Pharmaceutical Chemistry and Allied Subjects

Which of the following is a phase I metabolic reaction?  
A. Acetylation  
B. Glucuronidation  
C. Sulfation  
D. Hydrolysis  
Answer: D

The correct IUPAC name of Paracetamol is:  
A. 4-Hydroxyacetanilide  
B. Acetamidophenol  
C. N-Acetyl-p-aminophenol  
D. Para-acetamidophenol  
Answer: A

Identify the functional group present in aspirin:  
A. Ester and Carboxylic acid  
B. Amide and Alcohol  
C. Ketone and Alcohol  
D. Ether and Aldehyde  
Answer: A

Which of the following is a heterocyclic compound?  
A. Benzene  
B. Pyridine  
C. Toluene  
D. Phenol  
Answer: B

What is the role of magnesium stearate in tablet formulation?  
A. Disintegrant  
B. Lubricant  
C. Diluent  
D. Binder  
Answer: B

Which of the following antibiotics contains a beta-lactam ring?  
A. Ciprofloxacin  
B. Penicillin G  
C. Erythromycin  
D. Streptomycin  
Answer: B

The pKa of a weakly acidic drug is 4.0. It will be mostly unionized in which of the following pH environments?  
A. 2.0  
B. 3.0  
C. 4.0  
D. 6.0  
Answer: A

The chelating agent used in heavy metal poisoning is:  
A. EDTA  
B. Ascorbic acid  
C. Penicillin  
D. Paracetamol  
Answer: A

A compound showing keto-enol tautomerism is:  
A. Acetone  
B. Ethanol  
C. Benzene  
D. Acetoacetic acid  
Answer: D

The oxidation state of iron in ferrous sulfate is:  
A. +1  
B. +2  
C. +3  
D. +4  
Answer: B

The color of FeCl₃ solution in presence of phenol is:  
A. Red  
B. Blue  
C. Green  
D. Violet  
Answer: D

An SN1 reaction is favored by:  
A. Primary alkyl halide  
B. Secondary alkyl halide  
C. Tertiary alkyl halide  
D. Methyl halide  
Answer: C

The antidote for methanol poisoning is:  
A. Fomepizole  
B. Naloxone  
C. Atropine  
D. Flumazenil  
Answer: A

Which of the following undergoes Hofmann elimination?  
A. Tertiary amine  
B. Quaternary ammonium salt  
C. Amide  
D. Alcohol  
Answer: B

Which is a first-generation antihistamine?  
A. Loratadine  
B. Cetirizine  
C. Diphenhydramine  
D. Fexofenadine  
Answer: C

In IR spectroscopy, the carbonyl (C=O) stretching vibration appears at:  
A. 3200–3600 cm⁻¹  
B. 2850–2960 cm⁻¹  
C. 1600–1680 cm⁻¹  
D. 1700–1750 cm⁻¹  
Answer: D

Chlorpromazine belongs to:  
A. Phenothiazines  
B. Benzodiazepines  
C. Tricyclics  
D. SSRIs  
Answer: A

A compound having both acidic and basic functional groups is called:  
A. Amphoteric  
B. Zwitterionic  
C. Prodrug  
D. Chelate  
Answer: A

The alkaloid present in cinchona bark is:  
A. Atropine  
B. Quinine  
C. Morphine  
D. Reserpine  
Answer: B

What is the major degradation pathway for penicillin in aqueous solution?  
A. Oxidation  
B. Hydrolysis  
C. Decarboxylation  
D. Photolysis  
Answer: B

Which functional group in lidocaine is responsible for its local anesthetic activity?  
A. Amide  
B. Ester  
C. Alcohol  
D. Ketone  
Answer: A

Which one is a selective COX-2 inhibitor?  
A. Ibuprofen  
B. Aspirin  
C. Diclofenac  
D. Celecoxib  
Answer: D

The chemical test for alkaloids involves:  
A. Ninhydrin test  
B. Dragendorff’s reagent  
C. Biuret test  
D. Benedict’s reagent  
Answer: B

What is the mechanism of action of sulfonamides?  
A. Inhibition of folic acid synthesis  
B. Inhibition of cell wall synthesis  
C. Inhibition of DNA gyrase  
D. Disruption of protein synthesis  
Answer: A

The buffer system used in blood is:  
A. Acetate buffer  
B. Citrate buffer  
C. Phosphate buffer  
D. Bicarbonate buffer  
Answer: D

The impurity test for iron is performed using:  
A. Potassium ferrocyanide  
B. Thioglycolic acid  
C. Ammonium thiocyanate  
D. 1,10-Phenanthroline  
Answer: C

Chemical structure of chloramphenicol contains:  
A. Nitrobenzene  
B. Thiazole  
C. Dichloroacetamide  
D. Piperazine  
Answer: C

Which vitamin contains a cobalt atom in its structure?  
A. Vitamin A  
B. Vitamin B₁₂  
C. Vitamin D  
D. Vitamin K  
Answer: B

Phenolphthalein in basic medium appears:  
A. Colorless  
B. Yellow  
C. Pink  
D. Blue  
Answer: C

Identify the non-steroidal anti-inflammatory drug:  
A. Prednisolone  
B. Indomethacin  
C. Betamethasone  
D. Hydrocortisone  
Answer: B

Which of the following is a reducing sugar?  
A. Sucrose  
B. Glucose  
C. Starch  
D. Cellulose  
Answer: B

The enzyme that converts alcohol to acetaldehyde is:  
A. Alcohol dehydrogenase  
B. Aldehyde dehydrogenase  
C. Acetyl-CoA synthase  
D. Glucuronyl transferase  
Answer: A

Which of the following is a schedule H drug?  
A. Paracetamol  
B. Insulin  
C. Cough syrup  
D. Metformin  
Answer: D

Which technique is used to identify polymorphism in drug substances?  
A. IR Spectroscopy  
B. NMR  
C. DSC  
D. Mass spectrometry  
Answer: C

The splitting of signals in ¹H NMR is due to:  
A. Homonuclear coupling  
B. Isotope effect  
C. Relaxation  
D. Proton exchange  
Answer: A

The retention time in HPLC depends on:  
A. Solubility  
B. Molecular weight  
C. Partition coefficient  
D. Ionic charge  
Answer: C

UV absorption of benzene shows:  
A. n → π\* transition  
B. π → π\* transition  
C. σ → π\* transition  
D. n → σ\* transition  
Answer: B

Which is a prodrug?  
A. Aspirin  
B. Levodopa  
C. Atropine  
D. Salbutamol  
Answer: B

Pharmaceutics and allied subjects

Rank the following excipients in increasing order of their use in tablet formulations (least to most common):  
A. I. Binder, II. Diluent, III. Lubricant, IV. Disintegrant  
B. I. Lubricant, II. Binder, III. Disintegrant, IV. Diluent  
C. I. Diluent, II. Binder, III. Disintegrant, IV. Lubricant  
D. I. Binder, II. Disintegrant, III. Lubricant, IV. Diluent

Answer: C. I < II < IV < III

Rank the following methods of tablet coating in increasing order of coating thickness (thinnest to thickest):  
A. I. Sugar coating, II. Film coating, III. Enteric coating, IV. Compression coating  
B. I. Film coating, II. Sugar coating, III. Enteric coating, IV. Compression coating  
C. I. Film coating, II. Enteric coating, III. Sugar coating, IV. Compression coating  
D. I. Sugar coating, II. Compression coating, III. Film coating, IV. Enteric coating

Answer: A. I < II < III < IV

Rank the following routes of drug administration in increasing order of bioavailability (lowest to highest):  
A. I. Oral, II. Subcutaneous, III. Intravenous, IV. Sublingual  
B. I. Oral, II. Sublingual, III. Intravenous, IV. Subcutaneous  
C. I. Oral, II. Subcutaneous, III. Sublingual, IV. Intravenous  
D. I. Sublingual, II. Oral, III. Subcutaneous, IV. Intravenous

Answer: A. I < II < IV < III

Rank the following in increasing order of solubility (least soluble to most soluble):  
A. I. Amorphous drug, II. Crystalline drug, III. Drug with high melting point, IV. Drug with low melting point  
B. I. Crystalline drug, II. Amorphous drug, III. Drug with high melting point, IV. Drug with low melting point  
C. I. Drug with high melting point, II. Crystalline drug, III. Drug with low melting point, IV. Amorphous drug  
D. I. Crystalline drug, II. Drug with high melting point, III. Amorphous drug, IV. Drug with low melting point

Answer: C. I < II < III < IV

Rank the following types of drug release in increasing order of duration (shortest to longest):  
A. I. Immediate-release, II. Sustained-release, III. Extended-release, IV. Controlled-release  
B. I. Immediate-release, II. Controlled-release, III. Sustained-release, IV. Extended-release  
C. I. Sustained-release, II. Immediate-release, III. Extended-release, IV. Controlled-release  
D. I. Immediate-release, II. Extended-release, III. Controlled-release, IV. Sustained-release

Answer: A. I < II < III < IV

Which of the following routes bypasses the first-pass metabolism?  
A. Oral  
B. Rectal  
C. Sublingual  
D. Intramuscular  
Answer: C. Sublingual

The rate-limiting step in dissolution of a poorly water-soluble drug from a tablet is:  
A. Drug diffusion  
B. Drug disintegration  
C. Drug deaggregation  
D. Drug solubilization  
Answer: D. Drug solubilization

Zeta potential is primarily used to measure:  
A. Solubility  
B. Stability of colloidal systems  
C. Particle size  
D. Drug permeability  
Answer: B. Stability of colloidal systems

Which kinetic model best fits zero-order drug release?  
A. C = C₀e^(-kt)  
B. Q = Q₀ + k₀t  
C. Q = Q₀e^(-kt)  
D. C = C₀ + klogt  
Answer: B. Q = Q₀ + k₀t

In microencapsulation, phase separation is most commonly induced by:  
A. Temperature increase  
B. Solvent evaporation  
C. Addition of a non-solvent  
D. Cross-linking  
Answer: C. Addition of a non-solvent

Which sterilization method is suitable for ophthalmic thermolabile protein solutions?  
A. Dry heat  
B. Autoclaving  
C. Filtration  
D. Radiation  
Answer: C. Filtration

Which one of the following excipients is used to increase the viscosity of ophthalmic preparations?  
A. EDTA  
B. Propylene glycol  
C. HPMC  
D. Benzalkonium chloride  
Answer: C. HPMC

Bioavailability is best described as:  
A. Drug's therapeutic index  
B. Extent of absorption and first-pass effect  
C. Drug reaching liver  
D. Time taken for Tmax  
Answer: B. Extent of absorption and first-pass effect

Which polymer is used for colon-targeted drug delivery due to its degradation by colonic bacteria?  
A. Eudragit RL  
B. Cellulose acetate phthalate  
C. Pectin  
D. PEG 4000  
Answer: C. Pectin

An ideal plasticizer for ocular inserts should:  
A. Increase glass transition temperature  
B. Be lipophilic  
C. Be non-volatile and non-irritant  
D. Cross-link with polymer  
Answer: C. Be non-volatile and non-irritant

Enteric coating dissolves in:  
A. pH 1–2  
B. Saliva  
C. Acidic media  
D. pH > 5.5  
Answer: D. pH > 5.5

Lecithin is primarily used in NDDS as a:  
A. Buffer  
B. Surfactant  
C. Polymer  
D. Stabilizer  
Answer: B. Surfactant

Which parameter is crucial for in-vitro–in-vivo correlation (IVIVC)?  
A. Tmax  
B. Cmax  
C. Dissolution rate  
D. Half-life  
Answer: C. Dissolution rate

The ideal particle size for pulmonary drug delivery via DPI is:  
A. >10 µm  
B. 5–10 µm  
C. 1–5 µm  
D. <1 µm  
Answer: C. 1–5 µm

The main factor affecting the floating behavior of FDDS is:  
A. Drug solubility  
B. Polymer crosslinking  
C. Density of formulation  
D. pKa of the drug  
Answer: C. Density of formulation

Rank the following pharmaceutical dosage forms in order of increasing rate of drug release (slowest to fastest):  
A. I. Extended-release tablets, II. Immediate-release tablets, III. Sustained-release tablets, IV. Solution  
B. I. Immediate-release tablets, II. Extended-release tablets, III. Sustained-release tablets, IV. Solution  
C. I. Extended-release tablets, III. Sustained-release tablets, II. Immediate-release tablets, IV. Solution  
D. I. Sustained-release tablets, II. Immediate-release tablets, III. Extended-release tablets, IV. Solution

Answer: C. I < III < II < IV

Rank the following tablet manufacturing methods in order of increasing complexity:  
A. I. Wet granulation, II. Dry granulation, III. Direct compression, IV. Roller compaction  
B. I. Direct compression, II. Dry granulation, III. Wet granulation, IV. Roller compaction  
C. I. Dry granulation, II. Roller compaction, III. Wet granulation, IV. Direct compression  
D. I. Wet granulation, II. Direct compression, III. Roller compaction, IV. Dry granulation

Answer: B. III < II < I < IV

Rank the following dosage forms in increasing order of onset of action (slowest to fastest):  
A. I. Oral tablets, II. Injectable solutions, III. Inhalers, IV. Rectal suppositories  
B. I. Oral tablets, II. Rectal suppositories, III. Injectable solutions, IV. Inhalers  
C. I. Injectable solutions, II. Oral tablets, III. Rectal suppositories, IV. Inhalers  
D. I. Rectal suppositories, II. Oral tablets, III. Injectable solutions, IV. Inhalers

Answer: B. I < II < III < IV

All of the following are advantages of liposomes EXCEPT:  
A. Controlled drug release  
B. Passive targeting  
C. High leakage rate  
D. Biocompatibility  
Answer: C. High leakage rate

Which is NOT a characteristic of zero-order kinetics?  
A. Constant release rate  
B. Concentration-dependent rate  
C. Linear increase in amount with time  
D. Applies to transdermal patches  
Answer: B. Concentration-dependent rate

Which of the following is NOT an advantage of transdermal drug delivery?  
A. Avoids first-pass effect  
B. Non-invasive  
C. Fast onset for emergency drugs  
D. Sustained release possible  
Answer: C. Fast onset for emergency drugs

Which of the following is NOT a factor affecting drug absorption in GIT?  
A. Gastric pH  
B. Intestinal motility  
C. Renal clearance  
D. Surface area  
Answer: C. Renal clearance

All of the following enhance bioavailability EXCEPT:  
A. Salt formation  
B. Use of surfactants  
C. Prodrugs  
D. Enteric coating  
Answer: D. Enteric coating

Which of the following is NOT used in sustained release matrix tablets?  
A. HPMC  
B. Ethyl cellulose  
C. Sodium bicarbonate  
D. Carbopol  
Answer: C. Sodium bicarbonate

All of the following are essential for lyophilization EXCEPT:  
A. Vacuum  
B. Freezing  
C. Use of surfactants  
D. Sublimation  
Answer: C. Use of surfactants

A transdermal patch showed plasma drug level spikes despite a controlled release design. The most probable reason is:  
A. Too thick reservoir  
B. Patch leakage  
C. Excess adhesive  
D. Skin enzyme inhibition  
Answer: B. Patch leakage

A patient taking a high dose of a Class II drug shows erratic absorption. What formulation strategy would you recommend?  
A. Sustained-release matrix  
B. Self-emulsifying system  
C. Tablet with enteric coating  
D. Film coating  
Answer: B. Self-emulsifying system

For a drug with a short half-life and narrow therapeutic index, which delivery system is ideal?  
A. Immediate release  
B. Transdermal  
C. Buccal  
D. Pulsatile  
Answer: B. Transdermal

A capsule contains hygroscopic excipient and softens over time. Which solution is BEST?  
A. Add desiccant in the cap  
B. Add sodium benzoate  
C. Use gelatin instead of HPMC  
D. Increase fill weight  
Answer: A. Add desiccant in the cap

If a poorly water-soluble drug is being developed for pediatric use, which of the following is MOST suitable?  
A. Microemulsion  
B. Enteric-coated tablet  
C. Lyophilized powder  
D. Hard capsule  
Answer: A. Microemulsion

You need to deliver a protein drug that undergoes GI degradation. Which is BEST?  
A. Oral tablet  
B. Parenteral depot  
C. Sublingual film  
D. Transdermal patch  
Answer: B. Parenteral depot

A formulation is designed to float in the stomach for 6 hours. It suddenly fails. Most likely reason:  
A. High tablet density  
B. Polymer failure  
C. Excess HPMC  
D. Incorrect drug pKa  
Answer: A. High tablet density

Your IVIVC plot shows poor correlation for a sustained-release formulation. Next step?  
A. Modify in vitro dissolution method  
B. Increase sampling time  
C. Reduce dose  
D. Change route to IM  
Answer: A. Modify in vitro dissolution method

Pharmacognosy

Rank the following plant extraction methods in increasing order of efficiency (least to most efficient):  
A. I. Cold extraction, II. Percolation, III. Maceration, IV. Soxhlet extraction  
B. I. Maceration, II. Percolation, III. Cold extraction, IV. Soxhlet extraction  
C. I. Soxhlet extraction, II. Percolation, III. Cold extraction, IV. Maceration  
D. I. Percolation, II. Maceration, III. Cold extraction, IV. Soxhlet extraction

Answer: A. III < I < II < IV

Which alkaloid test gives a reddish-brown precipitate with alkaloids?  
A. Mayer’s test  
B. Dragendorff’s test  
C. Hager’s test  
D. Wagner’s test  
Answer: D. Wagner’s test

Which of the following is the correct pair of drug and its main active constituent?  
A. Senna – Sennosides  
B. Ephedra – Atropine  
C. Digitalis – Reserpine  
D. Cinchona – Morphine  
Answer: A. Senna – Sennosides

The resin obtained from Boswellia serrata is used for:  
A. Anti-inflammatory activity  
B. Antitussive  
C. Cardiotonic  
D. Hypoglycemic  
Answer: A. Anti-inflammatory activity

Which plant part is used in the preparation of liquorice?  
A. Leaves  
B. Bark  
C. Root  
D. Flower  
Answer: C. Root

Which of the following is NOT a cardiac glycoside-containing plant?  
A. Digitalis purpurea  
B. Nerium oleander  
C. Vinca rosea  
D. Strophanthus  
Answer: C. Vinca rosea

All of the following are examples of tannins EXCEPT:  
A. Catechin  
B. Quercetin  
C. Ellagic acid  
D. Gallic acid  
Answer: B. Quercetin

Rank the following classes of plant secondary metabolites in increasing order of toxicity (least toxic to most toxic):  
A. I. Alkaloids, II. Terpenoids, III. Glycosides, IV. Phenolics  
B. I. Terpenoids, II. Glycosides, III. Phenolics, IV. Alkaloids  
C. I. Glycosides, II. Alkaloids, III. Terpenoids, IV. Phenolics  
D. I. Phenolics, II. Glycosides, III. Terpenoids, IV. Alkaloids

Answer: A. II < IV < III < I

A powdered crude drug failed the Borntrager's test even though it contains anthraquinones. What is the MOST likely reason?  
A. Test performed at neutral pH  
B. Ether used instead of chloroform  
C. Hydrolysis step skipped  
D. Drug contains volatile oil  
Answer: C. Hydrolysis step skipped

A pharmacognostical analysis of a root sample showed abundant starch, simple unicellular trichomes, and polygonal parenchyma. Based on these characters, the drug is MOST likely to be:  
A. Rauwolfia  
B. Glycyrrhiza  
C. Atropa  
D. Cinchona  
Answer: B. Glycyrrhiza

Pharmacology

Rank the following drugs in increasing order of their half-life (shortest to longest):  
A. I. Warfarin, II. Heparin, III. Aspirin, IV. Diazepam  
B. I. Heparin, II. Aspirin, III. Warfarin, IV. Diazepam  
C. I. Aspirin, II. Warfarin, III. Diazepam, IV. Heparin  
D. I. Heparin, II. Warfarin, III. Diazepam, IV. Aspirin

Answer: B. II < III < I < IV

Rank the following drugs based on increasing order of their protein binding (lowest to highest):  
A. I. Ibuprofen, II. Warfarin, III. Diazepam, IV. Phenytoin  
B. I. Diazepam, II. Warfarin, III. Phenytoin, IV. Ibuprofen  
C. I. Phenytoin, II. Diazepam, III. Warfarin, IV. Ibuprofen  
D. I. Warfarin, II. Ibuprofen, III. Diazepam, IV. Phenytoin

Answer: A. I < III < IV < II

Rank the following drug types in increasing order of their mechanism of action complexity (simplest to most complex):  
A. I. Ion channel blockers, II. Enzyme inhibitors, III. G-protein coupled receptor activators, IV. DNA intercalators  
B. I. Enzyme inhibitors, II. DNA intercalators, III. Ion channel blockers, IV. G-protein coupled receptor activators  
C. I. Ion channel blockers, II. DNA intercalators, III. G-protein coupled receptor activators, IV. Enzyme inhibitors  
D. I. Ion channel blockers, II. Enzyme inhibitors, III. DNA intercalators, IV. G-protein coupled receptor activators

Answer: A. I < II < III < IV

A patient on theophylline experiences nausea and seizures. His other medications include ciprofloxacin. What is the likely cause?  
A. Drug resistance  
B. Theophylline underdose  
C. Ciprofloxacin inhibiting theophylline metabolism  
D. Anticholinergic effect of ciprofloxacin  
Answer: C. Ciprofloxacin inhibiting theophylline metabolism

A hypertensive diabetic is prescribed propranolol. Later, he experiences unrecognized hypoglycemia. The likely explanation is:  
A. β-blockers induce insulin secretion  
B. Propranolol masks adrenergic symptoms of hypoglycemia  
C. Reduced renal glucose excretion  
D. Increased insulin resistance  
Answer: B. Propranolol masks adrenergic symptoms of hypoglycemia

A patient presents with dry mouth, tachycardia, and blurred vision after taking a tricyclic antidepressant. The symptoms are likely due to:  
A. Antihistaminic effect  
B. Anticholinergic effect  
C. α-adrenergic blockade  
D. Dopamine antagonism  
Answer: B. Anticholinergic effect

A patient on warfarin develops bleeding after starting a new antibiotic. Which is the most plausible mechanism?  
A. Decreased warfarin absorption  
B. Vitamin K potentiation  
C. Inhibition of warfarin metabolism  
D. Increased protein binding of warfarin  
Answer: C. Inhibition of warfarin metabolism

A patient on MAO inhibitors is advised to avoid cheese and wine. What adverse effect may occur if this is ignored?  
A. Serotonin syndrome  
B. Hypotension  
C. Hypertensive crisis  
D. Stevens-Johnson syndrome  
Answer: C. Hypertensive crisis

Rank the following classes of drugs in increasing order of their therapeutic index (least to most):  
A. I. Benzodiazepines, II. Insulin, III. Digitalis, IV. Anticoagulants  
B. I. Digitalis, II. Anticoagulants, III. Insulin, IV. Benzodiazepines  
C. I. Insulin, II. Benzodiazepines, III. Anticoagulants, IV. Digitalis  
D. I. Anticoagulants, II. Benzodiazepines, III. Digitalis, IV. Insulin

Answer: C. I < II < IV < III

Which of the following drugs shows zero-order kinetics at therapeutic concentrations?  
A. Theophylline  
B. Phenytoin  
C. Ibuprofen  
D. Diazepam  
Answer: B. Phenytoin

Which receptor subtype is primarily responsible for bronchoconstriction?  
A. β2  
B. M3  
C. α1  
D. H1  
Answer: B. M3

The 'first-pass effect' is most significant with which route of administration?  
A. Intravenous  
B. Sublingual  
C. Oral  
D. Intramuscular  
Answer: C. Oral

Which enzyme is responsible for the metabolism of catecholamines?  
A. COMT  
B. CYP3A4  
C. MAO-A  
D. Both A and C  
Answer: D. Both A and C

Which of the following is a selective COX-2 inhibitor?  
A. Ibuprofen  
B. Diclofenac  
C. Aspirin  
D. Celecoxib  
Answer: D. Celecoxib

Which of the following drugs is used as an antidote for organophosphate poisoning?  
A. Atropine  
B. Pralidoxime  
C. Neostigmine  
D. Both A and B  
Answer: D. Both A and B

Which class of drugs causes ototoxicity as a major side effect?  
A. Macrolides  
B. Cephalosporins  
C. Aminoglycosides  
D. Penicillins  
Answer: C. Aminoglycosides

Which of the following drugs increases insulin secretion by inhibiting ATP-sensitive K⁺ channels?  
A. Acarbose  
B. Metformin  
C. Glipizide  
D. Pioglitazone  
Answer: C. Glipizide

Drug used in Parkinson’s disease as a dopamine precursor is:  
A. Selegiline  
B. Bromocriptine  
C. Levodopa  
D. Carbidopa  
Answer: C. Levodopa

Which neurotransmitter is deficient in Alzheimer’s disease?  
A. Dopamine  
B. Serotonin  
C. GABA  
D. Acetylcholine  
Answer: D. Acetylcholine

Which of the following is a reverse transcriptase inhibitor used in HIV therapy?  
A. Zidovudine  
B. Saquinavir  
C. Enfuvirtide  
D. Ritonavir  
Answer: A. Zidovudine

Which antihypertensive drug is contraindicated in pregnancy?  
A. Methyldopa  
B. Nifedipine  
C. Labetalol  
D. Enalapril  
Answer: D. Enalapril

Which of the following is NOT a second-generation antihistamine?  
A. Loratadine  
B. Cetirizine  
C. Hydroxyzine  
D. Fexofenadine  
Answer: C. Hydroxyzine

All of the following drugs are used in tuberculosis EXCEPT:  
A. Isoniazid  
B. Rifampin  
C. Ethambutol  
D. Fluconazole  
Answer: D. Fluconazole

Which of the following is NOT an adverse effect of corticosteroids?  
A. Osteoporosis  
B. Hypoglycemia  
C. Immunosuppression  
D. Cataract  
Answer: B. Hypoglycemia

Which of the following is NOT used in the management of peptic ulcer?  
A. Ranitidine  
B. Sucralfate  
C. Omeprazole  
D. Domperidone  
Answer: D. Domperidone

Which of the following is NOT a loop diuretic?  
A. Furosemide  
B. Bumetanide  
C. Ethacrynic acid  
D. Spironolactone  
Answer: D. Spironolactone

Which of the following is NOT a GABAergic drug?  
A. Diazepam  
B. Phenobarbital  
C. Phenytoin  
D. Tiagabine  
Answer: C. Phenytoin

Rank the following routes of drug administration in increasing order of onset of action (slowest to fastest):  
A. I. Oral, II. Subcutaneous, III. Intravenous, IV. Inhalation  
B. I. Oral, II. Sublingual, III. Intravenous, IV. Subcutaneous  
C. I. Oral, II. Sublingual, III. Subcutaneous, IV. Intravenous  
D. I. Sublingual, II. Oral, III. Intravenous, IV. Subcutaneous

Answer: A. I < II < IV < III

Other

Under the Drugs and Cosmetics Act, 1940, the licensing authority for manufacturing allopathic drugs is:  
A. Central Drugs Laboratory  
B. State Licensing Authority  
C. Drug Controller General of India (DCGI)  
D. Indian Pharmacopoeia Commission  
Answer: B. State Licensing Authority

In dry granulation, the preferred method for compacting powder is:  
A. Fluid bed granulator  
B. High shear mixer  
C. Roller compactor  
D. Planetary mixer  
Answer: C. Roller compactor

Which of the following vectors is used in gene therapy for treating SCID (Severe Combined Immunodeficiency)?  
A. Retrovirus  
B. Baculovirus  
C. Herpesvirus  
D. Cosmid  
Answer: A. Retrovirus

Autoclaving achieves sterilization by:  
A. Dry heat at 160°C  
B. Saturated steam under pressure at 121°C for 15–20 min  
C. Ethylene oxide at 30°C  
D. UV radiation  
Answer: B. Saturated steam under pressure at 121°C for 15–20 min

Which of the following is NOT punishable under the NDPS Act?  
A. Illegal possession of narcotics  
B. Cultivation of opium poppy without license  
C. Manufacturing under Rule 65  
D. Drug trafficking  
Answer: C. Manufacturing under Rule 65

Which of the following is NOT a characteristic of endotoxins?  
A. Heat stable  
B. Produced by Gram-positive bacteria  
C. Lipopolysaccharide in nature  
D. Poorly antigenic  
Answer: B. Produced by Gram-positive bacteria

Rank the following unit operations in increasing order of their energy consumption (least to most):  
A. I. Filtration, II. Mixing, III. Drying, IV. Milling  
B. I. Filtration, II. Drying, III. Mixing, IV. Milling  
C. I. Mixing, II. Filtration, III. Milling, IV. Drying  
D. I. Drying, II. Filtration, III. Mixing, IV. Milling

Answer: A. I < II < III < IV

Arrange the following disinfectants in order of increasing spectrum of antimicrobial activity:

Alcohol (70%)

Chlorhexidine

Phenol

Glutaraldehyde  
Answer: III < I < II < IV

A recombinant protein fails to fold correctly in E. coli and forms inclusion bodies. What is the best initial step to resolve this?  
A. Increase incubation temperature  
B. Use of signal peptide for secretion  
C. Switch to mammalian cell culture  
D. Co-expression with chaperone proteins  
Answer: D. Co-expression with chaperone proteins

A fluidized bed dryer fails to dry granules efficiently, despite proper temperature. The probable cause is:  
A. Incorrect humidity setting  
B. High air velocity leading to elutriation  
C. Use of fine powder instead of granules  
D. Low inlet air pressure  
Answer: C. Use of fine powder instead of granules

Which of the following schedules under the Drugs and Cosmetics Rules, 1945, prescribes the requirements for the labeling and packaging of drugs?

A. Schedule H  
B. Schedule G  
C. Schedule P  
D. Schedule X

Answer: C. Schedule P