastritis and peptic ulcer disease?

(a) Campylobacter jejuni
(b) Escherichia coli
(c) Helicobacter pylori
(d) Calymmatobacterium granulomatis
(e) Giardia lamblia

48. A patient suffering from acute infectious diarrhea caused by Shigella can be managed in all of the following ways except

(a) no treatement because signs and symptoms usually resolve in 48 hours

(b) use of glucose solutions (e.g., soda, apple juice)to settle the stomach and decrease the number of stools
(c) avoiding food for at least 6 hours, then slowly increasing fluid intake.
(d) using antibiotics (e.g. Bactrim, doxycycline) for 7 days

49. As part of a comprehensive management strategy to treat peptic ulcer disease, patients should be encouraged to do all of the following except

(a) Decrease caffeine ingestion
(b) Eat only bland foods
(c) Stop smoking
(d) Avoid alcohol
(e) Avoid the use of milk as a treatment modality

50. A gastric ulcer patient requires close follow-up to document complete ulcer healing because

(a) Perforation into the intestine is common
(b) Spontaneous healing of the ulcer may occur in 30% – 50% of cases
(c) There is the risk of the ulcer being cancerous
(d) Symptoms tend to be chronic and recur
(e) Weight loss may be severe in gastric ulcer patients

51. For each effect, select the agent that is most likely associated with it

(a) Sodium bicarbonate
(b) Aluminum hydroxide
(c) Calcium carbonate
(d) Magnesium hydroxide
(e) Propantheline
  (1) May cause diarrhea
  (2) Cannot be used by patients with heart failure
  (3) Use with milk and an alkaline substance can cause milk-alkali syndrome
  (4) May cause dry mouth
  (5) Can be alternated with an antacid mixture to control diarrhea

52. Aluminum hydroxide is used to treat hyperphosphatemia associated with renal failure. Chronic use of aluminum hydroxide may cause all of the following conditions except

(a) Phosphate depletion
(b) Calcium resorption and bone demineralization
(c) Anorexia and constipation
(d) Fluid retention

53. Which local anesthetic should be used to treat symptoms of pain, itching, burning and discomfort in patients with an established lidocaine allergy?

(a) Tetracaine (b) Dibucaine
(c) Pramoxine (d) Benzocaine

54. Which of the following agents in most useful for carcinoma of the liver?

(a) Vinblastine (b) Floxuridine (FUDR)
(c) Vincristine (d) Cytarabine (Cytosar)
(e) Mercaptopurine

55. All of the following vasoconstrictors are deemed safe and effective for the temporary relief of itching and swelling except

(a) ephedrine 0.1% – 1.25%
(b) epinephrine 0.005% – 0.01%
(c) phenylpropanolamine 1% – 10%
(d) phenylephrine 0.25%

56. Bisacodyl frequently can cause

(a) Abdominal cramps
(b) Constipation
(c) Skin rashes
(d) Dizziness
(e) Nauseas

ANSWERS

1. c	2. c	3. b	4. b	5. e	6. d
7. a	8. d	9. e	10. b	11. d	12. c
13. b	14. d	15. d	16. d	17. c	18. b
19. b	20. b	21. c	22. e	23. d	24. c
25. a	26. d	27. d	28. a	29. e	30. d
31. c	32. d	33. b	34. b	35. d	36. d
37. b	38. e	39. d	40. d	41. a	42. b
43. b	44. a	45. d	46. c	47. c	48. b
49. b	50. c	51. 1.d, 2.a, 3.c, 4.e, 5.b		52. d	53. c
54. b	55. c	56. a			

EXPLANATIONS FOR THE ANSWERS

1. c Glycerin and the bisacodyl suppository all produce stools in one-half hour to a few hours, whereas psyllium, a bulk-forming laxative, produces stool in 24–72 hours in the same manner as a normal bolus of food or fiber.

8. d The populr sodium phosphate enemas (e.g., fleet)are very effective but have resulted in hyperphosphatemia, hypocalcemia (tetany), hypokaemia, metabolic acidosis and cardia death usually due to conduction abnormalities in very small children. This has mainly occurred in children younger than 2 years of age or between 2 and 5 years of age with predisposing factors. These factors include chronic renal disease, anorectal disease, anorectal malformations, and/or Hirschsrprung's disease, which allow phosphate blood concentrations to become abnormally

10. b Stimulant products result in a quicker, more complete and often more violent evacuation of the bowel than do the bulk-forming agents. Bulk forming agents are developed from complex sugars, similar to fiber, that provide bulk to increase gastrointestinal motility and water absorption into the bowel. However, patients must drink plenty of water to facilitate the absorption of water into the bowel, or they may become more constipated.

13. b Treating acute diarrhea is the replacement of lost fluids. If severe vomiting persists, then patients may need intra-venous rehydration. Earlier Parents were told that children should not receive food, milk-products or breast milk for 6–68 hours after the onset of diarrhea, but recent information shows that children should remain on their normal dier or breast feeding during episodes of diarrhea because these do not make the diarrhea worse and may actually improve the diarrhea.

19. b Replacement fluids for diarrhea should contain the appropriate amount of electrolytes (K^+, Na^+, Cl^-, citrate)and glucose per specified amount of water as found in commercially available oral-rehydration. The World Health Organization (WHO)solution can provide necessary ingredients. In addition, one-half-strength Gatorade will provide necessary electrolytes and glucose. Kool-Aid does not contain potassium. Carbonated beverages are low in potassium, and some are too high in glucose.

23. d Adsorbents are not effective for severe diarrhea because they simply cannot adsorb enough water and do not reverse the cause of the diarrhea. Large doses may decrease symptoms. Of all the adsorbents, kaolin is the most effective and is now recognized by the FDA as safe and effective. All adsorbents are safe because they are not adsorbed systemically.

28. a Traveler's diarrhea (TD)primarily is caused by bacteria. Prophylaxis and treatment regimens include oral antibiotics and bismuth subsalicylate. Helicobacter pylori is the organisms shown to contribute to refractory pepetic ulcer disease.

36. d The ideal laxative is natural and produces stool on a regular basis. The product produces stool quickly without adverse effects such as abdominal cramping or the formation of a hard stool, which may be difficult to pass. Products such as fiber or bulk-forming agents produce a stool similar to a bolus of food, without adverse effects. Emollient laxatives produce soft stools without difficult defecation. Stimulants produce a stool quickly, but patients often experience severe abdominal cramping and hard stools.

40. d Stool softeners are safe and do not produce any adverse systemic effects. Because stool softners work as surfactants, they allow absorption of water into the stool, which makes stool softer and easier to pass. These products are useful in patients who should avoid.

41. a Stimulant products result in a quicker, more complete and often more violent evacuation of the bowel than do the bulk-forming agents are developed from complex sugars, similar to fiber, that provide bulk to increase gastrointestinal motility and increase water absorption into the bowel. However, patients must drink plenty of water to facilitate the absorption of water into the bowel, or they may become more constipated.

48. b Giving highly osmotic solutions of glucose can result in more water absorbed into the intestinal tract and, thus further diarrhea. Many cases of diarrhea resolve within 48 hours without treatment. People with diarrhea can avoid food for atleast 6 hours, then increase their fluid intake slowly. Severe cases of infectious diarrhea can be treated with antibiotic or antiprotozoals, depending on the organism that caused the episode.

53. c Due to its chemically distinct structure, promoxine exhibits less cross-sensitivity when compared to the other anesthetics and should be used in patients with a lidocaine allergy.

55. c Vasoconstrictors deemed safe and effective by the FDA are ephedrine HCl 0.1% – 1.25%, epinephrine HCl 0.005% – 0.01% and phenylephrine HCl 0.25%.

CHAPTER 10

OXYTOCICS & UTERINE MUSCLE RELAXANTS

1. A 29-year-old woman who was in her 41st week of gestation had been in labor for 12 hours. Although her uterine contractions had been strong and regular initially, they had diminished in force during the past hour. Which of the following drugs would be administered to facilitate this woman's labor and delivery?

(a) Dopamine
(b) Leuprolide
(c) Oxytocin
(d) Prolactin
(e) Vasopressin

2. Which one of the following agents is not used in oral or implantable contraceptives?

(a) Clomiphene
(b) Ethinyl estradiol
(c) Mestranol
(d) Norethindrone
(e) Norgestrel

3. All of the following are recognized effects of combined oral contraceptives except

(a) Breakthrough bleeding
(b) Decreased risk of endometrial cancer
(c) Increased risk of ischemic stroke
(d) Increased risk of ovarian cancer
(e) Nausea

4. A 50-year-old woman with a positive mammogram undergoes lumpectomy and a small carcinoma is removed. Biochemical analysis of the cancer reveals the presence of estrogen and progesterone receptors. After this procedure, she will probably receive

(a) Danazol
(b) Flutamide
(c) Leuprolide
(d) Mifepristone
(e) Tamoxifen

5. A young woman complains of severe abdominal pain at the time of menstruation. Careful evaluation indicates the presence of significant endometrial deposits on the pelvic peritoneum. The most appropriate therapy for this patient would be

(a) Fultamide, orally
(b) Medroxyprogesterone acetate by intramuscular injection
(c) Norgestreal as an implant
(d) Oxandrolone by intramuscular injection
(e) Raloxifene orally

6. Diethylstilbestrol should never be used in pregnant women because it is associated with

(a) Development of deep vein thrombosis in the pregnant woman
(b) Feminization of the external genitalia of male offspring
(c) Infertility and development of vaginal cancer in female offspring
(d) Miscarriage
(e) Virilization of the external genitalia of female offspring

7. Finasteride has efficacy in the prevention of male-pattern baldness by virtue of its ability to

(a) Competitively antagonize androgen receptors
(b) Decrease the release of gonadotropins
(c) Increase the serum concentration of SHBG
(d) Inhibit the synthesis of testosferone
(e) Reduce the production of dihydrotestosterone

8. A 52-year-old postmenopausal patient has evidence of low bone mineral denisity. She and her physician are considering therapy with raloxifene or a combination of conjugated estrogens and medroxyprogesterone acetate. Which of the following patient characteristics is most likely to lead them to select raloxifene?

(a) Previous hysterectomy
(b) Recurrent vaginitis
(c) Rheumatoid arthritis
(d) Strong family history of breast cancer
(e) Troublesome hot flushes

9. Following delivery of a healthy baby, a young woman begins to bleed extensively because her uterus has failed to contract. Which one of the following drugs should be administered to this woman?

(a) Desmopressin (b) Octreotide
(c) Oxytocin (d) Prolactin
(e) Triamcinolone

10. Raloxifene is a selective estrogen receptor modulator (SERM). Its characteristic properties make the drug most suitable for treatment of a female patient who

(a) Decides to start using an oral contraceptive
(b) Has postmenopausal osteoporosis and is at risk for breast cancer
(c) Needs postcoital contraception
(d) Suffers from hirsutism
(e) Wants a therapeutic abortion

11. Select the drug which can improve urinary flow rate in benign prostatic hypertrophy without affecting prostate size

(a) Amphetamine (b) Prazosin
(c) Finasteride (d) Goserelin

12. The drug used for cervical priming to facilitate labour is

(a) Oxytocin
(b) Stilboestrol
(c) Progesterone
(d) Prostaglanding E_2

ANSWERS

1. c	2. a	3. d	4. e	5. b	6. c
7. e	8. d	9. c	10. b	11. b	12. d

CHAPTER 11

CHEMOTHERAPY

1. Twenty months after finishing her chemotherapy, the woman had a relapse of breast cancer. The cancer was now unresponsive to standard doses of chemotherapy. The decision was made to treat the patient with high-dose chemotherapy followed by autologous stem cell transplantation. Which of the following drugs is most likely to be used to mobilize the peripheral blood stem cells for the patient's autologous stem cell transplantation?

(a) Erythropoietin (b) G – CSF
(c) Interleukin - 11 (d) Intrinsic factor
(e) Thrombopoietin

2. The combination of trimethoprim and sulfamethoxazole is effective against which one of the following opportunistic infections in the AIDS patient?

(a) Disseminated herpes simplex
(b) Cryptococcal meningitis
(c) Toxoplasmosis
(d) Oral cnadidiasis
(e) Tuberculosis

3. The top four most commonly diagnosed cancers include all of the following except

(a) Lung (b) Prostate
(c) Colon and rectum (d) Thyroid
(e) Breast

4. A 31-year-old man has gonorrhea. He has no drug allergies, but he recalls that a few years ago while in Africa he had acute hemolysis following use of an antimalarial drug. The physician is concerned that the patient has an accompanying urethritis due to C trachomatis, though no cultures or enzyme tests have been performed. Which of the following drugs is most likely to be effective against gonococci and to eradicate C trachomatis in this patient?

(a) Cefixime (b) Ciprofloxacin
(c) Ofloxacin (d) Spectinomycin
(e) Sulfamethoxazole

5. The mechanism by which sulfasalazine exerts its primary action in ulcerative colitis is inhibition of

(a) Folic acid synthesis
(b) The formation of leukotrienes and prostaglandins
(c) Phospholipase C
(d) Proton pump activity
(e) The formation of interleukind

6. Which one of the following adverse effects is most likely to occur with sulfonamides?

(a) Neurologic effects, including headache, dizziness, and lethargy
(b) Hematuria
(c) Fanconi's aminoaciduria syndrome
(d) Kernicterus in the newborn
(e) Skin reaction

7. This drug is the preferred agent for teatment of nocardiosis and, in combination with pyrimethamine, is prophylactic against preumocystis carinii infections in AIDS patiens.

(a) Ampicillin (b) Clindamycin
(c) Norfloxacin (d) Sulfadiazine
(e) Trimethoprim

8. Supplementary folinic acid may prevent anemia in folate-deficient persons who use this drug; it is a weak base, and achieves tissue levels similar to those in plasma

(a) Ciprofloxacin (b) Norfloxacin
(c) Sulfacetamide (d) Trimethoprim
(e) Trovafloxacin

9. It is now recommended that trovafloxacin be reserved for treatment of life-threatening infections because

(a) Bacterial resistance to the drug is very common
(b) Complete liver failure has occured
(c) It is very expensive
(d) Its use is associated with torsade de pointes
(e) Nephrotoxicity is dose-limiting

10. The primary reason for the use of drug combinations in the treatment of tuberculosis is to

(a) Ensure patient compliance with the drug regimen
(b) Reduce the incidence of adverse effects
(c) Enhance activity against metabolically inactive mycobacteria
(d) Delay or prevent the emergence of resistance
(e) Provide prophylaxis against other bacterial infections

11. The mechanism of high – level INH resistance of M tuberculosis is

(a) Formation of drug-inactivating N-acetyltransferase
(b) Reduced expression of the katG gene
(c) Decreased intracellular accumulation of INH
(d) Mutation in the inhA gene
(e) Change in the pathway of mucolic acid synthesis

12. A patient with AIDS and a CD4 cell count of 100/μL has persistent fever and weight loss associated with invasive pulmonary disease that is due to M avium complex. Optimal management of this patient is to

(a) Treat with rifabutin, since it prevents the development of MAC bacteremia
(b) Select an antibiotic regimen based on drug susceptibility of the cultured organism
(c) Start treatment with INH and pyrazinamide
(d) Treat the patient with clarithromycin, ethambutol, and rifabutin
(e) Treat with trimethoprim – sulfamethoxazole

13. This drug has been used prophylactically in contacts of children with infection due to Haemophilus influenzae type B. It is also prophylactic in meningococcal and staphylococcal carrier states. While the drug eliminates a majority of meningococci from carriers, highly resistant strains may be selected out during treatment

(a) Ciprofloxacin (b) Clofazimine
(c) Dapsone (d) Rifampin
(e) Streptomycin

14. Once–weekly administration of this antibiotic has prophylactic activity against bacteremia due to M avium complex in AIDS patients.

(a) Azithromycin (b) Clarithromycin
(c) Isoniazid (d) Kanamycin
(e) Rifabutin

15. Which one of the following drugs is most likely to cause loss of equilibrium and auditory damage?

(a) Amikacin
(b) Ethambutol
(c) Isonazid
(d) Para-aminosalicylic acid
(e) Rifabutin

16. Chemical interactions between this drug and cell membrane components can result in the formation of pores lined by hydrophilic groups present in the drug molecule.

(a) Dactinomycin (b) Griseofluvin
(c) Fluconazole (d) Nystatin
(e) Terbinafine

17. Which one of the following statements about fluconazole is most accurate?

(a) It is highly effective in treatment of aspergillosis
(b) It does not penetrate the blood – brain barrier
(c) Its oral bioavailability is less than that of ketoconazole
(d) It inhibits demethylation of lanosterol
(e) It is potent inhibitor of hepatic drug–metabolizing enzymes

18. Which one of the following drugs is least likely to be effective in the treatment of esophageal candidiasis, it is used by the oral route?

(a) Amphotericin B (b) Clotrimazole
(c) Fluconazole (d) Griseofulvin
(e) Ketoconazole

19. Which one of the following statements about flucytosine is accurate?

(a) It is bioactivated by fungal cytosine deaminase
(b) It does not cross the blood–brain barrier
(c) It inhibits cytochrome P450
(d) It is useful in esophageal candidiasis
(e) It has a wide spectrum of antifungal activity

20. Which one of the following drugs is most appropriate for oral use in vaginal candidiasis?

(a) Clotrimazole (b) Griseofluvin
(c) Fluconazole (d) Flucytosine
(e) Nystatin

21. Which one of the following statements about the mechanisms of action of antiviral drugs is least accurate?

(a) The initial step in activation of famciclovir in HSV-infected cells is its phosphorylation by viral thymidine kinase
(b) The reverse transcriptase of HIV is 30–50 times more sensitive to inhibition by indinavir than host cell DNA polymerases
(c) Gancicolvir inhibits viral DNA polymerase but does not cause chain termination
(d) Increased activity of host cell phosphodiesterases that degrade tRNA is one of the antiviral actions of interferons
(e) Foscarnet has no requirement for activation by phosphorylation

22. Which of the following drugs is most likely to cause additive anemia and neutropenia if administered to an AIDS patient taking zidovudine?

(a) Acyclovir (b) Amantadine
(c) Ganciclovir (d) Pentamidine
(e) Stavudine

23. The antiviral actions of this drug include inhibition of both RNA and DNA synthesis. The drug is used for the treatment of severe respiratory syncytial virus infections in neonates.

(a) Amantadine (b) Amprenavir
(c) Foscarnet (d) Ribavirin
(e) Ritonavir

24. Regarding interferon alpha, which one of the following statements is least accurate?

(a) At the start of treatment, most patients experience flu-like symptoms
(b) Indications include treatment of genital warts
(c) It is used in the management of hepatitis C
(d) Lamivudine interferes with its activity against hepatitis B
(e) Toxicity includes bone marrow suppression

25. Over 90% of this drug is excreted in the urine in intact form. Because its urinary solubility is low, patients should be well hydrated to prevent nephrotoxicity

(a) Acyclovir (b) Amantadine
(c) Indinavir (d) Zanamivir
(e) Zidovudine

26. Used in the prophylaxis and treatment of infection due to influenza viruses, this drug facilitates clumping of mature virions and their adhesion to infected cells.

(a) Amantadine (b) Efavirenz
(c) Oseltamivir (d) Rimantadine
(e) Saquinavir

27. Which statement regarding phase-specific chemotherapic agents is correct ? They

(a) Are most effective in one phase of the cell cycle
(b) Effective in all phases of the cell cycle
(c) Are only effective in G_0 phase
(d) Include the alkylating agents
(e) Include the antituber antibiotics

28. Infections due to gram–negative bacilli have occurred when this agent has been used as a skin antiseptic

(a) Acetic acid
(b) Benzalkonium chloride
(c) Hexachlorophene
(d) Merbromin
(e) Thimerosal

29. Which one of the following compounds is used topically to treat scabies and pediculosis?

(a) Lindane
(b) Mupirocin
(c) Nitrofurazone
(d) Polymyxin B
(e) Silver sulfadiazine

30. Methenamine salts are used as urinary antiseptics. The reason why they lack systemic antibacterial action is that they are

(a) Not absorbed into the systemic circulation following oral ingestion
(b) Rapidly metabolized by liver drug– metabolizing enzymes
(c) Converted to formaldehyde only at low urinary pH
(d) Substrates for active tubular secretion
(e) Over 90% bound to plasma proteins

31. Which one of the following antiseptics promotes wound healing?

(a) Cetylpyridium
(b) Chlorhexidine
(c) Hexachlorophene
(d) Iodine
(e) None of the above

32. A patient with AIDS has an extremely high viral RNA titer. While blood is being drawn from this patient, the syringe is accidentally dropped, contaminating the floor, which is made of porous material. The best way to deal with this is to

(a) Completely replace the contaminated part of the floor
(b) Clean the floor with soap and water
(c) Seal the room and decontaminate with ethylene oxide
(d) Clean the floor with a 10% solution of household bleach
(e) Neutralize the spill with a solution of potassium permanganate

33. Certain anaerobic protozoan parasites lack mitochondria and generate energy–rich compounds, such as acetyl–CoA, by means of enzymes present in organelles called hydrogenosomes. An important enzyme involved in this process is

(a) Cytochrome P450
(b) Glycerol – 3 – phosphate oxidase
(c) Hypoxanthine – guanine phosphoribosyltranferase
(d) Pyruvate – ferredoxin oxidoreductase
(e) Thymidylate synthase

34. Which of the following compounds is a good substrate for hypoxanthine–guanine phosphoribosyltransferase in trypanosomes (but not mammals) and is eventually converted into metabolites that are incorporated into RNA?

(a) Allopurinol
(b) Alpha - difluoromethylornithine
(c) Glycerol
(d) Mebendazole
(e) Salicylhydroxamic acid

35. One chemotherapeutic strategy used to eradicate the blood-stream form of African trypanosomes is based on the absolute dependence of the organism on

(a) Cytochrome – dependent electron transfer
(b) Dihydropteroate synthesis
(c) Glycolysis

(d) Lactate dehydrogenase
(e) Mitochondrial respiration

36. Which of the following drugs enhances GABA actions on the neuromuscular junctions of nematodes and arthropods?

(a) Glutamic acid (b) Ivermectin
(c) Picrotoxin (d) Pyrantel pamoate
(e) Pyrimethamine

37. Which of the following drugs is an anti-metabolite that inhibits a trypanosomal enzyme involved in putrescine synthesis?

(a) Alpha - difluoromethylornithine
(b) Alpha - fluorodeoxyuridine
(c) Metronidazole
(d) Polymyxin
(e) Thiopurinol riboside

38. Which one of the following enzymes is not unique to parasites?

(a) Dihydropteridine pyrophosphokinase
(b) Hypoxanthine–guanine phosphoribosyltransferase
(c) Lanosterol demethylase
(d) Purine nucleoside phosphotransferase
(e) Trypanothione reductase

39. Which of the following antimalarial drugs causes a dose–dependent toxic state that includes flushed and sweaty skin, dizziness, nausea, diarrhea, tinnitus, blurred vision, and impaired hearing?

(a) Amodiaquine (b) Primaquine
(c) Pyrimethamine (d) Quinine
(e) Sulfadoxine

40. Plasmodial resistance to chloroquine is due to

(a) Change in receptor structure
(b) Decreased carrier–mediated drug transport
(c) Increase in the activity of DNA repair mechanisms
(d) Induction of inactivating enzymes
(e) Inhibition of dihydrofolate reductase

41. This drug is the antimalarial agent most commonly associated with causing an acute hemolytic reaction in patients with glucose – 6 – phosphate dehydrogenase deficiency.

(a) Chloroquine (b) Clindamycin
(c) Mefloquine (d) Primaquine
(e) Quining

42. This drug can clear trypanosomes from the blood and lymph nodes and is active in the late CNS stages of African sleeping sickness.

(a) Emetine (b) Melarsoprol
(c) NIfurtimox (d) Pentamidine

43. Which one of the following drugs is recommended as a single agent for oral treatment of uncomplicated malaria due to chloroquine–resistant P falciparum strains?

(a) Doxycycline (b) Iodoquinol
(c) Primaquine (d) Proguanil
(e) Quinine

44. A missionary from Chicago is sent to work in a geographic region of a Cental American country wher onchocerca volvulus is endemic. Infections due to this tissue nematode (onchocerciasis) are a major cause of "river blindness", since microfilariae migrate through subcutaneous tissues and concentrate in the eyes. Which one of the following durgs can be used prophylactically to prevent onchocerciasis?

(a) Bithionol (b) Ivermectin
(c) Niclosamide (d) Oxamniquine
(e) Suramin

45. In a patient with diffuse lymphoma, the oncologist suggests a treatment strategy that involves the initial administration of doxorubicin to obtain a significant log–kill, followed by the cell cycle–specific drugs cytarabine and vincristine. This therapeutic strategy is called

(a) Pulse therapy
(b) Recruitment
(c) Rescue therapy
(d) Sequential blockade
(e) Synchrony

46. Which one of the following statements about the mechanisms of action of drugs used in cancer chemotherapy is least accurate?

(a) Alkylatine agents commonly attack the nucleophilic N-7 position in guanine
(b) Anthracyclines intercalate with base pairs to block nucleic acid synthesis
(c) In steady doses, leuprolide inhibits the release of pituitary gonadotropins
(d) Mercaptopurine is an irreversible inhibitor of HGPRT ase
(e) Paclitaxel acts mainly in the M phase of the cell cycle

47. Which of the following agents used in drug combination regimens to treat testicular carcinoma is mot likely to cause nephrotoxicity?

(a) Bleomycin (b) Cisplatin
(c) Etoposide (d) Leuprolide
(e) Vinblastine

48. Which one of the following is least likely to be a mechanism of cancer cell resistance to antineoplastic drugs?

(a) Change in properties of a target enzyme
(b) Decreased activity of activating enzymes
(c) Increase in drug–metabolizing cytochrome P450
(d) Increase in DNA repair
(e) Increase in production of drug–trapping molecules

49. All of the following agents have been used in drug regimens for the treatment of breast carcinoma. Which one has specific activity in a subset of female breast cancers?

(a) Anastrozole (b) Doxorubicin
(c) Fluoxymesterone (d) Methotrexate
(e) Trastuzumab

50. Which cell involved in immune function recognizes foreign peptides bound of MHC class II molecules on the surface of APC cells, secretes interleukin-2, and initiates the cell-mediated immunity reaction responsible for host-versus-graft reactions?

(a) B lymphocyte
(b) Cytotoxic T lymphocyte
(c) Dendritic cell
(d) Macrophage
(e) TH lymphocyte

51. Cyclosporine is effective in organ transplantation. The immunosuppressant action of the drug appears to be due to

(a) Activation of natural killer (NK) cells
(b) Blockade of tissue responses to inflammatory mediators
(c) Increased catabolism of IgG antibodies
(d) Inhibition of the gene transcription of interleukins
(e) Interference with antigen recognition

52. Azathiprone

(a) Binds avidly to a cytoplasmic immunophillin
(b) Blocks formation of tetrahydrofolic acid
(c) Is a precursor of cytarabine
(d) Is markedly hematotoxic and has caused neoplasms
(e) Is a metabolite of mercaptopurine

53. Body Surface Area (BSA) is used in calculating chemotherapy doses because

(a) BSA is an indicator of tumor cell mass
(b) BSA correlates with cardiac output
(c) BSA correlates with gastrointestinal transit time
(d) the National Cancer Institute requires that BSA be used
(e) the Food and Drug Administration requires that BSA be used

54. Which one of the following agents acts at the step of antigen recognition?

(a) Cyclosporine
(b) Cyclophosphamide
(c) Methotrexate
(d) Rh_o(D)immune globulin
(e) Tacrolimus

55. Tumor necrosis factor - α - appears to play an important role in autoimmunity and inflammatory diseases. Which of the following is a humanized monoclonal

antibody that binds to TNF - a and inhibits its action?

(a) Etanercept
(b) Infliximab
(c) Muromonab – CD3
(d) Sirolimus
(e) Thalidomide

56. Which one of the following agents is able to suppress both B and T lymphocytes via its inhibition of de novo synthesis of purines?

(a) Cyclophosphamide
(b) Methotrexate
(c) Mycophenolate mofetil
(d) Prednisone
(e) Tacrolimus

57. Which one of the following agents increases phagocytosis by macrophages in patients with chronic granulomatous disease?

(a) Aldesleukin
(b) Interferon - γ
(c) Lymphocyte immune globulin
(d) Prednisone
(e) Trastuzumab

58. A young woman employed as a dental laboratory technician complains of conjunctivitis, skin irritation, and hair loss. On examination, she has perforation of the nasal septum and a "milk and roses" complexion. These signs and symptoms are most likely to be due to

(a) Acute mercury poisoning
(b) Chronic inorganic arsenic poisoning
(c) Chronic mercury poisoning
(d) Excessive use of supplementary iron tablets
(e) Lead poisoning

59. In the treatment of acute inorganic arsenic poisoning, the most likely drug to be used is

(a) Deferoxamine (b) Dimercaprol
(c) EDTA (d) Penicillamine
(e) Succimer

60. Which of the following drugs or drug groups is not useful in the prevention of nausea and vomiting included by cancer chemotherapy ?

(a) Dexamethasone (b) Dronabinol
(c) Ketaserin (d) Ondansetron
(e) Phenothiazines

61. Passive immunization involves

(a) Live immunogens
(b) Polysaccharide vaccines
(c) Stimulation of antibody formation
(d) Use of antigens
(e) Use of preformed antibodies

62. A businessman intends to travel abroad in a geographical region where several diseases are endemic. He would not be able to be vaccinated against

(a) Cholera
(b) Malaria
(c) Meningococcal infection
(d) Typhoid fever
(e) Yellow fever

63. Which of the following is used in active immunization of children and combines bacterial toxoids with a bacterial antigen?

(a) BCG (b) BSA
(c) DTP (d) ISG
(e) $Rh_o(D)$

64. Which of the following is a polysaccharide used for active immunization in patients with chronic cardiorespiratory ailments?

(a) Antilymphocyte immune serum
(b) BCG vaccine
(c) Mumps virus vaccine
(d) Pertussis immune globulin
(e) Pneumococcal vaccine

65. A needlestick injury is sustained by a health care worker, and the blood is known to contain HBV surface antigens. The health care worker should be given

(a) Nothing
(b) Immune globulin
(c) Hepatitis B immune globulin

(d) Hepatitis B vaccine
(e) Hepatitis B vaccine and hepatitis B immune globulin

66. Which one of the following compounds enhances immune function in vitro and in clinical trials decreases the symptoms of the common cold?

(a) Echinacea
(b) Feverfew
(c) Garlic
(d) Melatonin
(e) Milk Thistle

67. An important therapeutic or toxic effect of loop diuretics is

(a) Decreased blood volume
(b) Decreased heart rate
(c) Increased serum sodium
(d) Increased total body potassium
(e) Metabolic acidosis

68. The most appropriate drug for reversing myasthenic crisis in a patient who is experiencing diplopia, dysarthria, and difficulty swallowing is

(a) Neostigmine (b) Pilocarpine
(c) Pralidoxime (d) Succinylcholine
(e) Tubocurarine

69. In the management of patients with AIDS, the sulfonamides are often used in combination with inhibitors of folate reductase. However, such combinations have minimal activity against

(a) Escherichia coli
(b) Nocardia species
(c) Pneumocystis carinii
(d) Toxoplasma gondi
(e) Treponema pallidum

70. Chemoprophylaxis for travelers to geographic regions where chloroquine–resistant P falciparum is endemic is best provided by

(a) Atovaquone
(b) Mefloquine
(c) Primaquine
(d) Pyrimethamine plus sulfadoxine
(e) Quinine

71. This agent, which is used in the chemotherapy of Hodgkin's lymphoma, is potentially leukemogenic

(a) Dacarbazine (b) Doxorubicin
(c) Prednisone (d) Procarbazine
(e) Vinblastine

72. A 54-year-old farmer has a 5-year history of frequent, recurrent, and very painful kidney stones. Appropriate chronic therapy for this man is

(a) Furosemide
(b) Hydrochlorothiazide
(c) Morphine
(d) Spironolactone
(e) Triamterene

73. A 55-year-old executive has cardiomyopathy and congestive heart failure. He is being treated with diuretics. The mechanism of action of furosemide is best described as

(a) Interference with H^+/HCO_3 exchange
(b) Blockade of a $Na^+/K^+/2Cl^-$ transporter
(c) Blockade of a Na^+/Cl^- cotransporter
(d) Blockade of carbonic anhydrase
(e) Inhibition of genetic expression of DNA in the kidney

74. Which one of the following peptides is not a vasodilator?

(a) Atrial natriuretic factor (ANF)
(b) Calcitonin gene-related peptide
(c) Endothelin
(d) Substance P
(e) Vasoactive intestinal peptide

75. A young female patient using an oral contraceptive is to be treated for pulmonary tuberculosis. She is advised to use an additional method of contraception since the efficacy of the oral agents is commonly decreased if her drug regimen includes

(a) Amikacin (b) Ethambutol
(c) Isoniazid (d) Pyrazinamide
(e) Rifampin

76. Which one of the following drugs is most likely to be effective in the treatment of gonorrhea in this patient and safe to use?

(a) Amoxicillin - clavulanate
(b) Ceftriaxone
(c) Clarithromycin
(d) Ofloxacin
(e) Tetracycline

77. The rationale for combination chemotherapy includes all of the following except

(a) Biochemical enhancement of effect
(b) rescue of normal cells
(c) overcoming or preventing resistance
(d) biochemical nullification of effect
(e) cytotoxic to both resting and dividing cells

78. This compound reduces the need for platelet transfusions in patients undergoing cancer chemotherapy

(a) Cyanocobalamin
(b) Erythropoietin
(c) Interleukin - II
(d) Iron dextran
(e) Tranexamic acid

79. Which one of the following anticancer drugs acts in the M-phase of the cell cycle to prevent disassembly of the mitotic spindle?

(a) Dactinomycin (b) Etoposide
(c) Paclitaxel (d) Procarbazine
(e) Vinblastine

80. While colchicines has been used in acute gout, the drug often causes severe gastrointestinal distress. Consequently, many authorities now consider that the drug of choice for acute gout is

(a) Acetaminophen (b) Aspirin
(c) Indomethacin (d) methotrexate
(e) Sulfinpyrazone

81. Relative to Lugol's solution propylthouracil has

(a) A faster onset of antithyroid action
(b) A greater inhibitory effect on the proteolytic release of hormones from the thyroid gland
(c) Increased likelihood of causing exophthalmo during the first week of treatment
(d) Increased risk of fetal toxicity
(e) More sustained antithyroid activity when used continuously for several months

82. In antiviral immunity, what directly recognized and kills viral-infected cells?

(a) Cytotoxic T cells (CTLs)
(b) Antiviral antibodies
(c) Interferons

83. An organ donor who is human leukocyte antigen (HLA)- matched with the recipient of a graft is sought. Which individual is at least somewhat likely to provide a total HLA match?

(a) A sibling of the graft recipient
(b) A parent of the graft recipient
(c) A cadaver

84. Graft–versus–host (GVH) disease is associated primarily with which type of transplantation?

(a) Kidney
(b) Heart
(c) Bone marrow

85. Which is a valid comparison of live, attenuated and killed, inactivated active vaccines?

(a) Replication of the organisms in a live, attenuated vaccine increases the stimulation of the immune system, and a lower dose is often required
(b) Attenuated vaccines often require multiple doses
(c) A killed, inactivated vaccine probably produces life-long immunity in one or two doses

86. Which type of cell does not contain double standard deoxyribonucleic acid (DNA)?

(a) Human cells
(b) Bacteria cells
(c) Human immunodeficiency virus (HIV) cells

87. Which enzyme is used by the Human Immunodeficiency Virus (HIV) to form

deoxyribonucleic acid (DNA) in the host cell?

(a) Restrictive endonuclease
(b) DNA-directed polymerase
(c) Reverse transcriptase
(d) Both (a) and (b)
(e) None of the above

88. Gamma immunoglobulin is considered

(a) Deoxyribonucleic acid (DNA)
(b) Ribonucleic acid (RNA)
(c) Protein
(d) None of the above

89. Glycoprotein is considered a protein linked to

(a) A carbohydrate
(b) A hormone
(c) A lipid
(d) A deoxyribonucleic acid (DNA)
(e) None of the above

90. An enzyme that cleaves deoxyribonucleic acid (DNA) at a specific site is called

(a) Restrictive endonuclease
(b) Restrictive ribonuclease
(c) Trypsin
(d) None of the above

91. An example of a cytokine is

(a) Interleukin
(b) Insulin
(c) Gonadotropin
(d) Thyroxine
(e) None of the above

92. A common storage condition for most biotechnology products after reconstitution is

(a) Room temperature
(b) Cool place
(c) Warm place
(d) No excessive heat
(e) Freezer

93. What base is found in deoxyribonucleic acid (DNA)?

(a) Cytosine (b) Adenine (c) Guanine
(d) Thymine (e) All of the above

94. Which of the following statements regarding signal transduction is incorrect?

(a) Thyroxine-bound receptors act on DNA and regulate specific transcription of genes.
(b) Cyclic adenosine monophosphate can act as second messenger.
(c) The level of drug receptors at the cell surface increases with chronic stimulation by receptor agonists
(d) Binding of ligand to cell-surface receptors can lead to synthesis of proteins
(e) Antacids act by interacting with small ions normally found in the gastrointestinal tract.

95. All of the following chemotherapy agents can be administered intrathecally except

(a) Methotrexate (b) Cytrabine
(c) Hydrocortisone (d) Thiotepa
(e) Vincristine

96. The efficacy rates for nonprescription antifungal agents for vaginal yeast infections is

(a) 50% (b) 60%
(c) 70% (d) 80%

97. The best product to treat vulvar pruritus in a woman with a vaginal yeast infection is

(a) External miconazole (Monistat)
(b) External miconazole and intravaginal miconazole (Monistat-7 combination pack)
(c) Intravaginal tioconazole (Vagistat 1)
(d) Intravaginal butoconazole (Femstat 3)

98. Which of the following patients complaining of vaginal yeast infection symptoms should be referred to a physician?

(a) If there is a history of recurrent vaginal yeast infection
(b) If she is pregnant
(c) If she is less than age 12
(d) All of the above

99. Which of the following herbs is known to cause cancer?

(a) Chaparral (b) Comfrey
(c) Ma huang (d) Licorice
(e) St. John's wort

100. Which of the following herbs should be used with caution while driving or performing other tasks that require alertness and coordination?

(a) Valerian (b) Echinacea
(c) Dong quai (d) Feverfew
(e) Saw palmetto

101. Tom would like to try Echinacea to prevent colds and flus during the winter months. Which of the following statements is true about Echinacea?

(a) It is contraindicated in patients allergic to parsley
(b) It should only be taken continuously for three months
(c) It is contraindicated in patients with lupus and leucosis
(d) Prolonged use of Echinacea will upregulate the immune system
(e) Side effects include headache, rash, and dizziness

102. Hematological testing of a patient with acquired immune deficiency syndrome (AIDS) is most likely to show which of the following abnormalities?

(a) Basophilia (b) Eosinophilia
(c) Lymphopenia (d) Reticulocytosis
(e) Agranulocytosis

103. Hematological studies are most likely to show a low reticulocyte count in a patient who has which one of the following abnormalities ?

(a) Aplastic anemia secondary to cance chemotherapy
(b) Acute hemolytic anemia secondary to quinidine treatment
(c) Severe bleeding secondary to an automobile accident
(d) Iron deficiency anemia 1 week after treatment with ferrous sulfate
(e) Megaloblastic anemia due to folate deficiency 1 week after treatment with folic acid

104. Cisapride should not be used in combination with either fluconazole or indinavir because of increased potential for

(a) Atrial fibrillation
(b) Atrial flutter
(c) Ventricular fibrillation
(d) Torsades de pointes
(e) Angina pectoris

105. Which statement reageding phase-specific chemotherapeutic agents is correct? They

(a) Are most effective in one phase of the cell cycle
(b) Are effective in all phases of the cell cycle
(c) Are only effective in G_0 phase
(d) Include the alkylating agents
(e) Include the antitumor antibiotics

106. Body surface area (BSA) is used in calculating chemotherapy doses because

(a) BSA is an indicator of tumor cell mass
(b) BSA correlates with cardiac output
(c) BSA correlates with gastrointestinal transit time
(d) The National Cancer Institute requires that BSA be used
(e) The Food and Drug Administration (FDA) requires that BSA be used

107. The rationale for combination chemotherapy includes all of the following except

(a) Biochemical enhancement of effect
(b) Rescue of normal cells
(c) Overcoming or preventing resistance
(d) Biochemical nullification of effect
(e) Cytotoxic to both resting and dividing cells

108. Which of the following chemotherapeutic agents is classified as an alkylating agent?

(a) Cyclophosphamide
(b) Etoposide
(c) Mechlorethamine
(d) Paclitaxel
(e) Cyclophosphamide and mechlorethamine

109. Which of the following chemotherapy agents acts by intercalation?

(a) Vincristine
(b) Paclitaxel
(c) Doxorubicin
(d) Vincristine and paclitaxel
(e) Topotecan

110. How do antimetabolites exert their cytotoxic effect?

(a) Inhibiting DNA synthesis by sliding between DNA base pairs
(b) Inhibiting RNA synthesis by sliding between RNA base pairs
(c) Acting as false metabolites in the microtubules
(d) Acting as false substitutions in the production of nucleic acids
(e) Promoting microtubule assembly and stabilization

111. Which of the following chemotherapy agents are correctly paired according to their mechanism of action?

(a) Vincristine and paclitaxel
(b) Etoposide and paclitaxel
(c) Docetaxel and paclitaxel
(d) Docetaxel and etoposide
(e) Vincristine and etoposide

112. When does not neutrophil nadir associated with chemotherapy agents generally occur?

(a) During administration of the chemotherapy
(b) 1–2 days after therapy
(c) 10–14 days after therapy
(d) 1 month after therapy
(e) When the platelet count begins to rise

113. N-acetylcysteine is classified as a (an)

(a) Analgesic
(b) Antitussive
(c) Mucolytic agent
(d) Antitubercular agent
(e) Protein hydrolysate

114. Procarbazine (Matulane) is used primarily to treat

(a) Ovarian carcinoma
(b) Psoriasis
(c) Breast carcinoma
(d) Melanoma
(e) Hodgkin's disease

115. The principal active alkaloid of ipecac is

(a) Yohimbine (b) Caffeine
(c) Apomorphine (d) Lobeline
(e) Emetine

116. Emetine is used in the treatment of

(a) Malalria (b) Schistosomiasis
(c) Tuberculosis (d) Amebiasis
(e) None of the above

117. The therapeutic use of neostigmine bromide is as a

(a) Miotic
(b) CNS depressant
(c) Treatment of curare poisoning
(d) Neuromuscular blocker
(e) Muscle relaxant

118. Ethylenediamine-tetracetic acid is an antidote for which of the following?

(a) Sodium secobarbital
(b) Aspirin
(c) Paris green
(d) Phosphorus
(e) Lead

119. Which of the following chemotherapeutic agents is classified as an alkylating agent?

(a) Cyclophosphamide
(b) Etoposide
(c) Mechlorethamine
(d) Paclitaxel
(e) Cyclophosphamide and mechlorethamine

120. Which of the following is a gametocidal agent in malaria?

(a) Atabrine (b) Quinine
(c) Paludrine (d) Primaquine
(e) Aralen

121. Which of the following is contraindicated in the presence of active tuberculosis?

(a) Hydrocortisone (b) Streptomycin
(c) INH (d) PAS
(e) PABA

122. A drug that is very effective in the treatment of tinea versicolor is

(a) Undecylenic acid
(b) Clotrimazole (Lotrimin)
(c) Acrisorcin (Akrinol)
(d) Penicillin G
(e) Prednisolone

123. Which of the following is a first-line drug to treat tuberculosis?

(a) PAS (b) Rifampin
(c) Ethionamide (d) Cycloserine
(e) Ethambutol

124. Yellow pigmentation of the skin is most common with

(a) Chloraquine (b) Pamaquin
(c) Quinacrine (d) Quinine
(e) Atabrine

125. The most effective single chemotherapeutic agent of those indicated, in the treatement of tuberculosis is

(a) Neomycin (b) Sulfones
(c) Streptomycin (d) Penicillin
(e) Terramycin

126. Which is an antidote for malathion poisoning?

(a) Vitamin K
(b) Protamine sulfate
(c) Nalorphine (Nalline)
(d) Pralidoxine (Protopam)
(e) Edrophonium (Tensilon)

127. Antimicrobial treatment does not alter the course of the following diarrhoeas except

(a) Mild enterotoxigenic E.coli diarrhoea
(b) Campylobacter diarrhoea
(c) Coeliac disease diarrhoea
(d) Food poisoning diarrhoea

128. Which of the following diarrhoeas is consistently benefited by antimicrobial therapy

(a) Irritable bowel syndrome
(b) Cholera
(c) Salmonella diarrhoeas
(d) Traveller's diarrhoea

129. The therapeutic effect of sulfasalazine in ulcerative colitis is exerted by

(a) Inhibitory action of the unabsorbed drug on the abnormal colonic flora
(b) Breakdown of the drug in colon to release 5-aminosalicylic acid which suppresses inflammation locally
(c) Release of sulfapyridine having antibacterial property
(d) Systemic immunomodulatory action of the drug

130. The preferred drug for controlling an acute exacerbation of ulcerative colitis is

(a) Prednisolone (b) Sulfasalazine
(c) Mesalazine (d) Vancomycin

131. To be effective in ulcerative colitis, 5-aminosalicylic acid has to be given as

(a) Acrylic polymer coated tablet which releases the drug only in the lower bowel
(b) A complex of two molecules joined together by azo bond
(c) A retention enema
(d) All of the above

132. A small amount of atropine is added to the diphenoxylate tablet/syrup to

(a) Suppress associated vomiting of gastroenteritis
(b) Augment the antimotility action of diphenoxylate
(c) Block side effects of diphenoxylate
(d) Discourage overdose and abuse of diphenoxylate

133. Select the sulfonamide drug which is active against pseudomonas and is used by topical application for prophylaxis of infection in burn cases

(a) Sulfadiazine
(b) Silver sulfadiazine
(c) Sulfadoxine
(d) Sulfamethoxazole

134. The drug of choice for prophylaxis of meningococcal meningitis during an epidemic is

(a) Phenoxymethyl penicillin
(b) Tetracycline
(c) Rifampin
(d) Ciprofloxacin

135. Trimethoprim inhibits bacteria without affecting mammalian cells because

(a) It does not penetrate mammalian cells
(b) It has high affinity for bacterial but low affinity for mammalian dihydrofolate reductase enzyme
(c) It inhibits bacterial folate synthetase as well as dihydrofolate reductase enzymes
(d) All of the above

136. Trimethoprim is combined with sulfamethoxazole in a ration of 1:5 to yield a steady state plasma concentration ratio of

(a) Trimethoprin 1:Sulfamethoxazole 5
(b) Trimethoprin 1:Sulfamethoxazole 10
(c) Trimethoprin 1:Sulfamethoxazole 20
(d) Trimethoprin 1:Sulfamethoxazole 1

137. Indicate the condition in which neither trimethoprim nor sulfamethoxazole alone are effective, but their combination cotrimoxazole is

(a) Prostatitis
(b) Lymphogranuloma venereum
(c) Pneumocystis carinii pneumonia
(d) Bacillary dysentery

138. Select the antimicrobial drug which is used orally only for urinary tract infection for bacterial diarrhoeas

(a) Pefloxacin
(b) Azithromycin
(c) Bacampicillin
(d) Nalidixic acid

139. Nalidixic acid is primarily active against

(a) Cocci
(b) Bacilli
(c) Gram-positive bacteria
(d) Gram-negative bacteria

140. Indicate the drug which attain therapeutic antibacterial concentration in the urinary tract but not in other tissues

(a) Sulfasomidine (b) Piperacillin
(c) Nitrofurantoin (d) Both (b) and (c)

141. Acidic urine augments the antibacterial action of the following drug

(a) Sulfadiazine (b) Cotrimoxazole
(c) Gentamicin (d) Nitrofurantoin

142. Which of the following is not a first line antitubercular drug ?

(a) Ciprofloxacin (b) Streptomycin
(c) Pyrazinamide (d) Ethambutol

143. The intermittently multiplying (spurter) tubercle bacilli present within caseous material having low oxygen tension are most susceptible to

(a) Ethambutol (b) Rifampin
(c) Streptomycin (d) Pyrazinamide

144. Occurrence of the following adverse reaction absolutely contraindicates further use of rifampin in the treatment of tuberculosis

(a) Respiratory syndrome
(b) Cutaneous syndrome
(c) Flu syndrome
(d) Abdominal syndrome

145. Which of the following chemotherapy agents acts by intercalation?

(a) Vincristine
(b) Paclitaxel
(c) Doxorubicin
(d) Vincristine and paclitaxel
(e) Topotecan

146. Ethambutol is not used in children below 6 years of age because

(a) Young children are intolerant to ethambutol
(b) Ethambutol causes growth retardation in young children
(c) It is difficult to detect ethambutol induced visual impairment in young children
(d) In young children visual toxicity of ethambutol is irreversible

147. In a patient of pulmonary tuberculosis, pyrazinamide is most active on the following subpopulation of tubercle bacilli

(a) Rapidly multiplying bacilli located on cavity walls
(b) Slow growing bacilli within macrophages and at sites showing inflammatory response
(c) Intermittently multiplying bacilli within caseous material
(d) Dormant bacilli

148. The most important reason for using a combination of chemotherapeutic agents in the treatment of tuberculosis is

(a) To obtain bactericidl effect
(b) To prevent developmet of resistance to the drugs
(c) To broaden the spectrum of activity
(d) To reduce adverse effects of the drugs

149. Addition of pyrazinamide and ethambutol for the first two months to the isoniazid + rifampin therapy of tuberculosis serves the following purpose(s)

(a) Reduces the total duration of therapy to 6 months
(b) Produces more rapid sputum conversion
(c) Permits reduction of rifampin dose
(d) Both (a) and (b)

150. What is true of short course DOTS(WHO) stategy for treatment of tuberculosis ?

(a) It consists of an initial intensive phase and a later continuation phase
(b) The dose of antitubercular drugs is reduced after clinical response occurs
(c) The patient himself is made responsible for administering antitubercular drugs
(d) All of the above

151. According to the currect WHO guidelines new (untreated) sputum smear positive cases of pulmonary tuberculosis are to be treated with the following regimen

(a) Isoniazid + Rifampin + Pyrazinamide for 6 months
(b) Isoniazid + Thiacetazone + Rifampin for 2 months followed by isoniazid + thiacetazone for 6 months
(c) Isoniazid + Rifampin for 6 months with additional Pyrazinamide + Ethambutol/ Streptomycin during the initial 2 months
(d) Isoniazid + Rifampin for 6 months with additional Pyrazinamide during the initial 2 months

152. Corticosteroids are absolutely contraindicated in which of the following types of tuberculosis

(a) Miliary (b) Meningeal
(c) Intestinal (d) Renal

153. Multi Drug Resistant (MDR) tuberculosis is defined as resistance to

(a) Any two or more antitubercular drugs
(b) Isoniazid + any other antitubercular drug
(c) Isoniazid + Rifampin ± any one or more antitubercular drugs
(d) All five first line antitubercular drugs

154. Mycobat tuberculosis infection in a HI V infected patient is treated with

(a) The same antitubercular regimen as HIV negative patient
(b) Four first line antitubercular drugs for 2 months followed by a longer continuation phase of 7 months with rifampin + isoniazid
(c) All five first line antitubercular drugs for nine months
(d) Clarithromycin + Ciprofloxacin + Rifabutin for 12 months

155. The most important dose dependent toxicity of dapsone is

(a) Methemoglobinemia
(b) Haemolysis
(c) Hepatitis
(d) Dermatitis

156. The tetracycline with highest antileprotic activity is

(a) Minocylcine (b) Docycycline
(c) Methacycline (d) Oxytetracycline

157. Multidrug therapy with dapsone, rifampin and clofazimine is the treatment of choice of

(a) Multibacillary leprosy
(b) Paucibacillary leprosy
(c) Dapsone resistant leprosy
(d) All forms of leprosy

158. The newer lipid formulations of amphotericin B differ from the conventional formulation in the following respects except

(a) They are more efficacious
(b) They produce milder acute reaction
(c) They are less nephrotoxic
(d) They produce milder anaemia

159. The drug of choice for monilial diarrhoea is

(a) Flucytosine (b) Nystatin
(c) Natamycin (d) Ketoconazole

160. Griseofulvin is indicated in.

(a) All types of tinea infection
(b) Onychomycosis
(c) Pityriasis versicolor
(d) Both (b) and (c)

161. Choose the azole antifungal drug which is used only topically

(a) Ketoconazole (b) Fluconazole
(c) Itraconazole (d) Econazole

162. Fluconazole differs from ketoconazole in that

(a) It is not active by the oral route
(b) It is a more potent inhibitor of drug metabolizm
(c) It is not effective in cryptococcal meningitis
(d) It is unlikely to produce anti-androgenic side effects

163. The only antifungal drug which has some activity against moulds like Mucor and Aspergillus is

(a) Itraconazole (b) Fluconazole
(c) Miconazole (d) Ketoconazole

164. Iodoxuridine is indicated in

(a) Herpes simplex keratitis
(b) Herpes zoster
(c) Chicken pox
(d) All of the above

165. Which of the following viruses is most susceptible to acyclovir ?

(a) Herpes simplex type I virus
(b) Herpes simplex type II virus
(c) Varicella-zoster virus
(d) Epstein–Barr virus

166. Which of the following is true of acyclovir treatment of genital herpes simplex ?

(a) Topical treatment affords symptomatic relief in primary as well as recurrent disease
(b) Oral therapy for 10 days affords symptomatic relief as well as prevents recurrences
(c) Oral therapy for 10 days affords symptomatic relief but does not prevent recurrences
(d) Continuous long-term topical therapy is recommended to prevent recurrences

167. The virus directed reverse transcriptase enzyme is inhibited by

(a) Amantadine (b) Zidovudine
(c) Vidarabine (d) Acyclovir

168. How do antimetabolites exert their cytotoxic effect?

(a) Inhibiting DNA synthesis by sliding between DNA base pairs
(b) Inhibiting RNA synthesis by sliding between RNA base pairs
(c) Acting as false metabolites in the microtubules
(d) Acting as false substitutions in the production of nucleic acids
(e) Promoting microtubule assembly and stabilization

169. Antiretroviral therapy is not recommended in asymptomatic HIV infected subjects because of the following reason(s).

(a) All antiretroviral drugs lose efficacy after some time
(b) Adverse effects of antiretroviral drugs compromise the quality of life of asymptomatic subjects
(c) The treated subjects may produce and transmit drug resistant virus
(d) All of the above

170. Choose the correct statement about amantadine

(a) It is an antimetabolite used for viral infections
(b) It prevents penetration of the virus into the host cell

(c) Concurrent administration of amantadine prevents antibody response to influenzavaccine
(d) It is used to protect high risk subjects during an influenza A_2 epidemic

171. The antiviral action of amantadine is exerted through

(a) Interaction with a virus directed thymidine kinase
(b) Interaction with a viral M2 protein
(c) Inhibition of a viral protease enzyme
(d) Inhibition of viral RNA mediated DNA synthesis

172. Erythrocytic schizontocide antimalarial drugs are used as

(a) Suppressive prophylactic
(b) Clinical curative
(c) Radical curative for P. Vivax
(d) Both (a) and (b)

173. Which of the following drugs is a causal prophylactic for falciparum malaria and suppressive prophylactic for vivax malaria

(a) Chloroquine (b) Mepacrine
(c) Quinine (d) Chloroguanide

174. Recrudescence of malaria refers to recurrence of malarial fever due to

(a) Reinfection of the patient by mosquito bite
(b) Reinfection of blood by exoerythrocytic hyponozoites
(c) Incomplete clearance of schizonts from blood
(d) Reinfection of blood by sporozoites

175. If a drug is active against the preerythrocytic stage of the malarial parasite it will be useful as a

(a) Suppressive prophylactic
(b) Causal prophylactic
(c) Clinical curative
(d) Radical curative

176. Chemoprophylaxis of malaria is recommended for the following category of subjects

(a) Residents of nonedemic areas
(b) Residents of endemic areas
(c) Travellers from nonendemic to endemic areas
(d) Travellers from endemic to nonendemic areas

177. Radical cure of vivax malaria should be attempted in

(a) Areas where only sporadic cases occur
(b) Endemic areas with effective vector control measures
(c) Endemic areas not covered by vector control
(d) Both (a) and (b)

178. Chloroquine acts as

(a) Preerythrocytic schizontocide for both P. falciparum and P. vivax
(b) Erythrocytic schizontocide for both P. falciparum and P. vivax
(c) Exoerythrocytic schizontocide for P. vivax
(d) Gametocidal for P. falciparum

179. Which of the following drugs is suitable for treatment of malaria during pregnancy

(a) Quinine
(b) Chloroquine
(c) Pyrimethamine
(d) Primaquine

180. Amodiaquine differs from chloroquine in the following respect(s)

(a) It is currently not recommended for treatment of clinical attacks of malaria
(b) Its used as a suppressive prophylactic is prohibited
(c) It is less bitter and causes less itching
(d) Both (b) and (c)

181. Choose the correct statement about mefloquine

(a) In a single dose it affords clinical cure in all types of malaria
(b) It is selectively active against chloroquine resistant P. falciparum but not the chloroquine sensitive Strains
(c) It is recommended only in areas where chloroquine resistant P.falciparum is prevalent
(d) Both (a) and (c)

182. The drug of choice for cerebral malaria due to P. falciparum is

(a) Quinine
(b) Mefloquine
(c) Chloroguanide
(d) Pyrimethamine + Sulfadoxine

183. Intravenous injection of quinine produces

(a) Rise in blood pressure
(b) Neuromuscular block
(c) Hyperglycaemia
(d) Hypoglycaemia

184. The following is true of quinine

(a) It has a longer elimination half-life than chloroquine
(b) It is not to be used for prophylaxis of malaria
(c) It is not active against P. vivax
(d) It should not be used along with sulfapyrimethamine

185. The fastest acting schizontocidal drug among the following is

(a) Artemether
(b) Melfoquine
(c) Chloroquine
(d) Pyrimethamine

186. Pyrimethamine + sulfadoxine should be used as a

(a) Clinical curative in areas with chloroquine resistance
(b) Clinical curative in areas without chloroquine resistance
(c) Prophylactic in areas with or without chloroquine resistance
(d) All of the above

187. Which of the following antimalarial drugs is more active against pre-and exoerythrocytic stages of the malarial parasite than against the erythrocytic stage ?

(a) Chloroguanide (b) Primaquine
(c) Pyrimethamine (d) Quinine

188. Use of the following antimalarial drug carrys high risk of adverse effect in subjects with G-6-PD deficiency.

(a) Pyrimethamine (b) Artemisinin
(c) Primaquine (d) Mefloquine

189. All of the following chemotherapy agents work through affecting microtubule function except

(a) Docotaxel (b) Vinblastine
(c) Mitoxantrone (d) Vincristine
(e) Vinorelbine

190. Choose the correct statement(s) about metronidazole

(a) It is a drug of choice for amoebic dysentery as well as amoebic liver abscess
(b) It affords the most rapid symptom relief in amoebi dysentery
(c) It is the most effective drug in eradicating amoebic cysts from the colon
(d) All of the above

191. Metronidazole is used for

(a) Round worm infestation
(b) Hook worm infestation
(c) Kala-azar
(d) Giardiasis

192. In addition to having antiamoebic activity, tinidazole inhibits

(a) Anaerobic bacillin
(b) Aerobic bacilli
(c) Gram-positive cocci
(d) Gram-negative cocci

193. Tinidazole differs from metronidazole in that

(a) It is not active against anaerobic bacteria
(b) It has a broader spectrum of activity
(c) It has a longer elimination half life
(d) It has better oral absorption

194. Emetine is now used only as a reserve drug for amoebiasis because

(a) It is less effective than metronidazole
(b) It produces a slower response than metronidazole
(c) It has cardiotoxic potential
(d) It does not clear stools of amoebic cysts

195. Choose the most effective drug for mild intestinal amoebiasis and asymptomatic cyst passers

(a) Metronidazole (b) Emetine
(c) Quiniodochlor (d) Diloxanide furoate

196. The following antiamoebic drug should not be used in children because of risk of causing blindness

(a) Quinidochlor (b) Diloxanide furoate
(c) Tinidazole (d) Secnidazole

197. After treating intestinal amoebiasis with metronidazole, a course of diloxanide furoate is often advised to

(a) Cure any subclinical hepatic involvement
(b) Suppress the symbiotic intestinal flora
(c) Eradicate luminal cyst forming trophozoites
(d) Both (b) and (c)

198. The following drug is used for oral treatment of trichomonas vaginitis

(a) Diiodohydroxyquin
(b) Tinidazole
(c) Clotrimazole
(d) Natamycin

199. The drug of choice for Kala Azar is

(a) Pentamidine
(b) Amphotericin B
(c) Sodium stibogluconate
(d) Ketoconazole

200. Pentamidine + contrimoxazole is the treatment of choice for the following disease

(a) Toxoplasmosis
(b) Pneumocystis carnii pneumonia
(c) Actinomycosis
(d) Schistosomiasis

201. Leishmania donovani is susceptible to certain antifungal drugs because both fungi and Leishmania

(a) Utilize purine salvage pathway
(b) Utilize similar glycolytic mechanisms
(c) Have similar topoisomerase II enzyme
(d) Have ergosterol in their cell membranes

202. Albendazole is less effective than mebendazole in the following helminthic infestation

(a) Hydatid disease (b) Trichuriasis
(c) Strongyloidosis (d) Ascariasis

203. The following helminthic disease can be treated by albendazole but not by mebendazole

(a) Hook worm infestation
(b) Thread worm infestation
(c) Trichuriasis
(d) Neurocysticercosis

204. Piperazine antagonizes the anthelmintic action of the following drug

(a) Pyrantel pamoate (b) Mebendazole
(c) Albendazole (d) Niclosamide

205. The following anthelmintic has been found to be safe during pregnancy

(a) Thialbendazole (b) Piperazine
(c) Albendazole (d) Pyrantel pamoate

206. A child has been brought with intestinal obstruction due to clumping of round worms. Which of the following anthelmintics administered by intragastic tube can relax the ascarids and relieve the obstruction

(a) Levamisole (b) Mebendazole
(c) Pyrantel pamoate (d) Piperazine

207. Thialbendazole is rarely used now because

(a) It is not active against round worm and hook worm
(b) It produces lower cure rates in intestinal helminthiasis than mebendazole or albendazole
(c) It needs pretreatment fasting and post treatment purgative
(d) It frequently produces incapacitating side effects

208. Select the drug used in the treatment of filariasis

(a) Diethyl carbamazine citrate
(b) Thialbendazole

(c) Levamisole
(d) Piperazine citrate

209. Diethyl carbamazine citrate has the following action in filariasis

(a) Rapidly kills adult filarial worms and stops production of microfilariae
(b) Kills circulating microfilariae
(c) Kills microfilariae present in nodules and serous fluids
(d) Promotes phagocytosis of circulating microfilariae

210. Hormonal agents that are useful in the treatment of cancer include

(a) Tamoxifen
(b) Prednisone
(c) Flutamide
(d) Tamoxifen and flutamide
(e) Tamoxifen, prednisone and flutamide

211. Praziquantel is preferred over niclosamide for Taenia solium infestation because

(a) It achieves higher cure rates
(b) It produces fewer side effects
(c) It does not lead to digestion of worm and kills encysted larvae, so that chances of cysticercosis are minimized
(d) Both (a) and (b)

212. For the treatment of Hymenolepis nana infestation, praziquantel has the following advantage(s) over niclosamide

(a) It is better tolerated
(b) It requires single dose treatment against 5 days treatment with niclosamide
(c) A purgative is required after niclosamide but not after praziquantel
(d) All of the above

213. Praziquantel is effective against the following helminth(s)

(a) Taenia saginata
(b) Diphyllobothrium latum
(c) Schistosomes
(d) All of the above

214. The following anticancer drug has high emetogenic potential

(a) Vincristine
(b) Chlorambucil
(c) 6-Mercaptopurine
(d) Cisplatin

215. The most important target of action of chlorambucil is

(a) Myeloid tissue (b) Lymphoid tissue
(c) Neural tissue (d) Skin

216. Which of the following antineoplastic drugs is a mitotic inhibitor and causes metaphase arrest ?

(a) Busulfan (b) Vincristine
(c) Cytarabine (d) Procarbazine

217. Vinca alkaloids exert antitumor activity by

(a) Activating topoisomerase II to cause breaks in DNA strands
(b) Crosslinking DNA strands
(c) Inhibiting DNA mediated RNA synthesis
(d) Inhibiting polymerization of tubulin to form intracellular microtubules

218. Vincristine differs from vinblastine in the following respect(s)

(a) Its prominent adverse effect is neuropathy
(b) It frequently produces alopecia
(c) It does not significantly depress bone marrow
(d) All of the above

219. Patients treated with the following anticancer drug are likely to develop a disulfiram like reaction on taking alcohol.

(a) Dacarbazine (b) Procarbazine
(c) Melphalan (d) Hydroxyurea

220. Select the cell cycle nonspecific antineoplastic drug.

(a) Vincristine (b) Bleomycin
(c) Methotrexate (d) 5-Fluorouracil

221. Biological response modifiers like GM-CSF are used in conjunction with anticancer drugs for the following purpose(s).

(a) To enhance antitumour activity of the drug
(b) To prevent hypersensitivity reactions to the drug

(c) To hasten recovery from druginduced myelosuppression
(d) Both (a) and (c)

222. Select the drug which is used exclusively in organ transplantation and autoimmune diseases, but not in cancers

(a) Cyclophosphamide
(b) Cyclosporine
(c) Methotrexate
(d) 6-Mercaptopurine

223. The following drug(s) is/are effective in reducing the occurrence of embolic stroke in auricular fibrillation patients

(a) Aspirin (b) Warfarin
(c) Digoxin (d) Both (a) and (c)

224. Sulfonamide used in treatment of ulcerative colitis is

(a) Sulfasalazine
(b) Sulfacetamide
(c) Silver sulfadiazine
(d) Mafenide

225. The cephalosporin that is active against pseudomonas aeruginosa is

(a) Cephalexin (b) Cephalothin
(c) Cefuroxime (d) Ceftazidime

226. To increase its blood concentration, imipenem is combined with

(a) Clavulanic acid (b) Sulbactam
(c) Probenecid (d) Cilastatin

227. Characteristic toxicity of ethambutol is

(a) Hepatitis
(b) Renal damage
(c) Vestibular damage
(d) Visual defects

228. Pyridoxine given to a patient of tuberculosis prevents

(a) INH induced peripheral neuritis
(b) Rifampicin induced hepatotoxicity
(c) Ethambutol induced visual defects
(d) Streptomycin induced nephrotoxicity

229. Isoniazid is ineffective in

(a) Treatment of M. avium complex
(b) Chemoprophylaxis of tuberculosis in HIV-infected persons
(c) Chemoprophylaxis of tuberculosis in children
(d) Multi-drug resistant tuberculosis

230. The agent useful in prevention of MAC infection in HIV infected individuals is

(a) Isoniazid (b) Pyrazinamide
(c) Rifabutin (d) Streptomycin

231. Dose of rifampicin recommended in multibacillary leprosy is 600 mg

(a) Once daily
(b) Once in a week
(c) Twice weekly
(d) Once in a month

232. The antimalarial agent that can be used during pregnancy is

(a) Halofantrine (b) Chloroguanide
(c) Mefloquine (d) Primaquine

233. The anti-fungal agent amphotericin B is also active aganist

(a) Anaerobic bacteria
(b) Giardia lambila
(c) Leishmania
(d) Rickettsiae

234. The anti amoebic agent implicated in causing subacute myelo-optic neuropathy (SMON) is

(a) Diloxanide furoate
(b) Iodochlorohydroxyquin
(c) Emetine
(d) Metronidazole

235. The drug of choice for tropical eosinophilia is

(a) Niridazole
(b) Niclosamide
(c) Diethyl carbamazine citrate
(d) Tetramisole

236. The agent used to treat tapeworm infestations is

(a) Praziquantel (b) Diloxanide furoate
(c) Pentamidine (d) Thialbendazole

237. Methotrexate

(a) Is useful in choriocarcinoma
(b) Is safe in patients with renal dysfunction
(c) Induced neurotoxicity is reversed by leucovorin
(d) Is not used in children

238. Prolactin

(a) Has somatotropic activity
(b) If low can cause infertility in women
(c) Can suppress menstrual cycle in lacting women
(d) Levels are increase by dopamine

239. Thioamide drugs

(a) Aggravate endocrine exophthalmos
(b) Are safe in children
(c) Produce irreversible hypothyroidism
(d) Do not produce relapse

240. Liothyronine is the drug of choice in treatment of

(a) Myxoedema coma
(b) Cretinism
(c) Iodine deficiency goiter
(d) Non-resectable cases of papillary thyroid carcinoma

241. When does the neutrophil nadir associated with chemotherapy agents generally occur?

(a) During administration of the chemotherapy
(b) 1–2 days after therapy
(c) 10–14 days after therapy
(d) 1 month after therapy
(e) When the platelet count begins to rise

242. Which of the following are the principal organisms in superinfection?

(a) Salmonella, shigella
(b) Candida, albicans, proteus and staphylococci
(c) E. Coli, Mycobacterium tuberculosis
(d) None of the above

243. In tuberculosis combination of antimicrobials is used

(a) To delay the development of drug resistance
(b) To reduce severity of adverse reactions
(c) To broaden the spectrum of antimicrobial activity
(d) All of the above

244. The bactericidal drugs act most effectively on

(a) The toxin liberated by organisms
(b) Preventing liberation of toxins from organisms
(c) Slowly dividing organisms
(d) Rapidly dividing organisms

245. Most of the laboratory sensitivity tests for antimicrobials are conducted at pH

(a) 4.6–4.8 (b) 8.4–8.6
(c) 3.2–3.6 (d) 7.2–7.4

246. Sulphonamides prevent the synthesis of folic acid in bacterial cells because

(a) They compete with PABA which is a precursor of folic acid
(b) They potentiate action of PABA which is natural antagonist of folic acid
(c) They bind to PABA and form a complex
(d) None of the above

247. Sulphonamide-trimethoprim combination becomes bactericidal because

(a) Sulphonamide inhibits conversion of folic acid to folinic acid, and trimethoprim from PABA to folic acid
(b) Sulphonamide inhibits conversion of PABA to folic acid and trimethoprim from folic acid to folinic acid
(c) Trimethoprim increases the free drug concentration of sulphonamide
(d) Sulphonamide increases the free drug concentration of trimethoprim

248. Sulphonamide given in late pregnancy or to new born can result in kernicterous because

(a) It stimulates synthesis of bilirubin
(b) It displaces bilirubin from plasma protein and and results in high free bilirubin concentration
(c) It prevents the metabolism of bilirubin
(d) It is metabolized in bilirubin

249. Concentration of sulphonamides in C.S.F. is about 40 to 80% of that in blood because

(a) In C.S.F. there is no protein to bind the drug
(b) C.S.F. has higher protein content than the blood
(c) C.S.F has low protein content than the blood
(d) In C.S.F sulphonamides are quickely destroyed

250. Sulphonamides are primarily metabolized by

(a) Acetylation
(b) Glucuronidation
(c) Etheral sulphate formation
(d) None of the above

251. In an alkaline urine sulphonamides are

(a) Less soluble
(b) More soluble
(c) Not at all soluble
(d) No effect of pH on stability of sulphonamides

252. The risk of crystallurea by suylphonamides can be reduced by

(a) Giving more soluble sulphonamides
(b) Making urine alkaline
(c) Ensuring urinary volume at least 2 liters a day
(d) All of the above

253. Sulphamethizole is principally used for

(a) Topical application
(b) Systemic infection
(c) Occular infection
(d) Urinary infection

254. Stomatitis is characterized by all of the following signs and symptoms except

(a) headache (b) erythema
(c) bleeding (d) ulcerations
(e) dryness of mouth

255 In co-trimoxazole, sulphamethoxazole and trimethoprim are in ratio of

(a) 2 : 1 (b) 1 : 5
(c) 1 : 1 (d) 5 : 1

256. Pyrimethamine and progunil act by

(a) Interfering with parasite's ability to digest Hb
(b) Inhibiting dihydrofolate reductase which converts folic acid to folinic acid
(c) Interfering with plasmodium mitochondria
(d) By all of the above mechanisms

257. Drug resistance develops

(a) More readily to pyrimethamine than chloroquin
(b) More readily to chloroquin than pyrimethamine
(c) In both cases resistance does not develop
(d) In both cases resistance develops readily

258. For suppressive prophylaxis of malaria the drug used is

(a) Pyrimethamine 25 mg. once a week
(b) Pyrimethamine 250 mg. once a week
(c) Primaquine 15 mg daily for 2 days
(d) All of the above drug can be used

259. For radical cure of malaria the drug of choice is

(a) Primaquine 25 mg bd. × 7 days
(b) Primaquine 15 mg once daily × 14 days
(c) Chloroquine 400 mg. once is a month
(d) None of the above

260. Which of the following statements describe hemorrhagic cystitis? It

(a) Is caused by excretion of tumor cell breakdown products
(b) Is associated with iforfamide or cyclophosphamide administration
(c) Is caused by the administration of mesna
(d) Can be prevented or treated with acrolein
(e) Can be treated with G-CSF

261. The less common causative organism in urinary tract infection is

(a) E. Coli (b) Pseudomonas
(c) Tubercular bacilli (d) Proteus

262. In an acute U.T.I. with alkaline urine and unidentified organism, the treatment should begin with

(a) Co-trimoxazole (b) Sulphonamide
(c) Nitrofurantoin (d) Mendallic acid

263. Nitrofurantion is useful only in urinary tract infection because

(a) It is rapidly excreted and concentrated in urine
(b) It is rapidly metabolized in liver which prevents effective plasma concentration

(c) It's concentration in renal tissue is high because of renal tubular reabsorption
(d) It is effective against common organisms of U.T.I e.g. proteins, and E. Coli
(e) All above reasons

264. Hexamine mandelate is only effective in U.T.I. and not in systemic infection because

(a) It is only concentrated in urine
(b) In urine at pH less than 5.5, it liberates active antibacterials
(c) For systemic infection dose required is too high which is toxic
(d) Organisms in systemic infection are not sensitive to it

265. All of the following chemotherapy agents are vesicants except

(a) Doxorubicin (b) Mechlorethamine
(c) Vincristine (d) Methotrexate
(e) Idarubicin

266. Which of the following is most effective antitubercular drug?

(a) INH (b) Thioactazone
(c) PAS (d) Pyrazinamide

267. Which of the following drugs is effective against intracellular organism of tuberculosis?

(a) INH (b) Streptomycin
(c) PAS (d) Ethambutol

268. Isoniazid may cause peripheral neuropathy and anaemia as its side effects because

(a) It is toxic to nerves and to R.B.C
(b) It interferes with pyridoxin metabolism and induces its defeciency
(c) It prevents absorption of iron and ascorbic acid
(d) It is a type of hypersensitivity reaction

269. Rifampicin has gained significance in antitubercular therapy because

(a) It is the cheapest and effective drug
(b) It is least toxic, so suitable for chronic use
(c) It potentiates the antitubercular effect of other drugs
(d) It has reduced the duration of antitubercular therapy

270. In cell targeted suicide mode of gene therapy for cancer the prodrug used is

(a) Gancyclovir (b) Acyclovir
(c) Ara c/m (d) All of the above

271. Drug of choice for guinea worm infestation is

(a) Digoxin (b) Furosemide
(c) Enalapril (d) Amrinone

272. Which of the following can not be treated with danzol ?

(a) Endometriosis
(b) Menorrhagia
(c) Fibrocystic disease
(d) Hirsutism

273. Melphalan is the drug of choice in

(a) Leukemia
(b) Multiple myeloma
(c) Hodgkin's disease
(d) Osteosarcoma

274. Prolonged chlorpromazine therapy results in

(a) Osteomalacta
(b) Photosensitivity
(c) Yellowish discolouration
(d) Altered renal function

275. Drug of choice for actionomycosis is

(a) Penicillin (b) Tetracycline
(c) Sulfonamide (d) Dapsone

276. Match each of the following toxicities to the agent most likely to cause the toxicity

(a)	Cardiotixicity	(1)	Vincristine
(b)	Hypersensitivity	(2)	Irinotecan
(c)	Diarrhea	(3)	Doxorubicin
(d)	Pulmonary toxicity	(4)	Paclitaxel
(e)	Constipation	(5)	Bleomycin

ANSWERS

1. d	2. c	3. b	4. c	5. b	6. e
7. d	8. d	9. b	10. d	11. b	12. d
13. d	14. a	15. a	16. d	17. d	18. d
19. a	20. c	21. b	22. c	23. d	24. d
25. a	26. c	27. a	28. b	29. a	30. c
31. e	32. d	33. d	34. a	35. c	36. b
37. a	38. b	39. d	40. b	41. d	42. b
43. e	44. b	45. b	46. d	47. b	48. c
49. e	50. e	51. d	52. d	53. b	54. d
55. b	56. c	57. b	58. b	59. b	60. c
61. e	62. b	63. c	64. e	65. e	66. a
67. a	68. a	69. e	70. b	71. d	72. b
73. b	74. c	75. e	76. d	77. d	78. c
79. c	80. c	81. e	82. a	83. a	84. c
85. a	86. c	87. c	88. c	89. a	90. a
91. a	92. b	93. e	94. c	95. e	96. d
97. b	98. d	99. b	100. a	101. b	102. c
103. a	104. d	105. a	106. b	107. d	108. e
109. c	110. d	111. c	112. c	113. c	114. e
115. e	116. d	117. c	118. e	119. e	120. d
121. a	122. c	123. b	124. e	125. c	126. d
127. b	128. c	129. b	130. a	131. d	132. d
133. b	134. c	135. b	136. c	137. c	138. d
139. d	140. c	141. d	142. a	143. b	144. a
145. c	146. c	147. b	148. b	149. d	150. a
151. c	152. c	153. c	154. b	155. b	156. a
157. d	158. a	159. b	160. b	161. d	162. d
163. a	164. a	165. a	166. c	167. b	168. d
169. d	170. d	171. b	172. d	173. d	174. c
175. b	176. c	177. d	178. b	179. b	180. d
181. d	182. a	183. d	184. b	185. a	186. a
187. b	188. c	189. c	190. a	191. d	192. a
193. c	194. c	195. b	196. a	197. c	198. b
199. c	200. b	201. d	202. b	203. d	204. a
205. b	206. d	207. d	208. a	209. d	210. e
211. c	212. b	213. d	214. d	215. b	216. b
217. d	218. d	219. b	220. d	221. c	222. b
223. d	224. a	225. d	226. d	227. d	228. a
229. a	230. c	231. d	232. b	233. c	234. b
235. c	236. a	237. a	238. c	239. b	240. a
241. c	242. b	243. a	244. d	245. d	246. a

247. b	248. b	249. c	250. a	251. b	252. a
253. d	254. b	255. d	256. b	257. a	258. a
259. b	260. b	261. c	262. a	263. e	264. b
265. d	266. a	267. a	268. b	269. d	270. d
271. a	272. d	273. b	274. a	275. a	

276. a.3, b.4, c.2, d.5, e.1

EXPLANATIONS FOR THE ANSWERS

1. d Prostate cancer is the most common cancer in men, breast cancer is the most common cancer in women, followed by lung, then colon and rectum for both men and women.

27. a Phase-specific agents are most active in one specific phase of the cell cycle. These agents have no activity against cell in G_0, the resting phase. Examples of phase-specific agents include the mitotic inhibitors, asparaginase, the antimetabolites and etoposides.

53. b BSA correlates with cardiac output, which determines renal and hepatic blood flow and thus affects drug elimination.

77. d Combination chemotherapy has been developed to have maximum cytotoxicity to tumor cells and minimal toxicity to normal cells. The drugs are dosed and scheduled such that maximal cell kill and occurs, while sparing normal cells as much as possible. Combination regimens often contain agents with different spectrums of toxicity.

95 e Intrathecally administered vincristine is fatal. All syringes of vincristine must be labeled "Fatal if given intrathecally. For intravenous use only."

119. e Cyclophosphamide and mechlorethamine are nitrogen mustards, a subgroup of the alkylating agents. Etoposide is a topoisomerase II inhibitor and paclitaxel is a mitotic inhibitor.

145. c Doxorubicin is an antitumor antibiotic that inhibits DNA synthesis by intercalation. Vincristine and paclitaxel are mitotic inhibitors that act on microtubule assembly. Topotecan inhibits topoisomerase I.

168. d Antimetabolites are structural analogues of naturally occurring substrates for biochemical reactions. They inhibit DNA synthesis by acting as false substitutions in the production of DNA.

189. c Docetaxel is a taxane, which works by promoting microtubule assembly and stabilization, resulting in inhibition of cell division. Vincristine, vinblastine and vinorelbine are vinca alkaloids, which work by preventing microtubule formation. Mitoxantrone is an antitumor antibiotic that works by DNA intercalation.

210. e Tamoxifen is an antiestrogen used in the treatment of breast cancer. Prednisone is used for its antilymphocytic. Properties in the treatment of non-Hodgkin's lymphoma. Flutamide is an antiandrogen used in the treatment of prostate cancer.

241. c Bone marrow suppression, particularly of the neutrophils, ususlly is the most profound 10–14 days after chemotherapy.

252. a Stomatitis, or mucositis, is an inflammation of the mucous membranes, particularly the oral mucosa. Although the symptoms generally are limited to the mouth and throat, stomatitis may effect any part of the gastrointestinal tract, potentially causing diarrhea and anal fissures.

260. b Hemorrhagic cystitis results from irritation of the lining of the bladder by acrolein, a metabolite of ifosfamide and cyclophosphamide. Mesna may be used to inactivate the acrolein, thus preventing hemorrhagic cystitis.

265. d Vesicant chemotherapy agents may cause local necrosis if extravasated outside the vein. Doxorubicin, idarubicin, mechlorethamine and vincristine are all classified as vesicants.

276.a. 3, b. 4, c. 2, d. 5, e.1: Cardiotoxicity is associated with cumulative doses of doxorubicin and other antitumor antibiotics. Hypersensitivity from paclitaxel may be due to its cremophor diluent. Severe diarrhea, requiring treatment with atropine, is associated with irrinotecan. Pulmonary toxicity is associated with cumulative doses of bleomycin. Severe constipation and paralytic ileus is associated with the use of vincristine.

Chapter 12

DRUGS USED IN ENDOCRINE DISORDERS (HORMONES)

1. Which one of the following compounds is not a hormone?

(a) Bromocriptine (b) Somatomedin
(c) Somatotropin (d) Thyroxine
(e) Vasopressin

2. Which one of the following hormones not synthesized in the hypothalamus?

(a) Corticotropin–releasing hormone
(b) Luteinizing hormone
(c) Oxytocin
(d) Thyrotropin–releasing hormone
(e) Vasopressin

3. An important difference between leuprolide and the new drug ganirelix is that ganirelix

(a) Can be administered as an oral formulation
(b) Can be used alone to restore fertility to hypogonadal men and women
(c) Immediately reduces gonadotropin secretion
(d) Initially stimulates pituitary production of LH and FSH
(e) Must be administered in a pulsatile fashion

4. A 27-year-old woman with amenorrhea, infertility, and galactorrhea was treated with a drug that successful restored ovulation and menstruation. Before being given the drug, the woman was carefully questioned about previous mental health problems, which she did not have. She was advised to take the drug orally. The drug used to treat this patient was probably.

(a) Bromocriptine
(b) Desmopressin
(c) Human gonadotropin hormone
(d) Leuprolide
(e) Octreotide

5. Who is least likely to be treated with somatropin?

(a) A 3-year-old cow on a diary farm
(b) A 4-year-old girl with an XO genetic genotype
(c) A 4-year-old boy with chronic renal failure and growth deficiency
(d) A 10-year-old boy with polydipsia and polyuria
(e) A 37-year-old AIDS patient who is 180 cm tall and weights 52 Kg

6. Hormones that are useful in the diagnosis of endocrine insufficiency include

(a) Corticotropin-releasing hormone
(b) Cosyntropin
(c) Gonadotropin–releasing hormone
(d) Thyrotropin–releasing hormone
(e) All of the above

7. All of the following substances are endogenous topic hormones secreted by the pituitary gland except

(a) Somatotropin
(b) Human chorionic gonadotropin (HCG)

(c) Follicle-stimulating hormone (FSH)
(d) Thyroid-stimulating hormone (TSH)
(e) Adrenocorticotropic hormone (ACTH)

8. Which of the following drugs is least likely to be used as part of a controlled ovarian hyperstimulation protocol?

(a) Human chorionic gonadotropin
(b) Leuprolide
(c) Menotropins
(d) Pergolide
(e) Urofollitropin

9. Actions of thyroxine do not include

(a) Acceleration of cardiac rate
(b) Decreased glomerular filtration rate
(c) Fine tremor of skeletal muscles
(d) Increased appetite
(e) Stimulation of oxygen consumption

10. Effects of iodide salts given in large doses do not include

(a) Decreased size of the thyroid gland
(b) Decreased vascularity of the thyroid gland
(c) Decreased hormone release
(d) Decreased iodination of tyrosine
(e) Increased ^{131}I uptake

11. Synptoms of hypothyroidism (myxedema) do not include

(a) Dry, puffy skin
(b) Increased appetite
(c) Large tongue and drooping of the eyelids
(d) Lethargy, sleepiness
(e) Slow heart rate

12. When initiating thyroxine therapy for an elderly patient with long-standing hypothyroidism, it is important to begin with small doses to avoid

(a) A flare of exophthalmos
(b) Acute renal failure
(c) Hemolysis
(d) Overstimulation of the heart
(e) Seizures

13. A 46-year-old male patient has Cushing's syndrome that is due to the presence of an adrenal tumor. Which of the following drugs would be expected to reduce the signs and symptoms of this man's disease?

(a) Betamethasone (b) Cortisol
(c) Fludrocortisone (d) Ketoconazole
(e) Triamcinolone

14. In the treatment of congenital adrenal hyperplasis in which there is excess production of cortisol precursors due to a lack of 21β-hydroxylase activity, the purpose of administration of a synthetic glucocorticoid is

(a) Inhibition of aldosterone synthesis
(b) Normalization of renal function
(c) Prevention of hypoglycemia
(d) Recovery of normal immune function
(e) Suppression of ACTH secretion

15. Glucocorticoids have not been proved to be effective in the treatment of

(a) Acute lymphocytic leukemia
(b) Addison's disease
(c) Asthma
(d) Chemotherapy-inhduced vomiting
(e) Osteoporosis

16. For patients who have been on long-term therapy with a glucocorticoid and who now wish to discontinue the drug, gradual tapering of the glucocorticoid is needed to allow recovery of

(a) Depressed release of insulin from pancreatic B cells
(b) Hematopoiesis in the bone marrow
(c) Normal osteoblast function
(d) The control by vasopressin of water excretion
(e) The hypothalamic-pituitary-adrenal system

17. A 24-year-old woman with type 1 diabetes wishes to try tight control of her diabetes to improve her long-term prognosis. Which of the following regimens is most appropriate?

(a) Morning injections of mixed lente and ultralente insulins
(b) Evening injections of mixed regular and lente insulin

(c) Morning and evening injections of regular insulin, supplemented by small amounts of insulin at mealtimes
(d) Morning injections of ultralente insulin, supplemented by small amounts of insulin lispro at mealtimes
(e) Morning injection of semilente insulin and evening injection of lente insulin

18. Which of the following substances when present in urine is the most likely positive sign of pregnancy?

(a) Thyroid-stimulating hormone (TSH)
(b) Corticotropin
(c) Human chronic gonadotropin (HCG)
(d) Interstitial cell-stimulating hormone (ICSH)
(e) Protamine zinc insulin (PZI)

19. A 54-year-old obese patient with type 2 diabetes and a history of alcoholism probably should not receive metformin because it can increase his risk of

(a) A disulfiram-like reaction
(b) Excessive weight gain
(c) Hypoglycemia
(d) Lactic acidosis
(e) Serious hepatotoxicity

20. Which of the following drugs is taken during the first part of a meal for the purpose of delaying the absorption of dietary carbohydrates?

(a) Acarbose (b) Colestipol
(c) Glipizide (d) Pioglitazone
(e) Repaglinide

21. Which of the following drugs is most likely to cause hypoglycemia when used as monotherapy in the treatment of type 2 diabetes?

(a) Acarbose (b) Glyburide
(c) Metformin (d) Miglitol
(e) Rosiglitazone

22. In the treatment of hypothyroidism, thyroxine is preferred over liothyronine because thyroxine

(a) Can be made more easily by recombinant DNA technology
(b) Has a longer half-life
(c) Has higher affinity for thyroid hormone receptors
(d) Is faster acting
(e) Is more likely to improve a patient's mood

23. A young woman seeks advice because she had unprotected sexual intercourse 12 hours earlier. Based on her menstrual cycle, she believes that conception is possible. Which of the following drugs should she use as a postcoital contraceptive?

(a) Clompihene
(b) Diethylstilbestrol plus raloxifene
(c) Ethinyl estradiol combined with norethindrone
(d) Flutamide
(e) Letrozole plus finasteride

24. All of the following hormonal drugs possess a steroidal nucleus except

(a) Ethinyl estradiol
(b) Nonethindrone
(c) Liothyronine
(d) Prednisolone
(e) Fluoxymesterone

25. Which one of the following statements about hormone replacement therapy (HRT) regimens in menopause is accurate?

(a) It commonly includes a progestin to reduce the risk of endometrial cancer
(b) It has been shown in clinical trials to reduce migraine attacks
(c) It includes steroids that induce cytochrome P450
(d) It should be avoided in women with a history of diabetes
(e) It uses the same effective doses of steroids as those combined oral contraceptives

26. Hypercoagulability and dermal vascular necrosis due to protein C deficiency is known to be an early–appearing adverse effect of treatment with

(a) Aspirin (b) Clopidogrel
(c) Heparin (d) Streptokinase
(e) Warfarin

27. A 42-year-old woman requires treatment for diabetes insipidus following surgical removal of part of her pituitary gland. The advantage of treating this patient with desmopressin instead of vasopressin is that desmopressin

(a) Causes less formation of factor VIII
(b) Causes less hypernatremia
(c) Causes less hyperprolactinemia
(d) Is more selective for the V_2 receptor subtype
(e) Provides greater relief of the excessive thirst the patient experiencing

28. All of the following substances are endogenous tropic hormones secreted by the pituitary gland except

(a) Somatotropin
(b) Human Chorionic Gonadotropin (HCG)
(c) Follicle-timulating hormone (FSH)
(d) Thyroid-stimulating hormone (TSH)
(e) Corticotropin (ACTH)

29. Which of the following substances when present in urine is the most likely positive sign of pregnancy?

(a) Thyroid–stimulating hormone (TSH)
(b) Corticotropin (ACTH)
(c) Human chorionic gonadotropin (HCG)
(d) Interstital cell-stimulating hormone (ICSH)
(e) Protamine zinc insulin (PZI)

30. Which of the following glucocorticoids produces the least sodium retention?

(a) Corticosone
(b) Hydrocorticosone
(c) Prednisolone
(d) Dextramethasone
(e) Fludrocortisone

31. Which of the following glucocorticoids produces the least sodium retention?

(a) Cortisone (b) Hydrocortisone
(c) Prednisolone (d) Dexamethasone
(e) Fludrocortisone

32. Which of the following insulins can be administered intravenously?

(a) Regular insulin
(b) Isophane insulin (NPH)
(c) Protamine zinc insulin (PZi)
(d) Semilente insulin
(e) Ultralente insulin

33. Which of the following classes of compounds stimulates the release of insulin from pancreatic β-cells?

(a) Progestins
(b) Biguanides
(c) α-Glucosidase inhibitors
(d) Thiourylenes
(e) Sulfonylureas

34. Insulin preparations that contain a modifying protein include

(a) Lente insulin
(b) Regular insulin
(c) Isophane insulin (NPH)

35. Metabolic reactions likely to be affected by a protein–deficient diet include

(a) Glycine conjugation
(b) Hydrolysis
(c) Glucuronidation

36. What is the correct formula to use for calculating the free thyroxine index (FTI)?

(a) $T_4 \times RT_3U$/mean serum RT_3U
(b) $T_3 \times T_3$/mean serum RT_3U
(c) $T_3 \times RT_3U$/mean serum RT_3U
(d) $T_4 \times RT_3U \times$ mean serum RT_3U
(e) $T_3 \times RT_3U \times$ mean serum RT_3U

37. Which of the following insulins can be administered intravenously?

(a) Regular insulin
(b) Isophane insulin (NPH)
(c) Protamine zinc insulin (PZI)
(d) Semilente insulin
(e) Ultralente insulin

38. All of the following conditions are causes of hyperthyroidism except

(a) Graves' disease
(b) Hashimoto's thyroiditis
(c) Toxic multinodular goiter
(d) Triiodothyronine tocicosis
(e) Plummer's disease

39. Which of the following preparations is used to attain remission of thyrotoxicosis?

(a) Propranolol (b) Liotrix
(c) Levothyroxine (d) Propylthiouracil
(e) Desiccated thyroid

40. The thyroid gland normally secretes which of the following substances into the serum?

(a) Thyrotropin-releasing hormone (TRH)
(b) Thyrotropin (thyroid-stimulating hormone)
(c) Diiodothyronine (DIT)
(d) Thyroglobulin
(e) Thyroxine (T_4)

41. All of the following conditions are causes of hypothyroidism except

(a) Endemic goiter
(b) Surgical excision
(c) Hashimoto's thyroiditis
(d) Goitrin-induced iodine deficiency
(e) Graves's disease

42. Common tests to monitor patients receiving replacement therapy for hypothyroidism include all of the following except

(a) Thyrotropin (TSH)stimulation test
(b) Sensitive TSH assay
(c) Free thyroxine index (FTI)
(d) Resin triiodothyronine uptake (RT_3U)
(e) Total thyroxine (TT_4)

43. Which of the following pairs of preparations has been studies for bioequivalence?

(a) Levoxyl–Thyrolar
(b) Thyroglobulin - Proloid
(c) Levothroid - Synthroid
(d) Cytomel - Synthroid
(e) Desiccated thyroid–Armour thyroid

44. The inhibition of pituitary thyrotropin secretion iscontrolled by which of the following?

(a) Free thyroxine (T_4)
(b) Thyroid–releasing hormone (TRH)
(c) Free thyroxine index (FTI)
(d) Reverse triiodothyronine (rT_3)
(e) Total thyroxine

45. Which of the following agents has been shown to interact with oral thyroxine (T_4) replacement therapy?

(a) Propylthiouracil (b) Cholestyramine
(c) Thyrotropin (d) Levothyroxine
(e) Lovastatin

46. What laboratory tests are currently recommended by the Thyroid association to diagnose thyroid disease?

(a) Resin triiodothyronine uptake (RT_3U) and total thyroxine (TT_4)
(b) Thyrotropin (TSH)and free thyroxine index (FTI)
(c) Total thyroxine (TT_4)and sensitive TSG assay
(d) Free T_4 and sensitive TSH assay
(e) Free T_4 and RT_3U

47. What patient population should be screened for thyroid disease?

(a) Hospitalized patients
(b) Elderly patients with chronic disease
(c) Elderly hospitalized patients
(d) College students
(e) Women over 20 years old

48. What is the average replacement dose of levothyroxine for an otherwise healthy adult?

(a) 25–50 μg/day
(b) 50–100 μg/day
(c) 75–150 μg/day
(d) 100–200 μg/day
(e) 200–400 μg/day

49. In comparing levothyroxine to liothyronine, which of the following statements is not correct?

(a) Both levothyroxine and liothyronine are naturally occurring thyroid hormones
(b) Liothyronine can be converted in the peripheral circulation to levothyroxine.
(c) Liothyronine is more potent than levothyroxine
(d) The plasma concentration of liothyronine is less than that of levothyroxine.
(e) Liothyronine has a shorter duration of action than levothyroxine.

50. Which of the values represents the lower level of detection for the fourth generation sensitive TSH assay as established by the Thyroid Association?

(a) 0.5–5 mlU/L
(b) 1–2 mlU/L
(c) 0.01–0.02 mlU/L
(d) 0.0001–0.002 mlU/L
(e) 0.0001–0.0002 mlU/L

51. In which of the following clinical presentations should the sensitive TSH assay be used?

(a) Population screening for thyroid disease
(b) Screening hospitalized patients
(c) Patients receiving thyroid replacement after 6 to 8 weeks of therapy
(d) Patients who are human immunodeficiency virus (HIV) positive
(e) Screening patients with psychiatric illness

52. Which of the following classes of compounds stimulates the release of insulin from pancreatic β-cells?

(a) Progestins
(b) Biguanides
(c) α-Glucosides inhibitors
(d) Thiourylenes
(e) Sulfonylureas

53. Which of the following is not an estrogenic substance?

(a) Estradiol
(b) Premarin
(c) Theelin
(d) Follicle-stimulating hormone
(e) Stilbesterol

54. Propylthiouracil is useful in the treatment of

(a) Derangement toxicosis
(b) Hypothyroidism
(c) Hypoparathyroidism
(d) Hyperthyroidism
(e) Thyroidits

55. Which of the following is an idiosyncratic adverse drug reaction ?

(a) Muscle dystonia caused by triflupromazine
(b) Insomnia after taking pentobarbitone
(c) Precipitation of asthma by morphine
(d) Gum hyperplasia caused by phenytoin

56. An immunologically mediated reaction to a drug producing stereotyped symptoms unrelated to its pharmacodynamic actions is

(a) Hypersensitivity (b) Supersensitivity
(c) Intolerance (d) Idiosyncrasy

57. Drugs producing allergic reactions generally act as

(a) Complete antigens
(b) Haptenes
(c) Antibodies
(d) Mediators

58. Which of the following allergic drug reaction is caused by circulating antibodies ?

(a) Serum sickness
(b) Anaphylactic shock
(c) Systemic lupus erythematosus
(d) Angioedema

59. The essential feature in drug addiction is

(a) Physical dependence
(b) Psychological dependence
(c) Both (a) and (b)
(d) Psychiatric abnormality

60. Adaptive neurophysiological changes produced by repeated administration of a drug, which result in the appearance of characteristic withdrawal syndrome on discontinuation of the drug is called

(a) Drug addiction
(b) Drug abuse
(c) Psychological dependence
(d) Physical dependence

61. What constitutes 'drug abuse'?

(a) Physician prescribed use of penicillin G for the cure of viral fever
(b) Self administration of aspirin to relieve headache
(c) Repeated self administration of morphine to derive euphoria
(d) All of the above

62. Under physiological conditions the rate limiting enzyme in the generation of angiotensin II is

(a) Renin
(b) Angiotensin converting enzyme
(c) Aminopeptidase
(d) Angiotensinase

63. Angiotensin II causes rise in blood pressure by

(a) Direct vasoconstriction
(b) Releasing adrenaline from adrenal medulla
(c) Increasing central sympathetic tone
(d) All of the above

64. Which of the following is a pressor peptide that can be generated both in circulation as well as locally in certain tissues ?

(a) Bradykinin (b) Angiotensin
(c) Kallidin (d) Plasmin

65. Angiotensin II palys a key role in the following risk factor for ischaemic heart disease

(a) Hypercholesterolemia
(b) Ventricular hypertrophy
(c) Carbohydrate intolerance
(d) Cardiac arrhythmia

66. Several actions of growth hormone are exerted through the elaboration of

(a) Cyclic AMP
(b) Cyclic GMP
(c) Somatostatin
(d) Insulin like growth factor – 1

67. Somatostatin inhibits the release of

(a) Growth hormone (b) Insulin
(c) Thyrotropin (d) All of the above

68. For therapeutic use, growth hormone is obtained from

(a) Recombinant DNA technique
(b) Human cadaver pituitaries
(c) Porcine pituitaries
(d) Chemical synthesis

69. Which of the following compounds is incorrectly matched with its mechanism of action?

(a) Flutamide: Competitively blocks the binding of androgens to their receptor
(b) Finasteride: Inhibits 5α-reductase
(c) Miglitol: Inhibits α-glucosidase
(d) Pioglitazone: Competitively blocks the binding of estrogens to their receptor
(e) Anastrazole: Inhibits aromatase

70. The most prominent action of bromocriptine is

(a) Dopamine D2 agonism
(b) Dopamine D2 antagonism
(c) Dopamine D1 antagonism
(d) α adrenergic antagonism

71. Gynaecomastia can be treated with

(a) Chlorpromazine
(b) Cimetidine
(c) Bromocriptine
(d) Metoclopramide

72. Menotropins is a preparation of

(a) FSH + LH obtained from urine of menstruating women
(b) LH obtained from urine of pregnant women
(c) FSH + LH obtained from urine of menopausal women
(d) LH obtained from serum of pregnant mare

73. Serum TSH levels are high in most cases of

(a) Myxoedema
(b) Grave's disease
(c) Carcinoma thyroid
(d) Toxic nodular goiter

74. Adrenocorticotropic hormone is primarily used for

(a) Treatment of Addison's disease
(b) Treatment of congenital adrenal hyperplasia
(c) Treatment of autoimmune disease
(d) Diagnosis of pituitary-adrenal axis disorders

75. Which of the following compounds is incorrectly matched with one of its therapeutic uses?

(a) Raloxifene: Advanced breast cancer
(b) Metformin: Non-insulin dependent diabetes mellitus (NIDDM)

(c) Finasteride : Benign prostatic hyperplasia
(d) Propylthiouracil: Hyperthyroidism
(e) Tamoxifen : Estrogen-dependent breast cancer

76. Metabolic rate of the following organ is not significantly affected by thyroxine

(a) Brain (b) Heart
(c) Liver (d) Skeletal muscle

77. Actions of thyroxine include the following except

(a) Rise in blood sugar level
(b) Reduction in plasma cholesterol level
(c) Fall in plasma free fatty acid level
(d) Induction of negative nitrogen balance

78. Triiodothyronine is preferred over thyroxine in the treatment of

(a) Endemic goiter
(b) Cretinism
(c) Papillary carcinoma of thyroid
(d) Myxoedema coma

79. Carbimazole acts by inhibiting

(a) Iodide trapping
(b) Oxidation of iodide
(c) Proteolysis of thyroglobulin
(d) Synthesis of thyroglobulin protein

80. Antithyroid drugs exert the following action.

(a) Block the action of thyroxine on peripheral tissues
(b) Block the action of thyroxine on pituitary
(c) Block the action of TSH on thyroid
(d) Inhibit thyroxine synthesis

81. A 60-year-old male presents with severe hyperthyroidism and multinodular goiter. It was decided to treat him with ^{131}I. The most appropriate course of treatment would be

(a) Immediate ^{131} I dosing with no other drug before or after
(b) Propranolol for 1 week followed by ^{131} I
(c) Propranolol + carbimazole till severe thyrotoxicosis controlled – 1 week gap – ^{131} I – resume carbimazole after 1 week for 2 – 3 months
(d) Propranolol + Lugol's iodine for 2 weeks – ^{131} I – continue Lugol's iodine for 2 – 3 months

82. The thyroid inhibitor which produces the fastest response is

(a) Radioactive iodine
(b) Lugol's iodine
(c) Propylthiouracil
(d) Lithium carbonate

83. In the treatment of hyperthyroidism, carbimazole has the following advantage over radioactive iodine.

(a) cost of treatment is lower
(b) It is preferable in uncooperative patient
(c) It is better tolerated by the patients
(d) Hypothyrodism when in luced is reversible

84. Glucose entry into the cells of the following organ/ tissue is highly dependent on the presence of insulin.

(a) Brain (b) Liver
(c) Adipose tissue (d) Kidney tubules

85. Prolonged testosterone therapy can cause

(a) Hypertrophy of seminiferous tubules of testes
(b) Hypertrophy of interstitial cells of testes
(c) Atrophy of interstitial cells of testes
(d) Both (a) and (b)

86. Testosterone therapy started in a boy of 8 years and continued till puberty is likely to

(a) Increase adult stature
(b) Reduce adult stature
(c) Have no effect on adult stature
(d) Cause hypertrophy of penis

87. Which of the following is true of anabolic steroids ?

(a) They are testosterone congeners having anabolic but no androgenic activity
(b) They are androgens with relatively selective anabolic activity
(c) They are suitable for long-term therapy in children
(d) Both (b) and (c)

88. Which of the following drugs has potent antiandrogenic and weak progestational activity ?

(a) Digoxin (b) Furosemide
(c) Enalapril (d) Amrinone

89. Which of the following is a non-steroidal antiandrogen that has been found to be palliative in advanced carcinoma prostate ?

(a) Cyproterone acetate
(b) Danazol
(c) Finasteride
(d) Flutamide

90. Hormones that form lipophilic esters without prior structural modifications include

I. Hydrocortisone
II. Testosterone
III. Progesterone

(a) I only is correct
(b) III only is correct
(c) I and II are correct
(d) II and III are correct
(e) I, II and III are correct

91. Finasteride acts by

(a) Blocking testosterone receptors in the prostate gland
(b) Reducing testosterone secretion from testes
(c) Reducing LH secretion from pituitary
(d) Reducing circulating as well as prostatic dihydrotestosterone concentration

92. Transdermal estradiol differs from oral estrogen therapy in that it

(a) FSH + LH obtained from urine of menstruating women
(b) LH obtained from urine of pregnant women
(c) FSH + LH obtained from urine of menopausal women
(d) LH obtained from serum of pregnant mare

93. In which of the following conditions estrogen is not the primary drug but is added to progestin as adjuvant ?

(a) Dysfunctional uterine bleeding
(b) Menopausal syndrome
(c) Osteoporosis
(d) Atrophic vaginitis

94. Addition of a progestin for 10-12 days each month to estrogen replacement therapy in menopausal women is recommended because the progestin

(a) Blocks the increased risk of myocardial infarction due to estrogen
(b) Blocks the increased risk of endometrial carcinoma due to estrogen
(c) Reverses vulval atrophy occurring in postmenopausal women
(d) Enhances the metabolic benefits of estrogen treatment

95. The preferred estrogen for hormone replacement therapy in menopausal women is

(a) Ethinylestradiol
(b) Estradiol benzoate
(c) Diethylstilbestrol
(d) Conjugated estrogens

96. Select the compound which used for hormone replacement therapy in postmenopausal women serves the purpose of both estrogen and progestin with weak androgenic activity.

(a) Digoxin (b) Furosemide
(c) Enalapril (d) Amrinone

97. Estrogen replacement therapy fro postmenopausal women is contraindicated in subjects with

(a) Leg vein thrombosis
(b) Undiagnosed vaginal bleeding
(c) Migraine
(d) All of the above

98. Clomiphene citrate is indicated for the following condition/conditions

(a) Female infertility due to anovular cycles
(b) Male infertility due to oligozoospermia
(c) Endometriosis
(d) Both (a) and (b)

99. Which of the following is an orally active ovulation inducing agent ?

(a) Menotropin (b) Mifepristone
(c) Danazol (d) Clomiphene citrate

100. Insulin preparations that contain a modifying protein include

I. Lente insulin
II. Regular insulin
III. Isophane insulin (NPH)

(a) I only is correct
(b) III only is correct
(c) I and II are correct
(d) II and III are correct
(e) I, II and III are correct

101. Progesterone administration

(a) Suppresses onset of menstruation
(b) Induces watery cervical secretion
(c) Sensitizes the uterus to oxygocin
(d) Cornifies vaginal epithelium

102. Select the indication for which a progestin is used alone without combining with an estrogen.

(a) Threatened abortion
(b) Dysfunctional uterine bleeding
(c) Hormone replacement therapy
(d) Premenstrual tension

103. Mifepristone possesses the following activities

(a) Potent antiprogestin + weak androgenic
(b) Potent antiprogestin + weak antiglucocorticoid
(c) Potent antiestrogenic + weak antiprogestin
(d) Potent antiestrogenic + weak glucocorticoid

104. Which of the following drugs is an antiprogestin

(a) Gemeprost (b) Megestrol
(c) Mifepristone (d) Tamoxifen

105. The most important indication of mifepristone is

(a) Endometriosis
(b) Cushings syndrome
(c) First term abortion
(d) Second term abortion

106. Which of the following can act as a single dose postcoital contraceptive ?

(a) Clomiphene citrate
(b) Mifepristone
(c) Danazol
(d) Medroxyprogesterone acetate

107. Which hormone is secreted by pancreatic β cells to facilitate glucose and amino acid transport for normal cellular metabolic processes ?

(a) Testosterone (b) Insulin
(c) Corticotropin (d) Estradiol
(e) Vasopressin

108. The purpose/purposes served by the progestin component of the combined estrogen + progestin contraceptive pill is/are

(a) Suppression of ovulation
(b) Prompt bleeding at the end of the course
(c) Blockade of increased risk of endometrial carcinoma
(d) All of the above

109. In which of the following forms of oral contraception, pills are taken continuously without interruption ?

(a) Combined pill (b) Sequential pill
(c) Minipill (d) Phased pill

110. A progestin and an estrogen are combined in oral contraceptive pill because

(a) The estrogen blocks the side effects of the progestin
(b) The progestin blocks the side effects of the estrogen
(c) Both synergise to suppress ovulation
(d) Both synergise to produce hostile cervical mucus

111. The most common and important undersirable effect of injectable contraceptive depot medroxyprogesterone acetate is

(a) Nausea and vomiting
(b) Disruption of cyclic menstraual bleeding
(c) Venous thrombosis
(d) Hypertension

112. The primary mechanism of action of the combined estrogen-progestin oral contraceptive pill is

(a) Production of cervical mucus hostile to sperm penetration
(b) Suppression of FSH and LH release
(c) Making endometrium unsuitable for implantation
(d) Enhancing uterine contractions to dislodge the fertilized ovum

113. Which of the following is advised when a woman on combined oral contraceptive pill misses a dose

(a) Continue with the course without regard to the missed dose
(b) Take 2 pills the next day and continue with the course
(c) Take 2 pills every day for the remaining part of the course
(d) Discontinue the course and use alternative method of contraception

114. Which side effect effect of the oral contraceptive subsides after 3-4 cycles of continued use

(a) Glucose intolerance
(b) Rise in blood pressure
(c) Headache
(d) Fluid retention

115. Concurrent use of the following drug is likely to cause failure of oral contraception

(a) Isoniazid (b) Rifampicin
(c) Cimetidine (d) Propranolol

116. On stoppage of the combined estrogen-progestin contraceptive pill, fertility returns after

(a) 1–2 months (b) 4–6 months
(c) 6–12 months (d) Uncertain period

117. Which hormone promotes the resorption of water at the renal distal convoluted tubule

(a) Testosterone (b) Insulin
(c) Corticotropin (d) Estradiol
(e) Vasopressin

118. Which of the following has been found to act as a male contraceptive without affecting libido or potency

(a) Cyproterone acetate
(b) Goserelin
(c) Centchroman
(d) Gossypol

119. Which of the following tissues is most sensitive to oxytocin.

(a) Myometrium
(b) Myoepithelium of mammary alvioli
(c) Vascular smooth muscle
(d) Renal collecting ducts

120. Which class of drug closely relates to : "Peptic ulceration and gastrointestinal hemorrhage; hyperglycemia, hypertension, and edema; "buffalo hump" and "moon face"; psychological disturbances; and increased susceptibility to infection ?

(a) Antithyroid agents
(b) Sulfonylurea oral hypoglyccemics
(c) Adrenocorticosteroids
(d) Progestins
(e) Androgens

121. Oxytocin is preferred over ergometrine for augmenting labour because

(a) It has brief and titratable action
(b) It is less likely to cause foetal anoxia
(c) It is less likely to impede foetal descent
(d) All of the above

122. The drug of choice for controlling post-partum haemorrhage is

(a) Oxytocin
(b) Methylergometrine
(c) Dihydroergotamine
(d) Prostaglandin E_2

123. Ergometrine stops post partum haemorrhage by

(a) Causing vasoconstriction of uterine arteries
(b) Increasing tone of uterine muscle
(c) Promoting coagulation
(d) Inducing platelet aggregation

124. Bone resorption is accelerated by

(a) Estrogens (b) Parathormone
(c) Bisphosphonates (d) Calcitonin

125. The primary action of parathormone is

(a) To increase intestinal calcium absorption
(b) To increase calcium reabsorption in kidney tubules
(c) To promote calcium deposition in extraosseus tissues
(d) To increase resorption of calcium from bone

126. The drug of choice for hypoparathyroidism is

(a) Parathormone (b) Calcium lactate
(c) Vitamin D (d) Pamidronate

127. The most suitable Vitamin D preparation for vitamin D dependent rickets is

(a) Calciferol (b) Cholecalciferol
(c) Calcifediol (d) Calcitriol

128. The vitamin that is regarded to be a hormone is

(a) Vitamin D (b) Vitamin C
(c) Vitamin B_{12} (d) Vitamin A

129. Which of the following drugs can cause rickets in children by interfering with Vitamin D action ?

(a) Tetracycline (b) Phenylbutazone
(c) Phenytoin (d) Ciprofloxacin

130. Estrogens

(a) Block bone resorption
(b) Maintain negative calcium balance
(c) Decrease HDL levels
(d) Increase bile acid secretion

131. Which class of drug closely relates to: "Agranulocytosis and other blood dyscrasias, cholestatic jaundice, nausea and vomiting, hypoglycemia and photosensitivity" ?

(a) Antithyroid agents
(b) Sulfonylurea oral hypoglyccemics
(c) Adrenocorticosteroids
(d) Progestins
(e) Androgens

132. The principle source of circulating estrogen in menstructing women is

(a) Granulosa cells
(b) Breast cells
(c) Placenta
(d) Gonadotropes

133. Progesterone

(a) Increases muscular contractility of fallopian tubes
(b) Decreases the frequency of LH pulses
(c) Increases the myometrial contractions
(d) Increases the thickness of the endometrium

134. Feminization is not a side effect of

(a) Mesterolone
(b) Testosterone cypionate
(c) Testosterone
(d) Testosterone propionate

135. Anabolic steroids are contraindicated in

(a) Prostatic carcinoma
(b) Carcinoma of the breast in females
(c) Promoting growth in hypogonadal children
(d) Refractory anaemias associated with hypoplastic bone marrow

136. Potassium iodide

(a) Increases bronchial secretions
(b) On prolonged use may result in hyperthyroidism
(c) Is useful in inflammation of the bronchi
(d) Is contraindicated in thyroid storm

137. Which of the following is physiological role of vasopressin ?

(a) Smooth muscle vasoconstriction
(b) Neurotransmission/neuromodulation
(c) Increased factor VIII concentration
(d) All of the above

138. Angiotensin increases peripheral resistance by

(a) Direct vasoconstriction
(b) Catecholamine release from adrenal medulla
(c) Noradrenaline release from sympathetic nerve terminals
(d) All of the above

139. The drug of choice for hypoparathyroidism is

(a) Parathormone (b) Pamidronate
(c) Calcium (d) Vitamin D

140. Which class of drug closely relates to: "Hepatotoxicity and jaundice, urinary retention and azoospermia, prostatic hypertrophy and priapism and paradoxical gynecomastia."

(a) Antithyroid agents
(b) Sulfonylurea oral hypoglyccemics
(c) Adrenocorticosteroids
(d) Progestins
(e) Androgens

ANSWERS

1. a	2. b	3. c	4. a	5. d	6. e
7. b	8. d	9. b	10. e	11. b	12. d
13. d	14. e	15. e	16. e	17. d	18. c
19. d	20. a	21. b	22. b	23. c	24. c
25. a	26. e	27. d	28. b	29. c	30. d
31. d	32. a	33. e	34. c	35. a	36. a
37. a	38. b	39. d	40. e	41. e	42. a
43. c	44. a	45. b	46. d	47. e	48. c
49. b	50. d	51. c	52. e	53. d	54. d
55. b	56. a	57. b	58. a	59. b	60. d
61. c	62. a	63. d	64. b	65. b	66. d
67. d	68. a	69. d	70. a	71. c	72. c
73. a	74. d	75. a	76. a	77. c	78. d
79. b	80. d	81. c	82. b	83. d	84. c
85. c	86. b	87. b	88. c	89.d	90. c
91. d	92. a	93. a	94. b	95. d	96. a
97. d	98. d	99. d	100. b	101. a	102. a
103. b	104. c	105. c	106. b	107. b	108. d
109. c	110. c	111. b	112. b	113. b	114. c
115. b	116. a	117. a	118. d	119. b	120. c
121. d	122. b	123. b	124. b	125. d	126. c
127. d	128. a	129. c	130. a	131. b	132. a
133. b	134. a	135. a	136. a	137. d	138. d
139. d	140. e				

EXPLANATIONS FOR THE ANSWERS

7. b Human chorinic gonadotropin (hCG) is produced by placental tissue and serves to stimulate the secretion of progesterone during pregnancy. Growth hormone (somatotropin), follicle-stimulating hormone (FSH), thyroid-stimulating hormone (TSH) and corticotropin (ACTH) are all secreted by the anteriour pituitary gland.

18. c Human chorinic gonadotropin (hCG) is a proteinaceous tropic hormone that is secreted by chorinic (e. g., placental) tissue. Thus, hCG is present in the urine only after conception has occurred.

24. c Liothyronine is a thyroid hormone. Thyroid hormones consist of iodinated aromatic amino acids and are not steroidal in nature. Ethinyl

estradiol is a steroidal estrogen, norethindrone is a steroidal 19-norprogestin, prednisolone is an adrenocorticosteroid and fluoxymesterone is a steroidal adrogen.

30. d Glucocorticoids have varying degrees of mineralocorticoid activity. This mineralocorticoid activity, which can result in sodium and fluid retention, can be blocked by the introduction of a methyl or hydroxyl group in position 16 of the steroidal nucleus. Dexamethasone has a 16 β-methyl substituent.

37. a Most insulin preparation are suspensions; thus, they contain particulate matter. Only clear solutions may be administered intravenously. Regular insulin, which consists of water-soluble crystalline zinc insulin is therefore suitable for intravenous administration. Insulin preparations are normally injected subcutaneously.

49. b The thyroid gland produces both levothyroxine (T4) and liothyronine (T3). The natural ratio of these compounds is 4 to 1 in favor of levothyroxine; therefore, liothyronine is normally present at a lower concentration thatn levothyroxine. Liothyronine is more potent than levothyroxine, but has a shorter duration of action. Peripheral conversion involves deiodination, thus levothyroxine is converted to liothyronine. The reverse process is not possible.

52. e Of the five classes of compounds listed, only biguanides, α-glucosidase inhibitors, and sulfonylureas are used in the treatment of non-insulin-dependent mellitus (NIDDM). These classes provide their beneficial effects through different mechanism of action. Biguanides enhance the peripheral use of insulin, suppress gluconeogenesis, and are often referred to as antiheperglycemic agents. α-Glucosidase inhibitors decrease the absorption of glucose . sulfonylureas and the structurally unrelated compounds, repaglinide and nateglinide, stimulate the secretion of insulin from pancreatic β-cells.

69. d Pioglitazone does not interact with estrogen receptors. It is an oral hypoglycemic agent that produces its effects by binding to nuclear peroxisome proliferator-activated receptors (PPARs) involved in transcription of insulin–responsive genes and in regulation of adipocyte differentiation and lipid metabolism. The other four agents are correctly matched to their mechanisms.

75. a Raloxifene is a selective estrogen receptor modulator (SERM) and is not used to treat breast cancer. Instead, because of its ability to reduce bone resorption and decrease bone turnover, it is used for the prevention of osteoporosis. All of the other four compounds are correctly matched to their therapeutic use. Finasteride is also used to treat androgenic alopecia.

90. c Hydrocortisone has a 21-hydroxyl group, and testosterone has a 17-hydroxyl group; therefore, both of these agents can form esters (e.g., hydrocorticosone acetate, testosterone propionate). Progesterone does not have any alcohol groups in its molecule; therefore, it cannot directly form any esters.

100. b Regular insulin, which is a rapid-acting insulin preparation, contains only zinc insulin crystals. All lente insulins are free of modifying proteins, which contributes to their hypoallergenic properties. Isophane insulin is NPH insulin, which contains protamina, a strongly basic protein. The protamine reduces the water solubility of zinc insulin and lengthens its duration of action. Isophane insulin is classified as an intermediate-acting insulin preparation, having a duration of action of about 24 hours.

Common explanation for 107. b, 117. a:

Insulin is required for the proper utilization of glucose and the transport of glucose and amino acids across cell membranes. Testosterone, which is produced principally from the Leydig cells of the testes, is responsible for male sexual characteristics. Vasopressin is secreted from the posterior pituitary and is sometimes referred to as an antidiuratic hormone.

Common explanation for 120. c, 131. b and 118. e:

Exogenously administered adrenocorticosteroids are effective anti-inflammatory agents but give rise to a wide range of metabolic and immunosuppressive effects that result in severe adverse effects. Oral antidiabetic agents of the sulfonylurea type can cause blood dyscrasias, impaired liver function, and photosensitivity. Exogenously administered adrogens suppress sperm formation and cause paradoxical gynecomastia. Most significant is the hepatotoxicity produced by alkyl-substituted adrogen compounds.

CHAPTER 13

ANTIDIABETICS

1. Current criteria used in the diagnosis of diabetes mellitus (DM) include all of the following symptoms except

(a) Fasting hyperglycemia
(b) Polyuria
(c) Polydipsia
(d) Tinnitus
(e) Weight loss

2. The most useful glucose test used in monitoring diabetes mellitus (DM) therapy is

(a) Urine monitoring
(b) Blood monitoring
(c) Renal function monitoring
(d) Cardiovascular monitoring
(e) Vascular monitoring

3. Which of the following statements concerning insulin replacement therapy is most accurate?

(a) Most commercial insulin products vary little with respect to time, course, and duration of hypoglycemic activity
(b) Regular insulins cannot be mixed with NPH (isophane insulin suspension)
(c) Regular insulin cannot be given intravenously
(d) Counting or regulating carbohydrate consumption is a necessity for all diabetic patients
(e) Insulin therapy does not have to be monitored closely

4. A mass of adipose tissue that develops at the injection site is usually due to the patients neglect in rotating the insulin injection site. This is known as

(a) Lipoatrophy
(b) Hypertrophic degenerative adiposity
(c) Lipohypertrophy
(d) Atrophic skin lesion
(e) Dermatitis

5. Sulfonylureas are a primary mode of therapy in the treatment of

(a) Insulin–dependent (type 1) diabetes mellitus (DDM) patients
(b) Diabetic patients experiencing severe hepatic or renal dysfunction
(c) Diabetic pregnant women
(d) Patient with diabetic ketoacidosis
(e) Non-insulin-dependent (type 2) DM patients

6. Patients taking chlorpropamide should avoid products containing

(a) Acetaminophen (b) Ethanol
(c) Vitamin A (d) Penicillins
(e) Milk products

7. The standard recommended dose of glyburide is

(a) 0.5–2 mg/day
(b) 1.25–20mg/day
(c) 50–100 mg/day
(d) 200 mg/day
(e) 200–1000 mg/day

8. Which of the following may increase the insulin need of diabetics?

(a) Isoniazid
(b) Penicillin
(c) Glyceryl guaiacolate
(d) Aspirin
(e) Prednisone

9. Excessive use of tolbutamide will lead to

(a) Diarrhea
(b) Prolonged hypoglycemia
(c) Tolerance to alcohol
(d) Acidosis
(e) Glycosuria

10. The insulin receptor is a

(a) Ion channel regulating receptor
(b) Tyrosine protein kinase receptor
(c) G-protein coupled receptor
(d) None of these

11. The duration of action of insulin–zinc suspension (lente insulin) is

(a) 2–4 hours (b) 8–10 hours
(c) 20–24 hours (d) 30–36 hours

12. The most common adverse reaction to insulin is

(a) Hypoglycaemia (b) Lipodystrophy
(c) Urticaria (d) Angioedema

13. Which of the following is a neuroglucopenic symptom of hypoglycaemia ?

(a) Sweating (b) Palpitation
(c) Tremor (d) Abnormal behavior

14. There is no alternative to insulin therapy for

(a) All insulin dependent diabetes mellitus (IDDM) patients
(b) All noninsulin dependent diabetes mellitus (NIDDM) patients
(c) NIDDM patients not controlled by a sulfonylurea drug
(d) NIDDM patients not controlled by a biguanide drug

15. In a patient of diabetes mellitus maintained on insulin therapy, administration of the following drug can vitiate glycaemia control.

(a) Prednisolone (b) Prazosin
(c) Paracetamol (d) Phenytoin

16. The insulin preparation of choice in diabetic ketoacidosis is

(a) Regular insulin
(b) Lente insulin
(c) Isophane insulin
(d) Monocomponent insulin

17. Insulin resistance can be overcome by the use of

(a) Corticosteroids
(b) Tolbutamide
(c) Protamine
(d) Monocomponent insulin preparations

18. Human insulins are obtained by the following sources/methods except

(a) Cadaver pancreas
(b) Proinsulin recombinant bacterial
(c) Precursor yeast recombinant
(d) Enzyme modification of prok insulin

19. Compared to pork/beef insulins, the human insulins

(a) Are more potent
(b) Have a faster kinetics of absorption and elimation
(c) Have longer biological action half-life
(d) Penetrated blood-brain barrier more efficiently

20. The second generation sulfonylurea hypoglycaemics differ from the first generation one in that they

(a) Are more potent
(b) Are longer acting
(c) Do not lower blood sugar in nondiabetics subject
(d) Are less prone to cause hypoglycaemic reaction

21. Metformin is preferred over phenformin because

(a) It is more potent
(b) It is less liable to cause lactic acidosis
(c) It does not interfere with vitamin B_{12} absorption
(d) It is not contraindicated in patients with kidney disease

22. Sulfonylureas do not lower blood sugar level in

(a) Nondiabetics
(b) Noninsulin dependent diabetics

(c) Insulin dependent diabetics
(d) None of these

23. Sulfonylurea hypoglycaemics act by
(a) Reducing intestinal absorption of glucose
(b) Increasing insulin secretion from pancreas
(c) Reversing down-regulation of insulin receptors
(d) Both (b) and (c)

24. The hypoglycaemic action of sulfonylureas is likely to be attenuated by the concurrent use of
(a) Hydrochlorothiazid
(b) Propranolol
(c) Chloramphenicol
(d) Aspirin

25. Sulfonylureas are more commonly used than biguanides as oral hypoglycaemics because
(a) Biguanides are less efficacious
(b) Sulfonylureas lower blood sugar in both IDDM and NIDDM patients
(c) Sulfonylureas also aid weight reduction in obese diabetics
(d) Biguanides are prone to precipitate ketoacidosis

26. The present status of oral hypoglycaemics in diabetes mellitus is
(a) They are the first choice drugs in all cases
(b) They should be prescribed only if the patient refuses insulin injections
(c) They are used only in type I diabetes mellitus
(d) They are used first in most uncomplicated mild to moderate type II diabetics

27. Which of the following features disfavors use of oral hypoglycaemics in diabetes mellitus ?
(a) Age at onset of disease over 40 years
(b) Insulin requirement more than 40 U/day
(c) Fasting blood sugar level between 100–200 mg/dl
(d) Associated obesity

28. Which of the following is ture of acarbose ?
(a) It reduces absorption of glucose from intestines
(b) It produces hypoglycaemia in normal as well as diabetic subjects
(c) It limits postprandial hyperglycaemia in diabetis
(d) It raises circulating insulin levels

29. Guargum limits post-prandial glycaemia by
(a) Inhibiting intestinal brush border α-glucosidases
(b) Slowing carbohydrate absorption from intestine
(c) Releasing incretins from the intestine
(d) Promoting uptake of glucose into skeletal muscles

30. Select the drug which tends to reverse insulin resistance by increasing cellular glucose transporters.
(a) Glibenclamide (b) Troglitazone
(c) Acarbose (d) Prednisolone

31. Glucagon release from pancreas is stimulated by
(a) High blood glucose level
(b) Insulin
(c) Somatostatin
(d) Adrenaline

32. Aldosterone enhances Na^+ reabsorption in renal tubules by
(a) Stimulating carbonic anhydrase
(b) Inhibitng Na^+ K^+ ATP ase
(c) Inducing the synthesis of Na+ K+ ATP ase
(d) Promoting K+ secretion

33. Nephrogenic diabetes insipidus is seen with
(a) Demeclocycline (b) Doxycycline
(c) Minocycline (d) Oxytetracycline

34. The antidiabetic agent most likely to cause lactic acidosis is
(a) Chlorpropamide (b) Phenformin
(c) Glipizide (d) Metformin

35. The treatment of gestational diabetes would comprise of
(a) Glibenclamide (b) Chlorpropamide
(c) Glipizide (d) Insulin

36. Diabetic ketoacidosis is best managed by
(a) Crystalline insulin given intravenously
(b) Human insulin given intramusculary
(c) Lente insulin given subcutaneously
(d) Isophane insulin given intradermally

37. The sulfonylurea with a relatively longer duration of action is

(a) Chlorpropamide (b) Tolbutamide
(c) Glibenclamide (d) Glipizide

38. Insulin

(a) Release is enhance by somatostatin
(b) Has an identical chemical structure in all the species
(c) Release from the pancreas occurs only in the postprandial state
(d) Promotes synthesis of triglycerides

39. Metformin

(a) Does not cause hypoglycemia even in large doses
(b) Should not be combined with glipizide
(c) Is contraindicated in obese NIDDM patients
(d) Causes release of insulin from the pancreas

40. The agent with neglible mineralocorticold effect is

(a) Prednisone (b) Betamethasone
(c) Fludrocortisone (d) Cortisol

41. Preferred route of insulin is

(a) Oral (b) Subcutaneous
(c) Sublingual (d) Enteric coated tabs

42. Incorporation of vasoconstrictor substance in a solution of a drug to be injected subcutaneously retards absorption. This principal is utilized in combination of

(a) Epinephrine with local anaesthetics
(b) Epinephrine with I.V. glucose
(c) With vaccines
(d) With insulin

43. A diabetic on oral hypoglycaemic drug chlorpropamide, suffered from enteric fever and was prescribed chloramphenicol. He developed severe hypoglycaemia. This is because

(a) Chloramphenicol itself has mild hypoglycaemic effect
(b) Chloramphenicol increases the absorption of chlorpropamide
(c) Chloramphenicol causes release of insulin
(d) Chloramphenicol inhibits the metabolism of chlorpropamide

44. For increasing the excretion of weakly acidic drugs, urine should be made

(a) Alkaline
(b) At neutral pH
(c) Acidic
(d) pH does not effect the urinary excretion of acidic drugs

45. Longest acting insulin is

(a) Insulin zinc suspension
(b) Isophane insulin
(c) Globin zinc insulin
(d) protamine zinc insulin

46. Diuretic effective in diabetes insipidus is

(a) Thiazides
(b) Loop diuretic
(c) Mercurial diuretic
(d) Carbonic anhydrase inhibitor

47. The insulin receptor is

(a) Tyrosine protein kinase receptor
(b) G protein coupled receptor
(c) Ion channel regulating receptor
(d) None of these

ANSWERS

1. d	2. b	3. d	4. c	5. e	6. b
7. b	8. e	9. b	10. b	11. c	12. a
13. d	14. a	15. a	16. a	17. d	18. a
19. b	20. a	21. b	22. c	23. d	24. a
25. a	26. d	27. b	28. c	29. b	30. b
31. d	32. c	33. a	34. b	35. d	36. a
37. a	38. d	39. a	40. b	41. b	42. a
43. d	44. a	45. d	46. a	47. a	

CHAPTER 14

ANTICOAGULANTS

1. Which preparation of Vitamin K should not be injected in the new born ?

(a) Phytonadione
(b) Menadione
(c) Menadione sod.diphosphate
(d) Both (b) and (c)

2. Unfractionated heparin binds to anti-thrombin III and inactivates clotting factor(s).

(a) Xa (b) Ixa
(c) Iia (d) All of the above
(e) None of these

3. Low concentrations of heparin selectively interfere with the following coagulation patheay(s)

(a) Intrinsic pathway
(b) Extrinsic pathway
(c) Common pathway
(d) Both (a) and (c)

4. Low doses of heparin prolong

(a) Bleeding time
(b) Activated partial thromboplastin time
(c) Prothrombin time
(d) Both (b) and (c)

5. Low molecular weight heparins differ from conventional heparin in that

(a) They selectively inhibit factor Xa
(b) They do not significantly prolong clotting time
(c) They are metabolized slowly and have longer duration of action
(d) All of the above

6. Initiation of unfractionated heparin therapy for the patient in question 1 would best be achieved with

(a) 5000-unit loading dose followed by 1000 units/hr
(b) 5000-unit loading dose followed by 1800 units/hr
(c) 8000-unit loading dose followed by 1800 units/hr
(d) 8000-unit loading dose followed by 1000 units/hr

7. Which of the following can be used to antagonize the action of heparin in case of overdose ?

(a) Heparin sulfate (b) Dextran sulfate
(c) Protamine sulfate (d) Ancrod

8. Blood level of which clotting factor declines most rapidly after the initation of warfarin therapy

(a) Factor VII (b) Factor IX
(c) Factor X (d) Prothrombin

9. The following drug reduces the effect of oral anticoagulants

(a) Broad spectrum antibiotic
(b) Cimetidine

(c) Aspirin
(d) Oral contraceptive

10. The most definite beneficial results are obtained in the use of anticoagulants for the following purpose

(a) Prevention of recurrences of myocardial infarction
(b) Prevention of venous thrombosis and pulmonary embolism
(c) Cerebrovascular accident
(d) Retinal artery thrombosis

11. Anticoagulants are indicated in

(a) Immobilized elederly patients
(b) Buerger's disease
(c) Stroke due to cerebral thrombosis
(d) All of these

12. Which of the following tests are used to monitor antithrombotic therapy?

I. International normalized ratio (INR)
II. Activated partial thromboplastin time (APTT)
III. Heparin assay

(a) If I only is correct
(b) If III only is correct
(c) If I and II are correct
(d) If II and III are correct
(e) If I, II, and III are correct

13. Which fibrioolytic drug(s) is/are antigenic

(a) Streptokinase (b) Urokinase
(c) Alteplase (d) Both (a) and (b)

14. The most important complication of streptokinase therapy is

(a) Hypotension (b) Bleeding
(c) Fever (d) Anaphylaxis

15. A patient to be commenced on oral anticoagulant therapy for DVT would be treated with:

I. Oral anticoagulant therapy with warfarin for a goal international normalized ratio (INR) of 2–3
II. Oral anticoagulant therapy with warfarin for a goal INR of 2.5–3.5
III. Oral anticoagulant therapy with aspirin for a goal INR of 2–3

(a) If I only is correct
(b) If III only is correct
(c) If I and II are correct
(d) If II and III are correct
(e) If I, II, and III are correct

16. Thrombolytic therapy instituted within 3-6 hours of onset of acute myocardial infarction affords the following benefit(s)

(a) Reduces mortality
(b) Reduces area of myocardial necrosis
(c) Preserves ventricular function
(d) All of these

17. The preferred route of administration of streptokinase in acute myocardial infarction is

(a) Intravenous (b) Subcutaneous
(c) Intracoronary (d) Intracardiac

18. A patient on oral anticoagulant therapy is commenced on sulfamethoxazole-trimethoprim, double-strength twice daily. One may expect to see the INR

I. Increase
II. Decrease
III. Remain unchanged

(a) If I only is correct
(b) If III only is correct
(c) If I and II are correct
(d) If II and III are correct
(e) If I, II, and III are correct

19. Aspirin prolongs bleeding time by inhibiting the synthesis of

(a) Clotting factors in liver
(b) Prostacyclin in vascular endothelium
(c) Cyclic AMP in platelets
(d) Thromboxane A_2 in platelets

20. Route of heparin administration is

(a) Oral (b) Subcutaneous
(c) Intramuscular (d) Sublingual

21. The anticoagulant effects of heparin can be promptly arrested by administration of

(a) Epsilon amino caproic acid
(b) Protamine sulfate

(c) Adrenaline
(d) Vitamin K

22. Severe cases of bleeding due to fibrinolytic agents are treated with

(a) Aspirin
(b) Heparin
(c) EACA (Epsilon Amino Caproic Acid)
(d) Vitamin K

23. If a patient has an INR greater than 20 and active bleeding that is clinically significant (i.e., hematuria), the pharmacist should

I. Hold the drug therapy
II. Administer vitamin K
III. Administer fresh frozen plasma
(a) If I only is correct
(b) If III only is correct
(c) If I and II are correct
(d) If II and III are correct
(e) If I, II, and III are correct

ANSWERS

1. d	2. b	3. a	4. b	5. d	6. a
7. c	8. a	9. d	10. b	11. a	12. c
13. a	14. b	15. b	16. d	17. a	18. a
19. d	20. b	21. b	22. c	23. b	

EXPLANATIONS FOR THE ANSWERS

2. d Unifractionated heparin acts heparin acts as an anticoagulant by catalyzing the inactivation of thrombin (factor Iia), activated factor X (factor Xa), and activated factor IX (factor Ixa)by antithrombin III.

6. c Varying nomograms for dosing continuous-infusion unfractionated heparin exist in the medical and pharmaceutical literature. The loading dose is typically 70–100 units/kg. In this case the loading dose is 80 units/kg. Maintenance doses of 15–25 units/kg/hr are typically used. In this case , the maintenance dose is 18 units/kg/hr.

12. d Unfractionated heparin may be appropriately monitored by either the activated partial thromboplastin time (aPTT) or heparin assay. Because different laboratories use APTT reagents with varying sensitivities, the APTT range and its corresponding ratio must be correlated to a heparin level of 0.2–0.4 units/ml; or 0.3–0.7 units/ml by plasma-amidolytic assay. The safety and efficacy of low-molecular-weight heparin (LMWH) cannot be reliably evaluated by APTT determinations. LMWH safety and efficacy can be evaluated by heparin assay. Because of the reliability of dose responsiveness seen with LMWH therapy, the need to perform heparin assays is controversial.

15. a Oral anticoagulant therapy is monitored by measuring the prothrombin time (PT). The PT is responsive to depression of three of the four vitamin K-dependent procoagulant clotting factors, these respective clotting factors take approximately 96 hours to be depleted, at which time the PT should be sufficient to arrive at an international normalized ratio (INR) of 2.0–3.0 for patients with deep venous thrombosis. Patients with mechanical prosthetic heart valves have INRs targeted in the 2.5–3.5 range. Aspirin therapy is not monitored by INR determinations.

18. a Oral anticoagulant therapy with warfarin may be complicated by a myriad of drug-drug interactions owing to the highly protein-bound state of warfarin. Such drug interactions may potentiate the prothrombin time/international normalized ration (PT/INR), inhibit the anticoagulant effect of warfarin, or have no effect on the actions of warfarin. Sulfamethoxazole-trimethoprim and other antibiotics have the potential to augment the anticoagulant

effect of warfarin by eliminating bacterial flora and thereby, producing vitamin – K deficiency.

23. e Pharmacists may be called on to offer advice regarding reversal of warfarin therapy or may be empowered using Pharmacy and Therapeutics Committee or Medical Board approved protocols to reverse warfarin's effect. In all instances, the pharmacist must critically and clinically evaluate the situations and communicate with the physician regarding management issue. A need for immediate surgery or invasive procedures will always hasten the urgency of warfarin reversal. In the setting of active bleeding, its clinical significance must be demonstrated by consultation with the patient's physician. If the international normalized ration is >20 and the patient has active bleeding that is clinically significant, the pharmacist must hold drug therapy, consider the most appropriate dose and route of vitamin-K delivery and administer fresh frozen plasma to replete the vitamin-Kdependent clotting factors.

Chapter 15

ANTIHYPERLIPEDEMIC AGENTS

1. Inhibition of thromboxane synthesis by aspirin in platelets lasts for 5–7 days because

(a) Aspirin persists in the body for 5–7 days
(b) Aspirin induced depletion of arachidonic acid lasts 5–7 days
(c) Regeneration of aspirin inhibited cyclo-oxygenase takes 5–7 days
(d) Platelets cannot generate fresh thromboxane synthetase and their turnover time is 5-7 days

2. Choose the drug which has a direct effect on platelet membrane to inhibit aggregation, release reaction and to improve platelet survival in extra-corporeal circulation

(a) Dipyridamole (b) Ticlopidine
(c) Aspirin (d) Sulfinpyrazone

3. Combined therapy with dipyridamole and warfarin is recommended in subjects with the following

(a) Risk factors for coronary artery disease
(b) prosthetic heart valves
(c) Chronic arteriovenous shunts for repeated haemodialysis
(d) Both (b) and (c)

4. Select the hypocholesterolemic drug which interferes with intestinal absorption of bile salts and cholesterol, and secondarily increases cholesterol turnover in the liver

(a) Clofibrate (b) Cholestyramine
(c) Lovastatin (d) Bezafibrate

5. Select the most appropriate hypolipidemic drug for a patient with raised LDL-cholesterol level but normal triglyceride level

(a) A HMG – CoA reductase inhibitor
(b) A fibric acid derivative
(c) Probucol
(d) Nicotinic acid

6. A patient with coronary artery disease has raised serum triglyceride (600 mg/dl) but normal total cholesterol level (150 mg/dl). Which hypolipidemic drug should be prescribed

(a) Probulol (b) Gemfibrozil
(c) Cholestyramine (d) Lovastatin

7. Choose the correct statement about lovastatin

(a) It markedly lowers plasma triglyceride with little effect on cholesterol level
(b) It is used as an adjuvant to gemfibrozil for type III hyperlipoproteinemia
(c) It is not effective in diabetes associated hypercholesterolemia
(d) It is a competitive inhibitor of the rate limiting step in cholesterol synthesis

8. Select the drug which reduces cholesterol synthesis in liver, increases expression of

LDL receptors on hepatocytes and has been found to reduce mortality due to coronary artery disease

(a) Simvastatin (b) Nicotinic acid
(c) Probucol (d) Colestipol

9. What is true of nicotinic acid as well as nicotinamide ?

(a) Both possess vitamin B_3 activity
(b) Both cause cutaneous vasodilatation
(c) Both lower plasma triglyceride and VLDL levels
(d) Both cause hyperglycaemia after prolonged medication

10. Which hypolipidemic drug has been used to control and prevent pancreatitis in familial hypertriglyceridemia ?

(a) Lovastatin (b) Clofibrate
(c) Cholestyramine (d) Nicotinic acid

11. The rare but characteristic adverse effect of HMGCoA reductase inhibitors is

(a) Onycolysis
(b) Myopathy
(c) Alopecia
(d) Oculomucocutaneous syndrome

12. In a 50-year-old male without any other coronary artery disease risk factor, hypocholesterolemic drugs are recommended only when the serum LDL cholesterol level is higher than

(a) 130 mg/dl (b) 160 mg/dl
(c) 190 mg/dl (d) 240 mg/dl

13. High molecular weight, pharmacodynamically inert, nonantigenic substances which form colloidal solution are used as

(a) Osmotic purgatives
(b) Osmotic diuretics
(c) Plasma expanders
(d) All of the above

14. Hydroxyethyl starch is a

(a) Plasma expander
(b) Haemostatic
(c) Heparin substitute
(d) Bile acid sequestrant

15. Cholestyramine resin

(a) Significantly lowers plasma triglyceride levels
(b) Can enhance the oral absorption of digoxin
(c) May enhance the absorption of fat-soluble vitamins
(d) Is the drug of choice in type II hyperlipoproteinemia

16. Clofibrate

(a) May reduce the action of warfarin
(b) Can decrease gall stone formation
(c) Can elevate plasma HDL cholesterol levels\
(d) Increases platelet aggregation

17. Probucol

(a) Can lower HDL cholesterol levels
(b) Reduces clearance of plasma LDL by the liver
(c) Can produce constipation
(d) Is benefician in patients with recent myocardial infarction

18. Nicotinic acid

(a) Reduces production of VLDL
(b) Should not be used in combination with cholestyramine resin
(c) Can lower HDL levels
(d) Can increase serum triglyceride levels

19. Which of the following statements is true regarding cholestyramine?

(a) It inhibits free fatty acid release from adipose tissue
(b) It releases lipoprotein lipase
(c) It blocks the final step in the synthesis of cholestrol in the body
(d) When used in large doses, it decreases serum cholesterol

ANSWERS

1. d	2. b	3. d	4. b	5. a	6. b
7. d	8. a	9. a	10. c	11. b	12. c
13. c	14. a	15. d	16. c	17. a	18. a
19. d					

Chapter 16

ANTACIDS

1. For healing duodenal ulcer the usual duration of H_2 blocker therapy is

(a) 4 weeks
(b) 6 weeks
(c) 8 weeks
(d) 12 weeks

2. What is true of acid control therapy with H_2 blockers ?

(a) It generally heals duodenal ulcers faster than gastric ulcers
(b) It checks bleeding in case of bleeding peptic ulcer
(c) It prevents gastroesophageal reflux
(d) Both (a) and (b)

3. The 'acid neutralizing capacity' of an antacid is governed by

(a) The equivalent weight of the antacid
(b) The pH of 1N solution of the antacid
(c) The rate at which the antacid reacts with HCl
(d) Both (a) and (c)

4. An antacid with the following property would be desirable in the treatment of peptic ulcer.

(a) Which raises gastric pH to 4.0
(b) Which raises gastric pH to 7.0
(c) Which increases gastric motility and hastens gastic emptying
(d) Both (b) and (c)

5. Antacid combinations of magnesium and aluminium salts are superior to single component preparations because

(a) They have rapid as well as sustained acid neutralizing action
(b) They are less likely to affect gastric emptying
(c) They are less likely to alter bowel movement
(d) All of the above

6. In peptic ulcer, antacids are now primarily used for

(a) Prompt pain relief
(b) Ulcer healing
(c) Preventing ulcer relapse
(d) Control of bleeding from the ulcer

7. The following is a noncompetitive antagonist at the gastric jparietal cell H_2 receptor.

(a) Cimetidine (b) Loxatidine
(c) Roxatidine (d) Rantidine

8. Gynaecomastia can occur as a side effect of

(a) Bromocriptine (b) Levodopa
(c) Famotidine (d) Cimetidine

9. Which histamine H_2 blocker has maximum inhibitory effect on microsomal cytochrome P-450 enzyme ?

(a) Cimetidine (b) Ranitidine
(c) Roxatidine (d) Famotidine

10. Choose the correct statement about H_2 receptor blockers.

(a) They are the most efficacious drugs in inhibiting gastric acid secretion
(b) They cause fastest healing of duodenal ulcers
(c) They are the most commonly used drugs for inhibiting gastric acid secretion
(d) They afford most prompt relief of ulcer pain

11. Ranitidine is mostly given by intravenous infusion for the following indication.

(a) Rapid relief of gastric ulcer pain
(b) Prophylaxis of gastric erosion in patients with extensive burns
(c) Zollinger Ellison syndrome
(d) Reflux oesophagitis

12. Ranitidine differs from cimetidine in the following manner.

(a) It is less potent
(b) It is shorter acting
(c) It does not have antiandrogenic action
(d) It produces more CNS side effects

13. Eradication of H pylori along with gastric antisecretory drugs affords the following benefit(s).

(a) Faster relief of ulcer pain
(b) Faster ulcer healing
(c) Reduced chance of ulcer relapse
(d) Both (b) and (c)

14. The drugs employed for anti H pylori therapy include the following except

(a) Ciprofloxacin (b) Clarithromycin
(c) Tinidazole (d) Amoxicillin

15. The following class of gastric antisecretory drug have primary effect on juice volume, with less marked effects on acid and pepsin content, and also reduce gastric motility

(a) Histamine H_2 blockers
(b) Anticholinergics
(c) Proton pump inhibitors
(d) Prostaglandins

16. The following drug is an inhibitor of gastric mucosal proton pump.

(a) Carbenoxolone sodium
(b) Sucralfate
(c) Famotidine
(d) Lansoprazole

17. Omeprazole exerts practically no other action except inhibition of gastric acid secretion because

(a) In transforms into the active cationic forms only in the acidic pH of the gastric juice
(b) Its active forms have selective affinity for the H^+K^+ ATP ase located in the apical canaliculi of gastric parietal cells
(c) Its cationic forms are unable to diffuse out from the gastric parietal cell canaliculi
(d) All of the above

18. The most efficacious drug for inhibiting round the clock gastric acid output is

(a) Omeprazole (b) Cimetidine
(c) Pirenzepine (d) Misoprostol

19. The primary mechanism by which prostaglandins promote ulcer healing is

(a) Inhibition of gastric secretion
(b) Augmentation of bicarbonate buffered mucus layer covering gastroduodenal mucosa
(c) Increased bicarbonate secretion in gastric juice
(d) Increased turnover of gastric mucosal cell

20. Which of the following statements is true about misoprostol ?

(a) It relieves peptic ulcer pain, but does not promote ulcer healing
(b) It heals nonsteroidal anti-inflammatory drug induced gastric ulcer not responding to H_2 blockers
(c) It produces fewer side effects than H_2 blockers
(d) It is the most effective drug for preventing ulcer relapse

21. Sucralfate promotes healing of duodenal ulcer by

(a) Enhancing gastric mucus and bicarbonate secretion
(b) Coating the ulcer and preventing the action of acid-pepsin on ulcer base

(c) Promoting regeneration of mucosa
(d) Both (a) and (b)

22. Antacids administered concurrently reduce efficacy of the following antipeptic ulcer drug.

(a) Cimetidine (b) Omeprazole
(c) Sucralfate (d) Pirenzepine

23. The most important drawback of sucralfate in the treatment of duodenal ulcer is

(a) Low ulcer healing efficacy
(b) Poor relief of ulcer pain
(c) Highincidence of side effects
(d) Need for taking a big tablet four times a day

24. The preferred regimen for preventing duodenal ulcer relapse is

(a) Maintenance antacid regimen
(b) Maintenance H_2 blocker regimen
(c) On demand intermittent H_2 blocker regimen
(d) Mintenance sucralfate regimen

25. Used as a laxative, liquid paraffin has the following drawbacks except

(a) It interferes with absorption of fat soluble vitamins
(b) It is unpleasant to swallow
(c) It causes gripping
(d) It may produce foreignbody granulomas

26. Which of the following purgatives undergoes enterohepatic circulation to produce prolonged action ?

(a) Docusates (b) Phenolphthalein
(c) Castor oil (d) Lactulose

27. The following laxative lowers blood ammonia level in hepatic encephalopathy.

(a) Bisacodyl (b) Liquid paraffin
(c) Lactulose (d) Magnesium sulfate

28. Select the purgative that should not be taken at bed time.

(a) Ispaghula (b) Bisacodyl
(c) Senna (d) Magnesium sulfate

29. Saline osmotic purgatives are used for

(a) Reatment of constipation
(b) Prevention of constipation in patients of piles
(c) Avoidance of straining at stools in patients of hernia
(d) Tapeworm infestation: Following niclosamide administration

30. The most suitable laxative for a patient of irritable bowel syndrome with spastic constipation is

(a) Dietary fibre (b) Liquid paraffin
(c) Bisacodyl (d) Senna

31. The success of oral rehydration therapy of diarrhoea depends upon the following process in the intestinal mucosa.

(a) Sodium pump mediated Na^+ absorption
(b) Glucose coupled Na^+ absorption
(c) Bicarbonate coupled Na^+ absorption
(d) Passive Na^+ diffusion secondary to nutrient absorption

32. Saline laxatives containing magnesium

(a) Reduce the secretion of cholecystokinin
(b) Are more effective when administered on an empty stomach
(c) Are commonly used in the treatment in functional constipation
(d) Are safe in patients with impaired renal function

33. Antimotility drugs are contraindicated in

(a) Mild traveler's diarrhoea
(b) Acute infective diarrhoeas
(c) Ileostomy patients
(d) Patients after anal surgery

34. Octreotide

(a) Has a short half-life of 2 minutes
(b) Is given orally three times in a day
(c) Is useful in carcinoid syndrome
(d) Increases intestinal smooth muscle contractility

35. Therapy of choice in Zollinger Ellison syndrome is

(a) Omeprazole
(b) Ranitidine
(c) Sucralfate
(d) Carbenoxolone sodium

36. Misoprostol

(a) Is helpful in preventing ulcers induced by NSAIDs
(b) Can cause constipation
(c) Does not inhibit acid secretion
(d) Can delay labor in a pregnant woman

37. Ranitidine is a new histamine receptor blocker. It is

(a) Less potent, non competitive but selective antagonist of histamine at gastric site than cimetidine
(b) More potent, non selective and most toxic histamine antagonist of histamine at gastric site
(c) More potent, competitive and selective antagonist of histamine at gastric site
(d) None of the above

38. Omeprazole is most useful in

(a) Gastric ulcer
(b) Duodenal ulcer
(c) Reflux esophagitis
(d) Gastritis

39. Antacids should not be prescribed concurrently with

(a) Ranitidine (b) Pirenzipine
(c) Sucralfate (d) Omeprazole

40. The antiulcer drug very helpful in preventing NSAID induced gastric ulcer is

(a) Roxatidine (b) Furosemide
(c) Enalapril (d) Amrinone

41. In peptic ulcer, antacids do have a primary role in

(a) Prompt relief of pain
(b) Ulcer healing
(c) Control of bleeding
(d) Prevention of ulcer relapse

ANSWERS

1. c	2. a	3. d	4. a	5. d	6. a
7. b	8. d	9. a	10. c	11. b	12. c
13. d	14. a	15. b	16. d	17. d	18. a
19. b	20. b	21. b	22. c	23. d	24. b
25. c	26. b	27. c	28. d	29. d	30. a
31. b	32. b	33. b	34. c	35. a	36. a
37. c	38. b	39. c	40. c	41. a	

Chapter 17

ANTIEMETICS

1. The most dependable emetic used to expel ingested poisons is

(a) Intramuscular emetine
(b) Oral syrup ipecacuanha
(c) Intramuscular apomorphine
(d) Oral bromocriptine

2. The most effective antimotion sickness drug suitable for short brisk journies is

(a) Promethazine theoclate
(b) Cinnarizine
(c) Prochlorperazine
(d) Hyoscine

3. In case of hill journey, antimotion sickness drugs are best administered at

(a) Twelve hours before commencing journey
(b) One hour before commencing journey
(c) Immediately after commencing journey
(d) At the first feeling of motion sickness

4. Metoclopramide blocks apomorphine induced vomiting, produces muscle dystonias and increases prolactin release indicates that it has

(a) Anticholinergic action
(b) Antihistaminic action
(c) Anti 5-HT_3 action
(d) Antidopaminergic action

5. Which prokinetic drug(s) produce(s) extrapyramidal side effects ?

(a) Metoclopramide
(b) Cisapride
(c) Domperidone
(d) All of these

6. A patient returning from dinner party meets with road accident and has to be urgently operated upon under general anaesthesia. Which drug can be injected intramuscularly to hasten his gastric emptying

(a) Methypolysiloxane
(b) Promethazine
(c) Metoclopramide
(d) Apomorphine

7. Which antiemetic selectively blocks levodopa induced vomiting without blocking its antiparkinsonian action ?

(a) Metoclopramide (b) Cisapride
(c) Domperidone (d) Ondansetron

8. The fastest symptomatic relief as well as highest healing rates in reflux esophagitis have been obtained with

(a) Cisapride (b) Ranitidine
(c) Omeprazole (d) Sodium alginate

9. Cisapride enhances gastrointestinal motility by

(a) Activating serotonin 5-HT_4 receptor
(b) Activating muscarinic M_3 receptor

(c) Blocking serotonin 5-HT_3 receptor
(d) Blocking dopamine D2 receptor

10. The most effective antiemetic for controlling cisplatin induced vomiting is

(a) Prochlorperazine (b) Ondansetron
(c) Metoclopramide (d) Promethazine

11. Ondansetron is a

(a) Second generation antihistaminic
(b) Drug for peptic ulcer
(c) New antiarrhythmic
(d) Antiemetic for cancer chemotherapy

12. Ondansetron blocks emetogenic impulses at the following site(s).

(a) Vagal afferents in intestines
(b) Nucleus tractus solitarius
(c) Chemoreceptor trigger zone
(d) All of the above

13. Cancer chemotherapy induced vomiting that is not controlled by metoclopramide alone can be suppressed by combining it with

(a) Amphetamine (b) Dexamethasone
(c) Hyoscine (d) Cyclizine

14. Irrespective of the type, all laxatives exert the following action.

(a) Increase the content of solids in the faeces
(b) Increase the water content of faeces
(c) Reduce absorption of nutrients
(d) Increase intestinal motility

15. For optimum rehydration, the molar concentration of glucose in ORS should be

(a) Equal to the molar concentration of Na^+
(b) Somewhat lower than molar concentration of Na^+
(c) Somewhat higher than the molar concentration of Na^+
(d) Three times the molar concentration of Na^+

16. The concentration of sodium ions in WHO oral rehydration solution is

(a) 40 m moles/L (b) 60 m moles/L
(c) 90 m moles/L (d) 110 m moles/L

17. The electrolyte composition of WHO oral rehydration solution is based upon that of

(a) Enterotoxigenic E. coli diarrhea stools
(b) Cholera stools in adults
(c) Cholera stools in children
(d) Rotavirus diarrhea stools

18. A case of acute diarrhea presents with abdominal pain, fever, mucus and blood in stools and is suspected to be suffering from Shigella enteritis. What antimicrobial treatment would be most appropriate.

(a) No antimicrobial treatment
(b) Metronidazole
(c) Norfloxacin
(d) Chloramphenicol

19. Ordansetron

(a) Can cause extrapyramidal side effects
(b) Is not effective in control of acute emesis
(c) Can prevent emesis due to radiation
(d) Is not absorbed orally

20. The prokinetic effects of metoclopramide can be abolished by

(a) Vagotomy (b) Atropine
(c) Bethanechol (d) Acetylcholine

21. The most potent drug for prevention of motion sickness is

(a) Dimenhydrinate (b) Tripelenamine
(c) Scopolamine (d) Hydroxygene

ANSWERS

1. c	2. d	3. b	4. d	5. a	6. c
7. c	8. c	9. a	10. b	11. d	12. d
13. b	14. b	15. c	16. c	17. c	18. c
19. c	20. b	21. c			

CHAPTER 18

MATCH THE FOLLOWING

1. Match the correct mechanism of action for the diuretic agents mentioned below:

(1)	Acetazolamide	(a)	Increases serum K^+ level
(2)	Chlorthiazide	(b)	Competitively antagonizes aldodsterone
(3)	Spiranolactone	(c)	Inhibits active Na+ secretion, decreasing K^+ excretion in the distal nephron
(4)	Triamterene	(d)	Inhibits carbonic anhydrase
		(e)	Inhibits electrolyte reabsorption in the distal portion of the ascending limb of the loop of Henle

2. Listed are some of the commonly used drugs. Their pharmacological actions are listed in A to E, match them.

(1)	Aspirin	(a)	Rises body temperature
(2)	Acetaminophen	(b)	Non–analgesic anti-inflammatory
(3)	Phenylbutazone	(c)	Non–anti-inflammatory analgesic
(4)	Probenacid	(d)	Increases of depth of respiration
		(e)	Increases fluid retention

3. The following are the test animals or substances used for the biological assay of preparations listed in A to E. Match them correctly.

(1)	Mice	(a)	Vasopressin
(2)	Albino rats	(b)	Diphtheria antitoxin
(3)	Guinea pigs	(c)	Insulin
(4)	Sheep plasma	(d)	Human antihaemophyllic fraction

4. The drug A to E are used as diuretics. Match them to their classes.

(1)	Osmotic diuretic	(a)	Spiranolactone
(2)	Loop diuretic	(b)	Isosorbide
(3)	Potassium sparing diuretic	(c)	Merasalyl theophylline
		(d)	Furosemide
(4)	Organomercurial diuretic	(e)	Probenecid

5. Pharmacologicla activity of certain well known plant drugs are listed A to E. Match them.

(1)	Papaverin	(a)	Weak analeptic
(2)	Camphor	(b)	Vasodilator
(3)	Veratrum alkaloids	(c)	Antineoplastic
(4)	Vincristine	(d)	Central vasoconstrictor
		(e)	Anxiolytic

6. Listed are drugs 1 to 4. Their appropriate antihypertensive mechanisms are given in A to F match them.

(1)	Pindalol	(a)	Vadoilator
(2)	Minoxidil	(b)	Angiotiensin coverting enzyme inhibitor
(3)	Captopril	(c)	Diuretic
(4)	Amiloride	(d)	Beta–blocker
		(e)	Centrally acting alpha adrenoceptor agonist
		f)	Potassium induction

7. Symptoms for the following diseases are indicated from A to E . Match them.

(1)	Cushing's syndrome	(a)	Hyperthyroidism
(2)	Addison's disease	(b)	Inflammatory bowel
(3)	Grave's disease	(c)	Decreased production of cortisol
(4)	Crohn's disease	(d)	Decreased production of cortisol
		(e)	Increased production of cortisol

8. The undersirable effects of the antibiotics are listed in A to E. Match them.

(1)	Tetracycline	(a)	Gray–baby syndrome
(2)	Streptomycin	(b)	Discolouration of teeth
(3)	Chloramphenicol	(c)	Jaundice
(4)	Rifampicin	(d)	Obesity

9. Match the following terms with their respective definitions A to E:

(1)	Achyliagestrica	(a)	Decrease in alkali contents
(2)	Acidosis	(b)	Absence of hydrochloric acid
(3)	Actinomycosis	(c)	A deficient disorder of adrenal contex with anaemia, weakness, dyspepsia, hypotension
(4)	Addision's disease	(d)	A fungal disease caused by Actinomyces
		(e)	A state of psychic and physical drug dependence

10. Match the following categories of Adrenocorticosteroids with their respective examples A to E:

(1)	Glucocorticoids	(a)	Aldosterone, Fludrocortisone
(2)	Mineral corticoids	(b)	Ketokonazole, Metyapone
(3)	Receptor	(c)	Cholesterol, β-Sitosterol
(4)	Synthetic Inhibitors	(d)	Cortisol, Triamcinolone
		(e)	Mifepristone, Spironolactone

11. Match the following anaesthetics with their respective nature A to E:

(1)	Coacine	(a)	Other anaesthetic
(2)	Lignocaine	(b)	Synthetic non-nitrogenous compound
(3)	Propanediol	(c)	Inhaled anaesthetic
(4)	Chlorpromazine	(d)	Synthetic nitrogenous compound
		(e)	Natural alkaloid

12. Match the following antiemetic drugs with their respective categories A to E:

(1)	Weak agonist	(a)	Pentazocine
(2)	Strong agonist	(b)	Propoxyphene
(3)	Antidiarrhea	(c)	Heroin
(4)	Antitussive	(d)	Diphenoxylate
		(e)	Codeine

13. Match the following antiarrhythmic drugs to the respective categories A to E:

(1)	Acebutalol	(a)	Calcium channel blocker
(2)	Verapamil	(b)	Potassium channel blocker
(3)	Kromakalem	(c)	Sodium channel blocker
(4)	Phenytoin	(d)	Beta adrenoceptor blocker
		(e)	Chloride channel blocker

14. Match the following categories of antibiotics with their respective examples A to E:

(1)	Narrow spectrum	(a)	Neomycin
(2)	Broad - spectrum	(b)	Cephalsporins
(3)	Acting on cell membrane	(c)	Streptomycin
(4)	Inhibiting protein synthesis	(d)	Cycloserine

15. Match the following penicillins with their respective categories A to E:

(1)	Penicillin G	(a)	Broad spectrum
(2)	Penicillin V	(b)	Penicillinase resistant
(3)	Methicillin	(c)	Natural
(4)	Ampicillin	(d)	Semi–synthetic
		(e)	Anti–pseudomonas

16. Match the following categories of anticancer hormones with their respective examples A to E:

(1)	Androgens	(a)	Methoxyestradiol
(2)	Gonadotropin-releasing	(b)	Prednisolone
(3)	Estrogens	(c)	Testosterone
(4)	Adrenocortrocoids	(d)	Goserelin
		(e)	Diethylstilbestrol

17. Match the following antidepressant drugs with their respective categories A to E:

(1)	Amitriptyline	(a)	Non-specific
(2)	Nizoxetin	(b)	Tricyclic first generation
(3)	Caffeine	(c)	Tricyclic second generation
(4)	Isoniazid	(d)	Psychomotor stimulant
		(e)	Heterocyclic

18. Match the following antidiabetic drugs with their respective categories A to E

(1)	Phenformin	(a)	Long acting
(2)	Tolbutamide	(b)	Rapid acting

(3)	NPH Insulin	(c)	Intermediate acting
(4)	Protamine zinc insulin	(d)	Beguanide suspension
		(e)	Sulphonylurea

19. Match the following categories of antifungal drugs with their respective examples A to E:

(1)	For superficial infection	(a)	Amphotericin B
(2)	Topical	(b)	Nystatin
(3)	For systemic mycoses	(c)	Undercylenic acid
(4)	For vaginal candidiasis	(d)	Grisefulvin meanings
		(e)	Nystatin

20. Match the following antihyperlipidemic drugs with their respective categories A to E:

(1)	Cholesteryl amine	(a)	Fibric acid derivative
(2)	Clofibrate	(b)	Bile acid sesquestrant
(3)	Lovastation	(c)	VLDL secreting inhibitor
(4)	Niacin	(d)	Antioxidant
		(e)	HMGCO – A reductase

21. Match the following categories of antimalarial drugs with their respective examples A to E:

(1)	Acridine dyes	(a)	Biguanide
(2)	Cinchona alkaloid	(b)	Primaquine
(3)	Aminoquinoline	(c)	Quinacrine
(4)	Diaminopyrimidine	(d)	Quinine
		(e)	Mepacrine

22. Match the following antiseptic drugs with their respective categories A to E:

(1)	Halazone	(a)	Dye
(2)	Thimerosol	(b)	Anionic surfactant
(3)	Delqualinium	(c)	Halogen containing
(4)	Proflavin	(d)	Heavy metals
		(e)	Cationic surfactant

23. Match the following terms with their respective meaning A to E:

(1)	Aphrodisiac	(a)	Pain in joint
(2)	Arrhythmia	(b)	Loss of power of governing
(3)	Arthralgia	(c)	Absence of spermatozoa in the sperm
(4)	Ataxia	(d)	Exciting sexual desire
		(e)	Variation from the normal regular rhythm of the heart beat

24. Match the following antiasthamtic drugs with their respective categories A to E:

(1)	Ephedrine	(a)	Purine base bronchodilator
(2)	Theophyline	(b)	Symathomimetic bronchodilator
(3)	Ipratropium bromide	(c)	Polypetide
(4)	Disodium cromoglycate	(d)	Anticholinergics bronchodilator
		(e)	Anti - inflammatory

25. Match the following terms with their respective meaning A to E:

(1)	Bradicardia	(a)	Irritation of the mucous membrane
(2)	Bronchitis	(b)	Feeble state produced by a serious disease
(3)	Chachexia	(c)	Inflammation of mucous membrane
(4)	Catarrh	(d)	Glowness of the heart beat
(e)	Narrowing of the bronchi		

26. Match the following drugs with therir respective mechanisms A to E:

(1)	Methotrexate	(a)	Nucleic acid derivative binding to viral enzymes
(2)	PAS	(b)	Inhibitor of dihydrofolate reductase
(3)	Acyclovir	(c)	Competitive inhibition of PABA uptake
(4)	Rifumpicin	(d)	Reversible inhibition of protein synthesis
		(e)	Inhibition of DNA dependent RNA polymerase

27. Match the following cholinoceptor acting drugs their categories A to E:

(1)	Pilocarpine	(a)	Nicotinic blockers
(2)	Physostigmine	(b)	Cholinesterase regenerator
(3)	Pirenzepine	(c)	Direct acting agonist
(4)	Pralidoxine	(d)	Indirect acting carbamate
		(e)	Muscarinic blocker

28. Match the following diseases with their respective diagnostic tests A to E:

(1)	Leprosy	(a)	Shick test
(2)	Scarlet Fever	(b)	Lepromin Test
(3)	Syphilis	(c)	Dick test
(4)	Typhoid	(d)	VDRL and Widal test
		(e)	Widal test

29. Match the following drugs with their respective mechanisms of action from A to E:

(1)	Local anaesthetics	(a)	Blocks calcium channels
(2)	Minoxidil	(b)	Prevents synthesis of prothrombin
(3)	Proserpine	(c)	Blocks neuronal sodium channels
(4)	Warfarin	(d)	Vasodilation by blocking potassium channels
		(e)	Depletes the catecholamine store in neurons

30. Match the following drugs of abuse with their respective categories A to E:

(1)	Scopolamine	(a)	Inhalant
(2)	Nitrous oxide	(b)	Marijuana
(3)	Hashish	(c)	Hallucinogen
(4)	Cocaine	(d)	Sedative hyponotic
		(e)	Stimulant

31. Match the following enzymes inhibited by the corresponding agents A to E:

(1)	Acetylcholine esterase	(a)	Acetazolamide
(2)	Carbonic anhydrase	(b)	Methotrexate
(3)	Dihydrofoleate reducatase in human	(c)	Trimethoprim
(4)	Dihydrofoleate reducatase in microbes	(d)	Physostigmine
		(e)	Primethamine

32. Match the following neurotransmitters with their respective localizations A to E:

(1)	GABA	(a)	Neuromuscular junction
(2)	L - Glutamate	(b)	Hypothalamus
(3)	Neuropeptide	(c)	Substantia nigra and striatum
(4)	Dopamine	(d)	Cerebral cortex
		(e)	Cerebral nerve

33. Match the following drugs used in Parkinsonism with their respective categories A to E:

(1)	Levodopa	(a)	Dopa decarboxylase inhibitor
(2)	Carbidopa	(b)	MAU inhibitor
(3)	Biperiden	(c)	Used in Wilson's disease
(4)	Penicillamine	(d)	Dopamine prodrug
		(e)	Used in Tremor

34. Match the following drugs with their respective usual doses A to E:

(1)	Astemizole	(a)	500 mg
(2)	Captopril	(b)	200 mg
(3)	Ascorbic acid	(c)	2 g
(4)	Cephalothin	(d)	10 mg
		(e)	100 mg

35. Match the following psychoactive drugs with their respective categories A to E:

(1)	Haloperidol	(a)	Leukotriene
(2)	Meprobamate	(b)	Antipsychotic
(3)	Imipramine	(c)	Anti - anxiety
(4)	LSD	(d)	Anti - depressant
		(e)	Psychotogenic

36. Match the following sympathomimetic drugs with their respective categories A to E:

(1)	Amphetamine	(a)	Dopamine
(2)	Phenylephrine	(b)	Indirect releaser
(3)	Dobutamine	(c)	Alpha–1 selective
(4)	Albuterol	(d)	Beta–1 selective
		(e)	Beta–2 selective

37. Given below are the ailments and the drugs used. Match them correctly.

(1)	Parkinson's disease	(a)	Probenecid
(2)	Glaucoma	(b)	Ampicillin
(3)	Gout	(c)	Nitroglycerin
(4)	Angina	(d)	Pilocarpine
		(e)	Levo dopa

38. Given below are the drugs and their antagonists. Match them correctly.

(1)	5–HT	(a)	Bemegride
(2)	Codeine	(b)	Atropine
(3)	Phenobarbitone	(c)	Cyproheptadine
(4)	Muscarine	(d)	Naloxone
		(e)	Pyridoxine

39. Choose the most appropriate from the group below to match drugs:

(1)	Cocaine	(a)	Central stimulant
(2)	Codeine	(b)	Acetylcholine estrase inhibitor
(3)	Physostigmine	(c)	Cardiotonic
(4)	Atropine	(d)	Relief of mild pain
		(e)	Mydriatic

40. Given below are some of the drugs and their mode of action in A to E. Match them correctly.

(1)	Hydralazine	(a)	Vasodilator by direct action
(2)	Phenothiazine	(b)	Inhibits the vasconstrictor and pressor effects of 5-HT
(3)	Methysergide	(c)	Antagonist to HT receptor of Histamine
(4)	Tolazamide	(d)	Stimulate the islet tissue to secrete insulin
		(e)	Inhibiting the enzyme carbonic anhydrase

41. Givern below are the hypotensive agents. Match their modes of action:

(1)	Minoxidil	(a)	Alpha adereno receptor antagonist
(2)	Parazosin	(b)	Beta adereno receptor antagonist
(3)	Alpha – methyl dopa	(c)	From alpha methyl norepi-nepherine
(4)	Clonidine	(d)	Direct action on blood vessel
		(e)	Decreases sympathetic activity through brain

42. Given below are the drugs and their enzymes inhibited by them. Match them correctly.

(1)	Physostigmine	(a)	COMT
(2)	Imipramine	(b)	Acetaldehyde dehydrogenase
(3)	Pyrogallol	(c)	Carbonic anhydrase
(4)	Disulfiram	(d)	Cholinesterase
		(e)	MAO

43. Choose the most appropriate drug for the following:

(1)	Potassium sparing diuretic	(a)	Spironolactone
(2)	Loop diuretic	(b)	Mannitol
(3)	Osmotic diuretic	(c)	Furosemide
(4)	Carbonic anhydrase	(d)	Acetazolamide inhibitor
		(e)	Aldosterone

44. Match the following regions in GIT with the pH levels indicated from A to E:

(1)	Mouth	(a)	= 5.0–6.0
(2)	Stomach	(b)	= 6.8–7.5
(3)	Deodenum	(c)	= 6.8–7.0
(4)	Large intestine	(d)	= 3.0–5.0
		(e)	= 1.5–3.0

45. For the drugs listed 1 to 4, mechanism of action is indicated from A to E. Match them:

(1)	Vincristine	(a)	Macrolide antibiotic which inhibits DNA dependent RNA polymerase
(2)	Streptomycin	(b)	An antibiotic cotaining nitro group which binds to 50 S ribosomal subunit
(3)	Chloramphenicol	(c)	A dimeric indole alkaloid which binds avidily to tubulin, a class of protein that forms the miotic spindle
(4)	Rifampicin	(d)	A quinoline alkalid which inhibits the growth of Plasmodium vivax
		(e)	A naphthalene antibiotic which inhibits cell wall synthesis

46. For the following drugs, specific mechanism of action is given in A to D. Match them:

(1)	Spironolactone	(a)	Non-competitively inhibit the enzyme carbonic anhydrase
(2)	Acetazolamide	(b)	Inhibit the cotransport of Na^+ and Cl^- in loop of Henle
		(c)	Competitive inhibitor of aldosterone at the receptors in the distal tubule
		(d)	Direct inhibition of Na^+ and Cl^- reabsorption

47. Match the following terms with their respective definitions A to E:

(1)	Drug allergy	(a)	Excessive pharmacological action of the drug due to overdosage or prolonged use
(2)	Toxic effect	(b)	Characteristic toxic effects of a drug in an individual at therapeutic doses
(3)	Idiosyncrasy	(c)	An immunologically mediated reaction producing sterotype symptoms
(4)	Intolerance	(d)	Abnormal reactivity to a chemical
		(e)	Alteration of mood and feelings

48. Match the following terms with their respective meanings A to E:

(1)	Carcinogenicity	(a)	Drugs causing genetic defects
(2)	Mutagenicity	(b)	Drugs causing foetal absor-malities
(3)	Teratogenicity	(c)	Drugs capable of altering mood and feelings
(4)	Drug dependence	(d)	Drugs causing functional disturbances which persist, even after the offending drug
		(e)	Drug causing cancer

49. Match the following teratogenic drugs and their respective produced abnormalies A to D:

(1)	Aspirin	(a)	Nose, eye and hand defects, growth retardation
(2)	Antithyroid drugs	(b)	Hypoplastic phalanges, cleft lip, micro-cephaly
(3)	Phenytoin	(c)	Premature closure of ductus arteriosus
(4)	Warfarin	(d)	Foetal goiter and hypothyroidism

50. Match the following drugs and their respective resulted diseases A to E:

(1)	Isoniazid	(a)	Peptic ulcers
(2)	Phenothiazines	(b)	Hepatitis
(3)	Salicylates	(c)	Parkinsonism
(4)	Tetracyclines	(d)	Phocomelia, multiple defects
		(e)	Discoloured and deformed teeth, retarded bone growth

51. Match the following oral hypoglycaemic drugs with their respective features A to E

(1)	Tolbutamide	(a)	Potent
(2)	Penicillin V	(b)	Penicillinase resistant
(3)	Methicillin	(c)	Natural
(4)	Ampicillin	(d)	Semi–synthetic
		(e)	Anti–pseudomonas

52. Match the following sulfonamides with their duration of actions from A to E

(1)	Sulphadiazine	(a)	Long acting
(2)	Sulfadimethoxine	(b)	Toxic
(3)	Sulfaphenazole	(c)	Short acting
(4)	Succinyl sulfathiazole	(d)	Intermediate acting
		(e)	Poorly absorbed

53. Match the following modes of action with their respective antimicrobial drugs A to E

(1)	Interfere with intermediary metabolism	(a)	Rifampicin, Norfloxacin, Metronidazole
(2)	Interfere with DNA synthesis	(b)	Penicillins, Cephalosporins, Vancomycin Bactracin
(3)	Intefere with DNA	(c)	Idoxuridine, Acylovir, Zidovudin
(4)	Inhibit cell wall synthesis	(d)	Sulfonamides, PAS, Ethambutol
		(e)	Polymyxins, Colistins, Bacitracin

54. Match the following categories with their respective antimicrobial drugs A to E:

(1)	Aminoglycosides	(a)	Polymyxin–B Colistin, Bacitracin
(2)	Macrolide antibiotics	(b)	Streptomycin, Gentamycin, Neomycin
(3)	Polypeptide antibiotics	(c)	Erythromycin, Oleandomycin, Roxi-thromycin
(4)	Nitrofuran derivatives	(d)	Vancomycin, Lincomycin, Viomycin
		(e)	Nitrofurantoin, Furazolidone

55. Match the following categories of anti-microbial agents with their respective examples A to E:

(1)	Antibacterial	(a)	Chloroquine, Metronidazole, Diloxanide
(2)	Antifungal	(b)	Sodium fusidate, Thiacetazone
(3)	Antiviral	(c)	(Acyclovir), Amantadine, Idoxuridine, Zidovudin
(4)	Antiprotozoal	(d)	Amphotericin B, Griseofulvin, Ketoconazole
		(e)	Aminoglycosides, Erythromycin, Penicillins

56. Match the following categories of laxatives/purgati es with their respective examples A to E:

(1)	Bulk forming	(a)	Docusates
(2)	Stimulant	(b)	Magnesium and sodium salts
(3)	Osmotic	(c)	Bisacodyl, Senna, Castor Oil
(4)	Stool sofener	(d)	Dietary fibre, Psyllium Methylcellulose
		(e)	Liquid paraffin

57. Match the following categories of antiulcer drugs with their respective examples A to E:

(1)	Ulcer heating drugs	(a)	Sodium bicarbonate, sodium citrate
(2)	Ulcer protective	(b)	Carbenoxolone sodium, Deglycyrrhi-zinized liquorice
(3)	H_2 antihistamines	(c)	Sucralfate, colloidal bismuth subctirate
(4)	Anticholinergics	(d)	Atropine Pirenzepine Trimi-pramine
		(e)	Cimetidine, Ranitiding, Roxatidine

58. Match the following fat-soluble vitamins with their respective chemical constituents A to E:

(1)	Vitamin A	(a)	Pyridoxine
(2)	Vitamin D	(b)	Methyl Phytyl naphthaquinone
(3)	Vitamin E	(c)	Alpha tocopherol
(4)	Vitamin K	(d)	Calciferol
		(e)	Retinol

ANSWERS

1. 1-d, 2-e, 3-b, 4-c
2. 1-d, 2-c, 3-b, 4-e
3. 1-c, 2-d, 3-a, 4-c
4. 1-b, 2-d, 3-a, 4-c
5. 1- b, 2-a, 3-b, 4-c
6. 1-d, 2-a, 3-b, 4c
7. 1- e, 2-c, 3-a, 4-b
8. 1-b, 2-e, 3-a, 4-c
9. 1-b, 2-a, 3-d, 4-c
10. 1-d, 2-a, 3-e, 4-b
11. 1-c, 2-e, 3-d, 4-b
12. 1-b, 2-c, 3-d, 4-e
13. 1-d, 2-c, 3-e, 4-a
14. 1-d, 2-a, 3-b, 4-c
15. 1-c, 2-d, 3-b, 4-a
16. 1-c, 2-d, 3-e, 4-b
17. 1-b, 2-c, 3-d, 4-a
18. 1-d, 2-e, 3-c, 4-a
19. 1-d, 2-e, 3-a, 4-b
20. 1-b, 2-a, 3-e, 4-c
21. 1-e, 2-d, 3-b, 4-c
22. 1-c, 2-d, 3-e, 4-a
23. 1-d, 2-e, 3-a, 4-b
24. 1-b, 2-a, 3-d, 4-e
25. 1-d, 2-c, 3- b, 4- a
26. 1-b, 2-c, 3-a, 4-e
27. 1-c, 2-d, 3-e, 4-b
28. 1-b, 2-c, 3-d, 4-e
29. 1-c, 2-d, 3-e, 4-b
30. 1-c, 2-a, 3-b, 4-e
31. 1-d, 2-a, 3-b, 4-c
32. 1-e, 2-d, 3-b, 4-c
33. 1-d, 2-a, 3-b, 4-c
34. 1-d, 2-e, 3-a, 4-c
35. 1-b, 2-c, 3-d, 4-e
36. 1-b, 2-c, 3-d, 4-e
37. 1-e, 2-d, 3-a, 4-c
38. 1-c, 2-d, 3-a, 4-b
39. 1-a, 2-d, 3-b, 4-e
40. 1-a, 2-a, 3-a, 4-a
41. 1-b, 2-a, 3-a, 4-e
42. 1-e, 2-d, 3-b, 4-c
43. 1-a, 2-c, 3-b, 4-d
44. 1-b, 2-e, 3-d, 4-c
45. 1-c, 2-d, 3-b, 4-a
46. 1-X, 2-X, 3-X, 4-X
47. 1-c, 2-a, 3-d, 4-b
48. 1-e, 2-a, 3-b, 4-c
49. 1-c, 2-a, 3-b, 4-a
50. 1-b, 2-c, 3-a, 4-e
51. 1-e, 2-c, 3-b, 4-a
52. 1-c, 2-a, 3-d, 4-e
53. 1-d, 2-c, 3-a, 4-b
54. 1-b, 2-c, 3-a, 4-e
55. 1-e, 2-d, 3-c, 4-a
56. 1-d, 2-a, 3-b, 4-a
57. 1-b, 2-c, 3-e, 4-d
58. 1-e, 2-d, 3-c, 4-b