GATE-2002

1.1 Volatile oil from Lemon Peel contain d-limonene which is
- (A) Phenyl propane derivative
- (B) Bicyclic monoterpene derivative
- (C) Monocyclic monoterpene derivative
- (D) Acyclic sesquiterpene derivative

1.2 In case of Digitalis purpurea, the cardiac activity is maximum with
- (A) Odoroside
- (B) Digoxine
- (C) Digitoxine
- (D) Purpurea Glycoside-A

1.3 Dragendroff's reagent does not give a positive test with
- (A) Emetine
- (B) Morphine
- (C) Caffeine
- (D) Codeine

1.4 The instrument used to measure particle volume is
- (A) Coulter counter
- (B) Microscope
- (C) Hempel Burrete
- (D) Helium Densitometer

1.5 The purpose of seal coating in sugar coating process for tablet is
- (A) To prevent moisture penetration into the tablet core
- (B) To round the edges and build up the tablet weight
- (C) To impart the desired colour to the tablet
- (D) To give lustre to the tablet

1.6 The phenomenon of increasing the solubility of weak electrolytes and non-polar molecules by the addition of a water miscible solvent in which the drug has good solubility is called
- (A) Complexation
- (B) Cosolvency
- (C) Solubilization
- (D) Hydrotrophy

1.7 HLB system is used to classify
- (A) Surfactants
- (B) Preservative
- (C) Antioxidant
- (D) Sequestering agents

1.8 The statement "Store in cool place" as per IP means
- (A) Store at room temperature
- (B) Store between 2^0-8^0 C
- (C) Store at any temperature between 8 to 25 ^{0}C
- (D) Store at 0^0C

1.9 Durability of tablet to combined effect of shock and abrasion is evaluated by using
- (A) Hardness tester
- (B) Disintegration test apparatus
- (C) Friabilator
- (D) Screw gauge

1.10 Ion exchange capacity of resin is dependent on

(A) The total molecular weight of the resin
(B) The total number of ion active groups
(C) Length of the ion exchange resin
(D) Solubility of the ion exchange resin

1.11 In mass spectra, the most intense peak is the

(A) Base peak
(B) Metastable ion peak
(C) Fragment ion peak
(D) Rearrangement ion peak

1.12 Chemical shift is expressed in one the following units

(A) cm^{-1}
(B) Amperes
(C) Parts per million
(D) mm/ml

1.13 Xenon arc lamp is the source of light in

(A) Spectrofluorimeter
(B) IR spectrophotometer
(C) Flame photometer
(D) Calorimeter

1.14 Which of the following pairs has an interaction beneficial for routine clinical use?

(A) Pseudoephedrine and Alluminium Hydroxide gel
(B) Tetracycline and Milk of Magnesium
(C) MAO inhibitors and Tyramine
(D) Chloramphenicol and Tolbutamide

1.15 Measurable of which of the following two constituents of human plasma is of great value in the differential diagnosis of rheumatoid diseases

(A) Rheumatoid factor and immunoglobulin G
(B) Rheumatoid factor and C-reactive protein
(C) HL-A antigen and C-reactive protein
(D) Immunoglobulin and bradykinin

1.16 Which of the following is a valid comparison of live attenuated vaccines versus killed inactivated vaccine?

(A) Hypersensitivity reactions are uncommon among inactivated vaccines
(B) Live attenuated vaccines are more effective in children
(C) Live attenuated vaccines are not suitable for paediatric use
(D) Replication of the organism in a live attenuated vaccine increases the stimulation of the immune system thereby requiring lower dose

1.17 An antineoplastic agent acing by folate antagonism and having a pteridine ring is

(A) Trimethoprim
(B) Mercaptopurine
(C) Methotrexate
(D) Folic acid

1.18 One of the following drug has 1,4-dihydropyridine structure, a tertiary amino group in the side chain and Ca^{++} channel antagonism action

(A) Nitrodipine
(B) Nicardipine
(C) Verapamil
(D) Captopril

1.19 IUPAC name for one of the steroidal anti-inflamatory agent is 9α-fluoro-11β,16α,21-tetrahydroxy-1,4-pregnadiene-3,20-dione

(A) Prednisolone
(B) Betamethasone
(C) Triamcinolone
(D) Dexamethasone

1.20 Clofazimine belongs to a class of

(A) Rhiminophenazines
(B) Arylpiperazines
(C) Phenothiazines
(D) Benzyl piperazines

1.21 One of the drugs is odd one In terms of its biological action

(A) Diethyl Stibesterol
(B) Tamoxifen
(C) Ethynyl Estradiol
(D) Mestranol

1.22 The key intermediate for the synthesis of TIMOLOL are

(A) 3,4-dichloro-1,2,5-thiadiazole and morpholine
(B) 3,4-dichloro-1,2,5-thiadiazole and piperazine
(C) 3,4-dibromo-1,2,5-thiadiazole and piperazine
(D) 3-chloro-1,2,5-thiadiazole and morpholine

1.23 One of the following drugs interrupts the synthesis of thyroid hormones by preventing iodine incorporation into the tyrosyl residue of thyroglobulin

(A) Levothyroxine
(B) Liothyronine
(C) Propyl thiouracil
(D) Triiodothyronine

1.24 Macrolide antibiotic exert their action by

(A) Inhibiting transcription
(B) Altering the genetic code
(C) Terminating protein synthesis prematurely
(D) Post translation modification

1.25 One of the following is a selective β_2 stimulant

(A) Caffeine
(B) Salbutamol
(C) Propranolol
(D) Betahistine

2.

2.1 Cascaroside A is an example of

(A) O-glycoside
(B) C-glycoside
(C) N and S-glycoside
(D) O and C-glycoside

2.2 Precursor for the biosynthesis of tropane group of alkaloids is

(A) Leucine
(B) Lysine
(C) Ornithine
(D) Tyrosine

2.3 The extraction of steroidal saponins on commercial scale is from

(A) Dioscorea
(B) Digitalis
(C) Datura
(D) Trigonella

2.4 Rauwolfia sepentina Benth. can be distinguished from other adulterant from other adulterant/substituents of Rauwolfia spp. by

(A) Presence of starch grains
(B) Presence of calcium oxalate crystals
(C) Presence of trichomes
(D) Presence of scleroids

2.5 Schedule FF contains the list of the following

(A) Drug which can be marketed under generic names only
(B) Drugs which are habit forming
(C) Standards for ophthalmic preparation
(D) Drugs which are exempt from certain provisions applicable to manufacturing

2.6 One of the following equations is used to predict the stability of a drug product at room temperature form experiments at accelerated temperature.

(A) Strokes equation
(B) Arrhenius equation
(C) Young equation
(D) Michaelis Menten Equation

2.7 One of the following apparatus is used to determine the particle size by gravity sedimentation method

(A) Pyknometer
(B) Ostwald viscometer
(C) Anderson apparatus
(D) Friabilator

2.8 One of the following mills works on both the principle of attrition and impact

(A) Cutter mill
(B) Hammer mill
(C) Roller mill
(D) Fluid energy mill

2.9 A commonly used antioxidant for oil system is

(A) Butylated Hydroxy Toluene
(B) Ascorbic acid
(C) Sodium metabisulphite
(D) Thioglycol

2.10 In Digitalis glycoside C17 position of the steroidal ring is substituted by

(A) α-β unsaturated five membered lactone ring
(B) α-β unsaturated six membered lactone ring
(C) α-β unsaturated six membered ring
(D) α-β unsaturated five membered lactam ring

2.11 Metoprolol is sometimes preferred to Propranolol because

(A) It has both α and β adrenergic blockade activity
(B) It has both vasodilator properties and β adrenergic blockade activity
(C) It is β-1 selective antagonist and it does not enter the brain
(D) It is β-2 selective antagonist

2.12 The major product formed by the condensation of 2-trifluoromethylphenothiazine with sodamide and 1-(3-chloropropyl-4-methylpiperazine

(A) Trifluoperidol
(B)Trifluoperazine
(C) Trifluopromazine
(D) Trifluophenothiazine

2.13 One of the following statements is characteristic for natural estrogens

(A) Aromatic ring with phenolic group and an estrange nucleus
(B) Aromatic ring with an alcoholic group and a pregnane nucleus
(C) Reduced ring system belonging to the class estrange
(D) Reduced ring system belonging to the class pregnane

2.14 One of the following opioid peptides is released from pro-opio melanocortin (POMC)

(A) Somatostatin
(B) Beta-endorphin
(C) Leu-enkaphalin
(D) Dynorphin

2.15 The ultra-short acting barbiturates have brief duration of action due to

(A) High degree of binding to plasma protein
(B) Low lipid solubility resulting in a minimal concentration in the brain
(C) Metabolism is slow in liver
(D) Rapid rate of redistribution from the brain due to its high liposolubility

2.16 Derivatisation is done in GC

(A) To convert a less polar compound to more polar compound
(B) To make the compound non volatile
(C) To convert a polar compound to less polar compound
(D) To liquefy a solid

2.17Qualitative analysis by polarography is based on

(A) Electrode potential
(B) Half wave potential
(C) Migration current
(D) Limiting current

2.18 The stationary phase used in gel permeation chromatography is

(A) Alumina
(B)Charcoal
(C) Squalene
(D) Styrene divinyl benzyl co-polymer

2.19 A conductivity cell consist of

(A) Two platinised – platinum electrode
(B) A platinum – calomel electrode system
(C) A platinum – tungsten electrode system
(D) A glass – calomel electrode system

2.20 A typical example of exotoxin is

(A) Lipid- A
(B) Cytokine
(C) Tetanospasmin
(D) Tuberculin

2.21 A specimen isolated from a patient suffering from septicaemia was found to be strict aerobe. Its culture vial had a characteristic grape like odour and it was susceptible to carbenicillin. Identify the organism.

(A) Pseudomonas fluorescens
(B) Salmonella typhi
(C) Staphylococcus
(D) Pseudomonas aeruginosa

2.22 The pKa of Lidocaineis 7.9. If the pH of the infected tissue is 8.9, the fraction of drug in the ionized from will be

(A) 1%
(B) 10%
(C) 90%
(D) 99%

2.23 The drug regimen useful in the treatment of both intestinal and extra-intestinal symptoms of amoebiasis orally by

(A) Diloxanide and iodoquinol
(B) Paramomycin
(C) Metronidazole and diloxanide
(D) Chloroquine alone

2.24 The drug Nefidipine can be synthesized from

(A) o-nitro benzaldehyde, methyl acetoacetate and ammonia
(B) p-nitro benzaldehyde, methyl acetoacetate and ammonia
(C) o-nitro benzaldehyde, methyl acetoacetate and methylamine
(D) p-nitro benzaldehyde, methyl acetoacetate and methylamine

2.25 Methyl malonyl CoA mutase which catalyzes the conversion of propinoyl CoA to Succinyl utilizes the prosthetic group derived from

(A) Cyanocobalamine
(B) Pyridoxine
(C) Thiamine
(D) Nicotinamide

ANSWER KEY

1.1-C 1.2-C 1.3-C 1.4-D 1.5-A 1.6-B 1.7-A 1.8-C 1.9-C 1.10-B
1.11-A 1.12-C 1.13-A 1.14-A 1.15-A 1.16A 1.17-C 1.18-B 1.19-C 1.20-A
1.21-B 1.22-A 1.23-C 1.24-D 1.25-B
2.1-A 2.2-C 2.3-A 2.4-D 2.5-C 2.6-B 2.7-C 2.8-D 2.9-A 2.10-B
2.11-C 2.12-B 2.13-A 2.14-B 2.15-D 2.16-C 2.17-B 2.18-D 2.19-A 2.20-C
2.21-D 2.22-C 2.23-C 2.24-C 2.25-A