Crown to Cortex

Pharmacology

Final Revision Definitions

The Unhackables Medical

medical.theunhackables.com

How to use this revision PDF

This is the fast recall companion to the full Pharmacology notes. It collects important words, prototype drugs, toxicity signatures, contraindication filters, and exam decision phrases across all 43 topics. It is intentionally compact, but it is not a replacement for the topic PDFs.

First pass

Read each topic's definitions and prototype list.

v

Second pass

Cover the right column and recall the mechanism or toxicity aloud.

v

Third pass

Use the contraindication and interaction filters to eliminate options.

v

Final pass

Review emergency drugs, antidotes, and monitoring points.

Universal pharmacology words

Word / phrase	Meaning for entrance exams
Prototype drug	The cleanest representative of a class; learn mechanism, use, toxicity, contraindication.
Signature toxicity	A recognizable adverse effect that identifies the drug in a vignette.
Contraindication filter	A patient factor that makes a usually correct drug wrong.
Narrow therapeutic index	Small separation between effective and toxic dose; monitoring is important.
First-line	Best usual choice only when no hidden contraindication exists.
Empirical therapy	Initial treatment before full confirmation, guided by syndrome and severity.
Definitive therapy	Culture, diagnosis, or response-guided targeted treatment.
Disease-modifying drug	Improves outcomes or disease course, not only symptoms.
Symptomatic drug	Improves symptoms without necessarily changing long-term prognosis.

Pharmacokinetics

Term	Definition / exam meaning
Absorption	pH partition, gastric emptying, first-pass effect, transporters
Distribution	protein binding, Vd, barriers, tissue reservoirs
Metabolism	Phase I CYP, Phase II conjugation, prodrugs, active metabolites
Excretion	GFR, secretion, reabsorption, urinary pH manipulation
High Vd	chloroquine, digoxin, amiodarone
Low Vd	heparin, warfarin, aminoglycosides
Zero-order	phenytoin, ethanol, aspirin high dose
Enzyme induction	rifampicin, carbamazepine, phenytoin, phenobarbitone
Enzyme inhibition	macrolides, azoles, ritonavir, cimetidine, grapefruit
Bioavailability	Fraction of administered dose reaching systemic circulation unchanged; IV equals 100 percent.
Volume of distribution	Apparent space occupied by drug; high Vd suggests tissue binding or lipid solubility.
Clearance	Volume of plasma cleared of drug per unit time; maintenance dose depends on clearance.
Half-life	Time for plasma concentration to fall by 50 percent; about 4 to 5 half-lives reach steady state.
Loading dose	Used when target concentration is needed quickly; depends on Vd and target plasma concentration.

Fast toxicity and decision cues

Cue	Recall
High Vd	chloroquine, digoxin, amiodarone
Low Vd	heparin, warfarin, aminoglycosides
Zero-order	phenytoin, ethanol, aspirin high dose
Enzyme induction	rifampicin, carbamazepine, phenytoin, phenobarbitone
Enzyme inhibition	macrolides, azoles, ritonavir, cimetidine, grapefruit
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Pharmacodynamics

Term	Definition / exam meaning
Agonist	full, partial, inverse
Antagonist	competitive, irreversible, physiological, chemical
Receptors	ion channel, GPCR, enzyme-linked, nuclear
Dose response	graded and quantal curves
Partial agonist	buprenorphine, pindolol, aripiprazole
Inverse agonist	many H1 antihistamines, beta-carbolines at GABA-A
Competitive antagonist	naloxone, atropine, propranolol
Physiological antagonist	adrenaline versus histamine in bronchospasm
Potency	Amount of drug required for a given effect; reflected by EC50.
Efficacy	Maximum effect a drug can produce; reflected by Emax.
Competitive antagonist	Shifts curve right; Emax preserved if enough agonist is added.
Noncompetitive antagonist	Reduces Emax; cannot be fully overcome by agonist.
Partial agonist	Activates receptor with lower Emax and can antagonize a full agonist.

Fast toxicity and decision cues

Cue	Recall
Partial agonist	buprenorphine, pindolol, aripiprazole
Inverse agonist	many H1 antihistamines, beta-carbolines at GABA-A
Competitive antagonist	naloxone, atropine, propranolol
Physiological antagonist	adrenaline versus histamine in bronchospasm
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Clinical Trials

Term	Definition / exam meaning
Phase 0	microdose exploratory PK
Phase I	safety, dose, PK
Phase II	efficacy signal
Phase III	large confirmatory
Phase IV	post-marketing surveillance
Bias control	randomization, allocation concealment, blinding
Analysis	intention-to-treat, per-protocol, subgroup caution
Measures	ARR, RRR, NNT, hazard ratio, confidence interval
Ethics	consent, equipoise, DSMB, stopping rules
Phase 0	Microdosing; early human pharmacokinetic signal.
Phase I	Safety, tolerability, pharmacokinetics; usually healthy volunteers, except toxic drugs such as anticancer agents.
Phase II	Efficacy signal and dose ranging in patients.
Phase III	Large confirmatory trials for efficacy and safety.
Phase IV	Post-marketing surveillance, rare adverse effects, real-world effectiveness.

Fast toxicity and decision cues

Cue	Recall
Bias control	randomization, allocation concealment, blinding
Analysis	intention-to-treat, per-protocol, subgroup caution
Measures	ARR, RRR, NNT, hazard ratio, confidence interval
Ethics	consent, equipoise, DSMB, stopping rules
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

ANS Introduction and Cholinergic Drugs

Term	Definition / exam meaning
Direct agonists	acetylcholine, bethanechol, carbachol, pilocarpine, cevimeline
Reversible AChE inhibitors	neostigmine, pyridostigmine, physostigmine, edrophonium, donepezil, rivastigmine
Irreversible AChE inhibitors	organophosphates such as malathion, parathion, echothiophate
Antidotes	atropine, pralidoxime, diazepam for seizures
Bethanechol	postoperative urinary retention and ileus; avoid asthma and PUD
Pilocarpine	glaucoma and xerostomia
Neostigmine	MG, ileus, reversal of nondepolarizing block
Physostigmine	central anticholinergic toxicity
Donepezil	Alzheimer disease symptomatic benefit
M1	CNS and gastric acid secretion.
M2	Heart: decreased SA node firing, AV conduction, and atrial contractility.
M3	Glands, smooth muscle, endothelium; bronchoconstriction, miosis, salivation, sweating.
Nn	Autonomic ganglia and adrenal medulla.
Nm	Neuromuscular junction.

Fast toxicity and decision cues

Cue	Recall
Bethanechol	postoperative urinary retention and ileus; avoid asthma and PUD
Pilocarpine	glaucoma and xerostomia
Neostigmine	MG, ileus, reversal of nondepolarizing block
Physostigmine	central anticholinergic toxicity
Donepezil	Alzheimer disease symptomatic benefit
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Anticholinergic Drugs

Term	Definition / exam meaning
Mechanism	classify by receptor/enzyme/channel/site of action
Prototype	learn one clean drug per class
Toxicity	signature adverse effects identify the answer
Clinical selection	comorbidity and contraindication decide final choice
First-line	drug used when no special contraindication exists
Alternative	used in allergy, pregnancy, organ failure, or resistance
Emergency drug	chosen for fast onset and suitable route
Antidote	must be memorized with toxicity pattern
Atropine	Bradycardia, organophosphate muscarinic effects, preanesthetic antisialagogue.
Ipratropium/tiotropium	Inhaled bronchodilators for COPD and asthma add-on.
Tropicamide	Short-acting mydriasis for fundus examination.
Scopolamine	Motion sickness; prominent CNS effects.
Oxybutynin/tolterodine	Overactive bladder.

Fast toxicity and decision cues

Cue	Recall
First-line	drug used when no special contraindication exists
Alternative	used in allergy, pregnancy, organ failure, or resistance
Emergency drug	chosen for fast onset and suitable route
Antidote	must be memorized with toxicity pattern
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Sympathomimetics

Term	Definition / exam meaning
Mechanism	classify by receptor/enzyme/channel/site of action
Prototype	learn one clean drug per class
Toxicity	signature adverse effects identify the answer
Clinical selection	comorbidity and contraindication decide final choice
First-line	drug used when no special contraindication exists
Alternative	used in allergy, pregnancy, organ failure, or resistance
Emergency drug	chosen for fast onset and suitable route
Antidote	must be memorized with toxicity pattern
Adrenaline	Anaphylaxis, cardiac arrest, added to local anesthetic.
Noradrenaline	Septic shock vasopressor.
Dobutamine	Acute heart failure and stress testing.
Salbutamol	Acute bronchospasm.
Phenylephrine	Pure alpha-1 agonist; nasal decongestant and hypotension.

Fast toxicity and decision cues

Cue	Recall
First-line	drug used when no special contraindication exists
Alternative	used in allergy, pregnancy, organ failure, or resistance
Emergency drug	chosen for fast onset and suitable route
Antidote	must be memorized with toxicity pattern
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Sympatholytics

Term	Definition / exam meaning
Mechanism	classify by receptor/enzyme/channel/site of action
Prototype	learn one clean drug per class
Toxicity	signature adverse effects identify the answer
Clinical selection	comorbidity and contraindication decide final choice
First-line	drug used when no special contraindication exists
Alternative	used in allergy, pregnancy, organ failure, or resistance
Emergency drug	chosen for fast onset and suitable route
Antidote	must be memorized with toxicity pattern
Prazosin	Selective alpha-1 blocker; hypertension, BPH; first-dose syncope.
Phenoxybenzamine	Irreversible alpha blocker; pheochromocytoma preparation.
Propranolol	Nonselective beta blocker; migraine, tremor, thyrotoxicosis symptoms.
Metoprolol	Beta-1 selective; CAD, HF, hypertension.
Labetalol/carvedilol	Alpha plus beta blockade.

Fast toxicity and decision cues

Cue	Recall
First-line	drug used when no special contraindication exists
Alternative	used in allergy, pregnancy, organ failure, or resistance
Emergency drug	chosen for fast onset and suitable route
Antidote	must be memorized with toxicity pattern
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

NSAIDs

Term	Definition / exam meaning
Salicylates	aspirin
Propionic acids	ibuprofen, naproxen
Acetic acids	diclofenac, indomethacin, ketorolac
Oxicams	piroxicam, meloxicam
COX-2 selective	celecoxib, etoricoxib
Para-aminophenol	paracetamol
Aspirin	irreversible antiplatelet; ACS, stroke prevention, Kawasaki disease
Indomethacin	PDA closure; high toxicity
Ketorolac	short-term severe pain only
Celecoxib	lower GI ulcer risk but thrombotic caution
Paracetamol	NAC-responsive hepatotoxic overdose
Aspirin	Irreversible COX inhibition; antiplatelet at low dose.
Ibuprofen/naproxen	Reversible nonselective NSAIDs.
Indomethacin	Patent ductus arteriosus closure; high GI/CNS toxicity.
Celecoxib/etoricoxib	COX-2 selective; less GI toxicity, more thrombotic concern.

Fast toxicity and decision cues

Cue	Recall
Aspirin	irreversible antiplatelet; ACS, stroke prevention, Kawasaki disease
Indomethacin	PDA closure; high toxicity
Ketorolac	short-term severe pain only
Celecoxib	lower GI ulcer risk but thrombotic caution
Paracetamol	NAC-responsive hepatotoxic overdose
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Histamine, Serotonin, and Lipid Autacoids

Term	Definition / exam meaning
Mechanism	classify by receptor/enzyme/channel/site of action
Prototype	learn one clean drug per class
Toxicity	signature adverse effects identify the answer
Clinical selection	comorbidity and contraindication decide final choice
First-line	drug used when no special contraindication exists
Alternative	used in allergy, pregnancy, organ failure, or resistance
Emergency drug	chosen for fast onset and suitable route
Antidote	must be memorized with toxicity pattern
Hemodynamics	Map drug action to preload, afterload, contractility, heart rate, and conduction.
Outcomes	Mortality benefit matters more than symptom relief in chronic disease.
Electrolytes	Potassium, magnesium, sodium, and calcium strongly affect cardiac drug safety.
Contraindications	Asthma, heart block, pregnancy, renal artery stenosis, and shock states are frequent traps.
Monitoring	BP, ECG, renal function, electrolytes, INR, and drug levels where relevant.

Fast toxicity and decision cues

Cue	Recall
First-line	drug used when no special contraindication exists
Alternative	used in allergy, pregnancy, organ failure, or resistance
Emergency drug	chosen for fast onset and suitable route
Antidote	must be memorized with toxicity pattern
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Gout and Rheumatoid Arthritis

Term	Definition / exam meaning
Mechanism	classify by receptor/enzyme/channel/site of action
Prototype	learn one clean drug per class
Toxicity	signature adverse effects identify the answer
Clinical selection	comorbidity and contraindication decide final choice
First-line	drug used when no special contraindication exists
Alternative	used in allergy, pregnancy, organ failure, or resistance
Emergency drug	chosen for fast onset and suitable route
Antidote	must be memorized with toxicity pattern
Feedback	Most endocrine drugs alter hypothalamic-pituitary-target gland loops.
Replacement	Physiologic replacement differs from pharmacologic suppression.
Monitoring	Use biochemical markers and clinical response together.
Emergency	Endocrine crises require route, speed, and supportive care.
Pregnancy	Drug choice often changes in pregnancy and lactation.

Fast toxicity and decision cues

Cue	Recall
First-line	drug used when no special contraindication exists
Alternative	used in allergy, pregnancy, organ failure, or resistance
Emergency drug	chosen for fast onset and suitable route
Antidote	must be memorized with toxicity pattern
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Diuretics and Antidiuretics

Term	Definition / exam meaning
Carbonic anhydrase inhibitors	acetazolamide
Loop diuretics	furosemide, torsemide, bumetanide, ethacrynic acid
Thiazides	hydrochlorothiazide, chlorthalidone, indapamide
K-sparing	spironolactone, eplerenone, amiloride, triamterene
Osmotic	mannitol
ADH drugs	desmopressin, vaptans, demeclocycline
Furosemide	edema, pulmonary edema, hypercalcemia
Thiazide	HTN, nephrogenic DI, calcium stone prevention
Spironolactone	HF, cirrhosis ascites, hyperaldosteronism
Mannitol	raised ICP; avoid pulmonary edema
Desmopressin	central DI, vWD, hemophilia A
Hemodynamics	Map drug action to preload, afterload, contractility, heart rate, and conduction.
Outcomes	Mortality benefit matters more than symptom relief in chronic disease.
Electrolytes	Potassium, magnesium, sodium, and calcium strongly affect cardiac drug safety.
Contraindications	Asthma, heart block, pregnancy, renal artery stenosis, and shock states are frequent traps.

Fast toxicity and decision cues

Cue	Recall
Furosemide	edema, pulmonary edema, hypercalcemia
Thiazide	HTN, nephrogenic DI, calcium stone prevention
Spironolactone	HF, cirrhosis ascites, hyperaldosteronism
Mannitol	raised ICP; avoid pulmonary edema
Desmopressin	central DI, vWD, hemophilia A
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Antihypertensives

Term	Definition / exam meaning
RAAS blockers	ACE inhibitors, ARBs, aliskiren
Calcium channel blockers	dihydropyridines and non-DHP
Diuretics	thiazide-like preferred for many patients
Beta blockers	selected comorbid indications
Vasodilators	hydralazine, minoxidil, nitroprusside
Central drugs	clonidine, methyldopa
ACE inhibitors	diabetes nephropathy, HF, post-MI; cough/angioedema/hyperkalemia
ARBs	ACEI alternative without cough
Amlodipine	elderly, isolated systolic HTN; edema
Labetalol	pregnancy HTN and hypertensive emergency
Nitroprusside	emergency; cyanide/thiocyanate toxicity
Hemodynamics	Map drug action to preload, afterload, contractility, heart rate, and conduction.
Outcomes	Mortality benefit matters more than symptom relief in chronic disease.
Electrolytes	Potassium, magnesium, sodium, and calcium strongly affect cardiac drug safety.
Contraindications	Asthma, heart block, pregnancy, renal artery stenosis, and shock states are frequent traps.

Fast toxicity and decision cues

Cue	Recall
ACE inhibitors	diabetes nephropathy, HF, post-MI; cough/angioedema/hyperkalemia
ARBs	ACEI alternative without cough
Amlodipine	elderly, isolated systolic HTN; edema
Labetalol	pregnancy HTN and hypertensive emergency
Nitroprusside	emergency; cyanide/thiocyanate toxicity
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Anti-anginal Drugs

Term	Definition / exam meaning
Mechanism	classify by receptor/enzyme/channel/site of action
Prototype	learn one clean drug per class
Toxicity	signature adverse effects identify the answer
Clinical selection	comorbidity and contraindication decide final choice
First-line	drug used when no special contraindication exists
Alternative	used in allergy, pregnancy, organ failure, or resistance
Emergency drug	chosen for fast onset and suitable route
Antidote	must be memorized with toxicity pattern
Hemodynamics	Map drug action to preload, afterload, contractility, heart rate, and conduction.
Outcomes	Mortality benefit matters more than symptom relief in chronic disease.
Electrolytes	Potassium, magnesium, sodium, and calcium strongly affect cardiac drug safety.
Contraindications	Asthma, heart block, pregnancy, renal artery stenosis, and shock states are frequent traps.
Monitoring	BP, ECG, renal function, electrolytes, INR, and drug levels where relevant.

Fast toxicity and decision cues

Cue	Recall
First-line	drug used when no special contraindication exists
Alternative	used in allergy, pregnancy, organ failure, or resistance
Emergency drug	chosen for fast onset and suitable route
Antidote	must be memorized with toxicity pattern
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Myocardial Infarction and Drugs for Heart Failure

Term	Definition / exam meaning
ACS acute	aspirin, P2Y12 blocker, anticoagulation, nitrates, beta blocker, statin, reperfusion
HFrEF disease modifying	ARNI/ACEI/ARB, beta blocker, MRA, SGLT2 inhibitor
HFrEF symptom relief	loop diuretics, nitrates, hydralazine, digoxin selected
Acute HF	oxygen if hypoxic, IV diuretic, vasodilator, inotrope if shock
Aspirin	chewed loading in ACS
Clopidogrel/prasugrel/ticagrelor	dual antiplatelet with aspirin
Enoxaparin/heparin	anticoagulation in ACS
Sacubitril-valsartan	mortality benefit in HFrEF
Dobutamine	acute decompensated HF with low output
Hemodynamics	Map drug action to preload, afterload, contractility, heart rate, and conduction.
Outcomes	Mortality benefit matters more than symptom relief in chronic disease.
Electrolytes	Potassium, magnesium, sodium, and calcium strongly affect cardiac drug safety.
Contraindications	Asthma, heart block, pregnancy, renal artery stenosis, and shock states are frequent traps.
Monitoring	BP, ECG, renal function, electrolytes, INR, and drug levels where relevant.

Fast toxicity and decision cues

Cue	Recall
Aspirin	chewed loading in ACS
Clopidogrel/prasugrel/ticagrelor	dual antiplatelet with aspirin
Enoxaparin/heparin	anticoagulation in ACS
Sacubitril-valsartan	mortality benefit in HFrEF
Dobutamine	acute decompensated HF with low output
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Hypolipidemic Drugs and Antiarrhythmic Drugs

Term	Definition / exam meaning
Lipid drugs	statins, ezetimibe, PCSK9 inhibitors, fibrates, niacin, bile acid resins, omega-3
Class I antiarrhythmics	Na channel blockers IA/IB/IC
Class II	beta blockers
Class III	K channel blockers
Class IV	verapamil, diltiazem
Other	adenosine, digoxin, magnesium
Atorvastatin/rosuvastatin	LDL lowering and ASCVD outcome benefit
Fenofibrate	hypertriglyceridemia
Amiodarone	broad antiarrhythmic; thyroid, lung, liver, cornea toxicity
Adenosine	PSVT termination; flushing, bronchospasm
Lidocaine	ventricular arrhythmia post-MI
Hemodynamics	Map drug action to preload, afterload, contractility, heart rate, and conduction.
Outcomes	Mortality benefit matters more than symptom relief in chronic disease.
Electrolytes	Potassium, magnesium, sodium, and calcium strongly affect cardiac drug safety.
Contraindications	Asthma, heart block, pregnancy, renal artery stenosis, and shock states are frequent traps.

Fast toxicity and decision cues

Cue	Recall
Atorvastatin/rosuvastatin	LDL lowering and ASCVD outcome benefit
Fenofibrate	hypertriglyceridemia
Amiodarone	broad antiarrhythmic; thyroid, lung, liver, cornea toxicity
Adenosine	PSVT termination; flushing, bronchospasm
Lidocaine	ventricular arrhythmia post-MI
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Sedative Hypnotics, Drugs for Insomnia and Alcohol

Term	Definition / exam meaning
Ion channel drugs	Na, Ca, Cl channels
Monoamine drugs	dopamine, serotonin, noradrenaline
GABA drugs	benzodiazepines, barbiturates, gabapentinoids
Receptor blockers	D2, 5-HT2, muscarinic, NMDA, opioid
Benzodiazepines	increase GABA-A frequency; flumazenil reversal selected
Levodopa	best symptomatic Parkinson drug; motor fluctuations
Opioids	mu agonism; respiratory depression reversed by naloxone
Antidepressants	serotonergic and noradrenergic modulation
Antipsychotics	D2 blockade or partial agonism with EPS/metabolic tradeoff
Target	Ion channels, transporters, GPCRs, and enzymes dominate CNS pharmacology.
Latency	Some effects are immediate; antidepressant and antipsychotic benefits often take weeks.
Dependence	Sedatives, opioids, and alcohol drugs require withdrawal awareness.
Toxicity	CNS drugs are tested through adverse-effect signatures.
Interactions	CYP effects and additive CNS depression are common exam traps.

Fast toxicity and decision cues

Cue	Recall
Benzodiazepines	increase GABA-A frequency; flumazenil reversal selected
Levodopa	best symptomatic Parkinson drug; motor fluctuations
Opioids	mu agonism; respiratory depression reversed by naloxone
Antidepressants	serotonergic and noradrenergic modulation
Antipsychotics	D2 blockade or partial agonism with EPS/metabolic tradeoff
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Antiepileptic Drugs

Term	Definition / exam meaning
Na channel blockers	phenytoin, carbamazepine, lamotrigine, lacosamide
Ca channel drugs	ethosuximide T-type, gabapentin/pregabalin alpha2delta
GABA enhancers	benzodiazepines, barbiturates, vigabatrin, tiagabine
Broad spectrum	valproate, levetiracetam, topiramate, lamotrigine
Special	ethosuximide for absence
Valproate	broad spectrum; hepatotoxicity, pancreatitis, teratogenic neural tube defects
Phenytoin	gingival hyperplasia, hirsutism, ataxia, CYP induction, fetal hydantoin
Carbamazepine	trigeminal neuralgia; SIADH, agranulocytosis, HLA risk
Ethosuximide	absence seizures; GI upset
Levetiracetam	few interactions; behavioral adverse effects
Target	Ion channels, transporters, GPCRs, and enzymes dominate CNS pharmacology.
Latency	Some effects are immediate; antidepressant and antipsychotic benefits often take weeks.
Dependence	Sedatives, opioids, and alcohol drugs require withdrawal awareness.
Toxicity	CNS drugs are tested through adverse-effect signatures.
Interactions	CYP effects and additive CNS depression are common exam traps.

Fast toxicity and decision cues

Cue	Recall
Valproate	broad spectrum; hepatotoxicity, pancreatitis, teratogenic neural tube defects
Phenytoin	gingival hyperplasia, hirsutism, ataxia, CYP induction, fetal hydantoin
Carbamazepine	trigeminal neuralgia; SIADH, agranulocytosis, HLA risk
Ethosuximide	absence seizures; GI upset
Levetiracetam	few interactions; behavioral adverse effects
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Antipsychotics and Antidepressants

Term	Definition / exam meaning
Typical antipsychotics	high potency haloperidol; low potency chlorpromazine
Atypical antipsychotics	clozapine, risperidone, olanzapine, quetiapine, aripiprazole
Antidepressants	SSRIs, SNRIs, TCAs, MAOIs, atypicals
Mood stabilizers	lithium, valproate, carbamazepine, lamotrigine
Clozapine	treatment-resistant schizophrenia; agranulocytosis, seizures, myocarditis, sialorrhea
Haloperidol	acute psychosis; EPS, NMS, QT
Fluoxetine/sertraline	SSRIs; sexual dysfunction, GI upset, serotonin syndrome
Amitriptyline	TCA; anticholinergic, cardiotoxic overdose
Lithium	bipolar; tremor, hypothyroid, nephrogenic DI, Ebstein anomaly
Target	Ion channels, transporters, GPCRs, and enzymes dominate CNS pharmacology.
Latency	Some effects are immediate; antidepressant and antipsychotic benefits often take weeks.
Dependence	Sedatives, opioids, and alcohol drugs require withdrawal awareness.
Toxicity	CNS drugs are tested through adverse-effect signatures.
Interactions	CYP effects and additive CNS depression are common exam traps.

Fast toxicity and decision cues

Cue	Recall
Clozapine	treatment-resistant schizophrenia; agranulocytosis, seizures, myocarditis, sialorrhea
Haloperidol	acute psychosis; EPS, NMS, QT
Fluoxetine/sertraline	SSRIs; sexual dysfunction, GI upset, serotonin syndrome
Amitriptyline	TCA; anticholinergic, cardiotoxic overdose
Lithium	bipolar; tremor, hypothyroid, nephrogenic DI, Ebstein anomaly
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Opioids

Term	Definition / exam meaning
Ion channel drugs	Na, Ca, Cl channels
Monoamine drugs	dopamine, serotonin, noradrenaline
GABA drugs	benzodiazepines, barbiturates, gabapentinoids
Receptor blockers	D2, 5-HT2, muscarinic, NMDA, opioid
Benzodiazepines	increase GABA-A frequency; flumazenil reversal selected
Levodopa	best symptomatic Parkinson drug; motor fluctuations
Opioids	mu agonism; respiratory depression reversed by naloxone
Antidepressants	serotonergic and noradrenergic modulation
Antipsychotics	D2 blockade or partial agonism with EPS/metabolic tradeoff
Target	Ion channels, transporters, GPCRs, and enzymes dominate CNS pharmacology.
Latency	Some effects are immediate; antidepressant and antipsychotic benefits often take weeks.
Dependence	Sedatives, opioids, and alcohol drugs require withdrawal awareness.
Toxicity	CNS drugs are tested through adverse-effect signatures.
Interactions	CYP effects and additive CNS depression are common exam traps.

Fast toxicity and decision cues

Cue	Recall
Benzodiazepines	increase GABA-A frequency; flumazenil reversal selected
Levodopa	best symptomatic Parkinson drug; motor fluctuations
Opioids	mu agonism; respiratory depression reversed by naloxone
Antidepressants	serotonergic and noradrenergic modulation
Antipsychotics	D2 blockade or partial agonism with EPS/metabolic tradeoff
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Parkinson Disease and Related Disorders

Term	Definition / exam meaning
Ion channel drugs	Na, Ca, Cl channels
Monoamine drugs	dopamine, serotonin, noradrenaline
GABA drugs	benzodiazepines, barbiturates, gabapentinoids
Receptor blockers	D2, 5-HT2, muscarinic, NMDA, opioid
Benzodiazepines	increase GABA-A frequency; flumazenil reversal selected
Levodopa	best symptomatic Parkinson drug; motor fluctuations
Opioids	mu agonism; respiratory depression reversed by naloxone
Antidepressants	serotonergic and noradrenergic modulation
Antipsychotics	D2 blockade or partial agonism with EPS/metabolic tradeoff
Target	Ion channels, transporters, GPCRs, and enzymes dominate CNS pharmacology.
Latency	Some effects are immediate; antidepressant and antipsychotic benefits often take weeks.
Dependence	Sedatives, opioids, and alcohol drugs require withdrawal awareness.
Toxicity	CNS drugs are tested through adverse-effect signatures.
Interactions	CYP effects and additive CNS depression are common exam traps.

Fast toxicity and decision cues

Cue	Recall
Benzodiazepines	increase GABA-A frequency; flumazenil reversal selected
Levodopa	best symptomatic Parkinson drug; motor fluctuations
Opioids	mu agonism; respiratory depression reversed by naloxone
Antidepressants	serotonergic and noradrenergic modulation
Antipsychotics	D2 blockade or partial agonism with EPS/metabolic tradeoff
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Antithyroid Drugs

Term	Definition / exam meaning
Replacement	physiological dosing and monitoring
Suppression	block synthesis, release, receptor, or peripheral conversion
Sensitization	improve target response
Emergency	route and speed dominate exam decisions
Metformin	AMPK; first-line T2DM; GI upset, lactic acidosis caution
Sulfonylureas	close KATP channels; hypoglycemia and weight gain
Insulin	essential in T1DM, DKA, pregnancy when needed
Steroids	anti-inflammatory genomic effects; adrenal suppression
Thyroid drugs	thionamides, iodine, beta blockers, radioiodine, levothyroxine
Feedback	Most endocrine drugs alter hypothalamic-pituitary-target gland loops.
Replacement	Physiologic replacement differs from pharmacologic suppression.
Monitoring	Use biochemical markers and clinical response together.
Emergency	Endocrine crises require route, speed, and supportive care.
Pregnancy	Drug choice often changes in pregnancy and lactation.

Fast toxicity and decision cues

Cue	Recall
Metformin	AMPK; first-line T2DM; GI upset, lactic acidosis caution
Sulfonylureas	close KATP channels; hypoglycemia and weight gain
Insulin	essential in T1DM, DKA, pregnancy when needed
Steroids	anti-inflammatory genomic effects; adrenal suppression
Thyroid drugs	thionamides, iodine, beta blockers, radioiodine, levothyroxine
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

HPA Axis and Drugs Acting on Bone and Osteoporosis

Term	Definition / exam meaning
Replacement	physiological dosing and monitoring
Suppression	block synthesis, release, receptor, or peripheral conversion
Sensitization	improve target response
Emergency	route and speed dominate exam decisions
Metformin	AMPK; first-line T2DM; GI upset, lactic acidosis caution
Sulfonylureas	close KATP channels; hypoglycemia and weight gain
Insulin	essential in T1DM, DKA, pregnancy when needed
Steroids	anti-inflammatory genomic effects; adrenal suppression
Thyroid drugs	thionamides, iodine, beta blockers, radioiodine, levothyroxine
Feedback	Most endocrine drugs alter hypothalamic-pituitary-target gland loops.
Replacement	Physiologic replacement differs from pharmacologic suppression.
Monitoring	Use biochemical markers and clinical response together.
Emergency	Endocrine crises require route, speed, and supportive care.
Pregnancy	Drug choice often changes in pregnancy and lactation.

Fast toxicity and decision cues

Cue	Recall
Metformin	AMPK; first-line T2DM; GI upset, lactic acidosis caution
Sulfonylureas	close KATP channels; hypoglycemia and weight gain
Insulin	essential in T1DM, DKA, pregnancy when needed
Steroids	anti-inflammatory genomic effects; adrenal suppression
Thyroid drugs	thionamides, iodine, beta blockers, radioiodine, levothyroxine
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Oral Hypoglycemic Drugs

Term	Definition / exam meaning
Replacement	physiological dosing and monitoring
Suppression	block synthesis, release, receptor, or peripheral conversion
Sensitization	improve target response
Emergency	route and speed dominate exam decisions
Metformin	AMPK; first-line T2DM; GI upset, lactic acidosis caution
Sulfonylureas	close KATP channels; hypoglycemia and weight gain
Insulin	essential in T1DM, DKA, pregnancy when needed
Steroids	anti-inflammatory genomic effects; adrenal suppression
Thyroid drugs	thionamides, iodine, beta blockers, radioiodine, levothyroxine
Feedback	Most endocrine drugs alter hypothalamic-pituitary-target gland loops.
Replacement	Physiologic replacement differs from pharmacologic suppression.
Monitoring	Use biochemical markers and clinical response together.
Emergency	Endocrine crises require route, speed, and supportive care.
Pregnancy	Drug choice often changes in pregnancy and lactation.

Fast toxicity and decision cues

Cue	Recall
Metformin	AMPK; first-line T2DM; GI upset, lactic acidosis caution
Sulfonylureas	close KATP channels; hypoglycemia and weight gain
Insulin	essential in T1DM, DKA, pregnancy when needed
Steroids	anti-inflammatory genomic effects; adrenal suppression
Thyroid drugs	thionamides, iodine, beta blockers, radioiodine, levothyroxine
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Parenteral Hypoglycemic Drugs

Term	Definition / exam meaning
Replacement	physiological dosing and monitoring
Suppression	block synthesis, release, receptor, or peripheral conversion
Sensitization	improve target response
Emergency	route and speed dominate exam decisions
Metformin	AMPK; first-line T2DM; GI upset, lactic acidosis caution
Sulfonylureas	close KATP channels; hypoglycemia and weight gain
Insulin	essential in T1DM, DKA, pregnancy when needed
Steroids	anti-inflammatory genomic effects; adrenal suppression
Thyroid drugs	thionamides, iodine, beta blockers, radioiodine, levothyroxine
Feedback	Most endocrine drugs alter hypothalamic-pituitary-target gland loops.
Replacement	Physiologic replacement differs from pharmacologic suppression.
Monitoring	Use biochemical markers and clinical response together.
Emergency	Endocrine crises require route, speed, and supportive care.
Pregnancy	Drug choice often changes in pregnancy and lactation.

Fast toxicity and decision cues

Cue	Recall
Metformin	AMPK; first-line T2DM; GI upset, lactic acidosis caution
Sulfonylureas	close KATP channels; hypoglycemia and weight gain
Insulin	essential in T1DM, DKA, pregnancy when needed
Steroids	anti-inflammatory genomic effects; adrenal suppression
Thyroid drugs	thionamides, iodine, beta blockers, radioiodine, levothyroxine
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Corticosteroids and Sex Hormones

Term	Definition / exam meaning
Replacement	physiological dosing and monitoring
Suppression	block synthesis, release, receptor, or peripheral conversion
Sensitization	improve target response
Emergency	route and speed dominate exam decisions
Metformin	AMPK; first-line T2DM; GI upset, lactic acidosis caution
Sulfonylureas	close KATP channels; hypoglycemia and weight gain
Insulin	essential in T1DM, DKA, pregnancy when needed
Steroids	anti-inflammatory genomic effects; adrenal suppression
Thyroid drugs	thionamides, iodine, beta blockers, radioiodine, levothyroxine
Feedback	Most endocrine drugs alter hypothalamic-pituitary-target gland loops.
Replacement	Physiologic replacement differs from pharmacologic suppression.
Monitoring	Use biochemical markers and clinical response together.
Emergency	Endocrine crises require route, speed, and supportive care.
Pregnancy	Drug choice often changes in pregnancy and lactation.

Fast toxicity and decision cues

Cue	Recall
Metformin	AMPK; first-line T2DM; GI upset, lactic acidosis caution
Sulfonylureas	close KATP channels; hypoglycemia and weight gain
Insulin	essential in T1DM, DKA, pregnancy when needed
Steroids	anti-inflammatory genomic effects; adrenal suppression
Thyroid drugs	thionamides, iodine, beta blockers, radioiodine, levothyroxine
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Cell Wall Synthesis Inhibitors

Term	Definition / exam meaning
Core map	spectrum, mechanism, resistance, PK/PD, toxicity
Resistance	beta-lactamase, target modification, efflux, permeability loss
PK/PD	time above MIC versus peak/MIC versus AUC/MIC
Stewardship	empirical broad cover followed by culture-guided narrowing
Beta-lactam logic	cell wall inhibition; allergy and beta-lactamase issues
Aminoglycoside logic	concentration-dependent killing; nephro/ototoxicity
Macrolide logic	atypical coverage; QT and CYP interactions
Fluoroquinolone logic	DNA gyrase/topoisomerase; tendon, QT, cartilage cautions
Antiviral/antifungal logic	selective toxicity depends on viral or fungal targets
Spectrum	Know likely organisms before memorizing names.
Resistance	Enzymatic destruction, target change, efflux, reduced permeability.
PK/PD	Time-dependent drugs need time above MIC; concentration-dependent drugs need high peak/MIC.
Toxicity	Drug-specific toxicity decides exam answers as often as spectrum.
Stewardship	Use narrow, effective, shortest rational duration.

Fast toxicity and decision cues

Cue	Recall
Beta-lactam logic	cell wall inhibition; allergy and beta-lactamase issues
Aminoglycoside logic	concentration-dependent killing; nephro/ototoxicity
Macrolide logic	atypical coverage; QT and CYP interactions
Fluoroquinolone logic	DNA gyrase/topoisomerase; tendon, QT, cartilage cautions
Antiviral/antifungal logic	selective toxicity depends on viral or fungal targets
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Protein Synthesis Inhibitors

Term	Definition / exam meaning
Core map	spectrum, mechanism, resistance, PK/PD, toxicity
Resistance	beta-lactamase, target modification, efflux, permeability loss
PK/PD	time above MIC versus peak/MIC versus AUC/MIC
Stewardship	empirical broad cover followed by culture-guided narrowing
Beta-lactam logic	cell wall inhibition; allergy and beta-lactamase issues
Aminoglycoside logic	concentration-dependent killing; nephro/ototoxicity
Macrolide logic	atypical coverage; QT and CYP interactions
Fluoroquinolone logic	DNA gyrase/topoisomerase; tendon, QT, cartilage cautions
Antiviral/antifungal logic	selective toxicity depends on viral or fungal targets
Spectrum	Know likely organisms before memorizing names.
Resistance	Enzymatic destruction, target change, efflux, reduced permeability.
PK/PD	Time-dependent drugs need time above MIC; concentration-dependent drugs need high peak/MIC.
Toxicity	Drug-specific toxicity decides exam answers as often as spectrum.
Stewardship	Use narrow, effective, shortest rational duration.

Fast toxicity and decision cues

Cue	Recall
Beta-lactam logic	cell wall inhibition; allergy and beta-lactamase issues
Aminoglycoside logic	concentration-dependent killing; nephro/ototoxicity
Macrolide logic	atypical coverage; QT and CYP interactions
Fluoroquinolone logic	DNA gyrase/topoisomerase; tendon, QT, cartilage cautions
Antiviral/antifungal logic	selective toxicity depends on viral or fungal targets
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Antimetabolites and Fluoroquinolones

Term	Definition / exam meaning
Core map	spectrum, mechanism, resistance, PK/PD, toxicity
Resistance	beta-lactamase, target modification, efflux, permeability loss
PK/PD	time above MIC versus peak/MIC versus AUC/MIC
Stewardship	empirical broad cover followed by culture-guided narrowing
Beta-lactam logic	cell wall inhibition; allergy and beta-lactamase issues
Aminoglycoside logic	concentration-dependent killing; nephro/ototoxicity
Macrolide logic	atypical coverage; QT and CYP interactions
Fluoroquinolone logic	DNA gyrase/topoisomerase; tendon, QT, cartilage cautions
Antiviral/antifungal logic	selective toxicity depends on viral or fungal targets
Spectrum	Know likely organisms before memorizing names.
Resistance	Enzymatic destruction, target change, efflux, reduced permeability.
PK/PD	Time-dependent drugs need time above MIC; concentration-dependent drugs need high peak/MIC.
Toxicity	Drug-specific toxicity decides exam answers as often as spectrum.
Stewardship	Use narrow, effective, shortest rational duration.

Fast toxicity and decision cues

Cue	Recall
Beta-lactam logic	cell wall inhibition; allergy and beta-lactamase issues
Aminoglycoside logic	concentration-dependent killing; nephro/ototoxicity
Macrolide logic	atypical coverage; QT and CYP interactions
Fluoroquinolone logic	DNA gyrase/topoisomerase; tendon, QT, cartilage cautions
Antiviral/antifungal logic	selective toxicity depends on viral or fungal targets
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Antiviral Drugs

Term	Definition / exam meaning
Core map	spectrum, mechanism, resistance, PK/PD, toxicity
Resistance	beta-lactamase, target modification, efflux, permeability loss
PK/PD	time above MIC versus peak/MIC versus AUC/MIC
Stewardship	empirical broad cover followed by culture-guided narrowing
Beta-lactam logic	cell wall inhibition; allergy and beta-lactamase issues
Aminoglycoside logic	concentration-dependent killing; nephro/ototoxicity
Macrolide logic	atypical coverage; QT and CYP interactions
Fluoroquinolone logic	DNA gyrase/topoisomerase; tendon, QT, cartilage cautions
Antiviral/antifungal logic	selective toxicity depends on viral or fungal targets
Spectrum	Know likely organisms before memorizing names.
Resistance	Enzymatic destruction, target change, efflux, reduced permeability.
PK/PD	Time-dependent drugs need time above MIC; concentration-dependent drugs need high peak/MIC.
Toxicity	Drug-specific toxicity decides exam answers as often as spectrum.
Stewardship	Use narrow, effective, shortest rational duration.

Fast toxicity and decision cues

Cue	Recall
Beta-lactam logic	cell wall inhibition; allergy and beta-lactamase issues
Aminoglycoside logic	concentration-dependent killing; nephro/ototoxicity
Macrolide logic	atypical coverage; QT and CYP interactions
Fluoroquinolone logic	DNA gyrase/topoisomerase; tendon, QT, cartilage cautions
Antiviral/antifungal logic	selective toxicity depends on viral or fungal targets
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Antiparasitic and Antiprotozoal Drugs

Term	Definition / exam meaning
Core map	spectrum, mechanism, resistance, PK/PD, toxicity
Resistance	beta-lactamase, target modification, efflux, permeability loss
PK/PD	time above MIC versus peak/MIC versus AUC/MIC
Stewardship	empirical broad cover followed by culture-guided narrowing
Beta-lactam logic	cell wall inhibition; allergy and beta-lactamase issues
Aminoglycoside logic	concentration-dependent killing; nephro/ototoxicity
Macrolide logic	atypical coverage; QT and CYP interactions
Fluoroquinolone logic	DNA gyrase/topoisomerase; tendon, QT, cartilage cautions
Antiviral/antifungal logic	selective toxicity depends on viral or fungal targets
Spectrum	Know likely organisms before memorizing names.
Resistance	Enzymatic destruction, target change, efflux, reduced permeability.
PK/PD	Time-dependent drugs need time above MIC; concentration-dependent drugs need high peak/MIC.
Toxicity	Drug-specific toxicity decides exam answers as often as spectrum.
Stewardship	Use narrow, effective, shortest rational duration.

Fast toxicity and decision cues

Cue	Recall
Beta-lactam logic	cell wall inhibition; allergy and beta-lactamase issues
Aminoglycoside logic	concentration-dependent killing; nephro/ototoxicity
Macrolide logic	atypical coverage; QT and CYP interactions
Fluoroquinolone logic	DNA gyrase/topoisomerase; tendon, QT, cartilage cautions
Antiviral/antifungal logic	selective toxicity depends on viral or fungal targets
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Antifungal Drugs

Term	Definition / exam meaning
Core map	spectrum, mechanism, resistance, PK/PD, toxicity
Resistance	beta-lactamase, target modification, efflux, permeability loss
PK/PD	time above MIC versus peak/MIC versus AUC/MIC
Stewardship	empirical broad cover followed by culture-guided narrowing
Beta-lactam logic	cell wall inhibition; allergy and beta-lactamase issues
Aminoglycoside logic	concentration-dependent killing; nephro/ototoxicity
Macrolide logic	atypical coverage; QT and CYP interactions
Fluoroquinolone logic	DNA gyrase/topoisomerase; tendon, QT, cartilage cautions
Antiviral/antifungal logic	selective toxicity depends on viral or fungal targets
Spectrum	Know likely organisms before memorizing names.
Resistance	Enzymatic destruction, target change, efflux, reduced permeability.
PK/PD	Time-dependent drugs need time above MIC; concentration-dependent drugs need high peak/MIC.
Toxicity	Drug-specific toxicity decides exam answers as often as spectrum.
Stewardship	Use narrow, effective, shortest rational duration.

Fast toxicity and decision cues

Cue	Recall
Beta-lactam logic	cell wall inhibition; allergy and beta-lactamase issues
Aminoglycoside logic	concentration-dependent killing; nephro/ototoxicity
Macrolide logic	atypical coverage; QT and CYP interactions
Fluoroquinolone logic	DNA gyrase/topoisomerase; tendon, QT, cartilage cautions
Antiviral/antifungal logic	selective toxicity depends on viral or fungal targets
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Properties of Antimicrobial Agents

Term	Definition / exam meaning
Core map	spectrum, mechanism, resistance, PK/PD, toxicity
Resistance	beta-lactamase, target modification, efflux, permeability loss
PK/PD	time above MIC versus peak/MIC versus AUC/MIC
Stewardship	empirical broad cover followed by culture-guided narrowing
Beta-lactam logic	cell wall inhibition; allergy and beta-lactamase issues
Aminoglycoside logic	concentration-dependent killing; nephro/ototoxicity
Macrolide logic	atypical coverage; QT and CYP interactions
Fluoroquinolone logic	DNA gyrase/topoisomerase; tendon, QT, cartilage cautions
Antiviral/antifungal logic	selective toxicity depends on viral or fungal targets
Spectrum	Know likely organisms before memorizing names.
Resistance	Enzymatic destruction, target change, efflux, reduced permeability.
PK/PD	Time-dependent drugs need time above MIC; concentration-dependent drugs need high peak/MIC.
Toxicity	Drug-specific toxicity decides exam answers as often as spectrum.
Stewardship	Use narrow, effective, shortest rational duration.

Fast toxicity and decision cues

Cue	Recall
Beta-lactam logic	cell wall inhibition; allergy and beta-lactamase issues
Aminoglycoside logic	concentration-dependent killing; nephro/ototoxicity
Macrolide logic	atypical coverage; QT and CYP interactions
Fluoroquinolone logic	DNA gyrase/topoisomerase; tendon, QT, cartilage cautions
Antiviral/antifungal logic	selective toxicity depends on viral or fungal targets
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Antimycobacterial Drugs

Term	Definition / exam meaning
Core map	spectrum, mechanism, resistance, PK/PD, toxicity
Resistance	beta-lactamase, target modification, efflux, permeability loss
PK/PD	time above MIC versus peak/MIC versus AUC/MIC
Stewardship	empirical broad cover followed by culture-guided narrowing
Beta-lactam logic	cell wall inhibition; allergy and beta-lactamase issues
Aminoglycoside logic	concentration-dependent killing; nephro/ototoxicity
Macrolide logic	atypical coverage; QT and CYP interactions
Fluoroquinolone logic	DNA gyrase/topoisomerase; tendon, QT, cartilage cautions
Antiviral/antifungal logic	selective toxicity depends on viral or fungal targets
Spectrum	Know likely organisms before memorizing names.
Resistance	Enzymatic destruction, target change, efflux, reduced permeability.
PK/PD	Time-dependent drugs need time above MIC; concentration-dependent drugs need high peak/MIC.
Toxicity	Drug-specific toxicity decides exam answers as often as spectrum.
Stewardship	Use narrow, effective, shortest rational duration.

Fast toxicity and decision cues

Cue	Recall
Beta-lactam logic	cell wall inhibition; allergy and beta-lactamase issues
Aminoglycoside logic	concentration-dependent killing; nephro/ototoxicity
Macrolide logic	atypical coverage; QT and CYP interactions
Fluoroquinolone logic	DNA gyrase/topoisomerase; tendon, QT, cartilage cautions
Antiviral/antifungal logic	selective toxicity depends on viral or fungal targets
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Respiratory Pharmacology

Term	Definition / exam meaning
Mechanism	classify by receptor/enzyme/channel/site of action
Prototype	learn one clean drug per class
Toxicity	signature adverse effects identify the answer
Clinical selection	comorbidity and contraindication decide final choice
First-line	drug used when no special contraindication exists
Alternative	used in allergy, pregnancy, organ failure, or resistance
Emergency drug	chosen for fast onset and suitable route
Antidote	must be memorized with toxicity pattern
Hemodynamics	Map drug action to preload, afterload, contractility, heart rate, and conduction.
Outcomes	Mortality benefit matters more than symptom relief in chronic disease.
Electrolytes	Potassium, magnesium, sodium, and calcium strongly affect cardiac drug safety.
Contraindications	Asthma, heart block, pregnancy, renal artery stenosis, and shock states are frequent traps.
Monitoring	BP, ECG, renal function, electrolytes, INR, and drug levels where relevant.

Fast toxicity and decision cues

Cue	Recall
First-line	drug used when no special contraindication exists
Alternative	used in allergy, pregnancy, organ failure, or resistance
Emergency drug	chosen for fast onset and suitable route
Antidote	must be memorized with toxicity pattern
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Drugs in Acid Peptic Disease

Term	Definition / exam meaning
Mechanism	classify by receptor/enzyme/channel/site of action
Prototype	learn one clean drug per class
Toxicity	signature adverse effects identify the answer
Clinical selection	comorbidity and contraindication decide final choice
First-line	drug used when no special contraindication exists
Alternative	used in allergy, pregnancy, organ failure, or resistance
Emergency drug	chosen for fast onset and suitable route
Antidote	must be memorized with toxicity pattern
Hemodynamics	Map drug action to preload, afterload, contractility, heart rate, and conduction.
Outcomes	Mortality benefit matters more than symptom relief in chronic disease.
Electrolytes	Potassium, magnesium, sodium, and calcium strongly affect cardiac drug safety.
Contraindications	Asthma, heart block, pregnancy, renal artery stenosis, and shock states are frequent traps.
Monitoring	BP, ECG, renal function, electrolytes, INR, and drug levels where relevant.

Fast toxicity and decision cues

Cue	Recall
First-line	drug used when no special contraindication exists
Alternative	used in allergy, pregnancy, organ failure, or resistance
Emergency drug	chosen for fast onset and suitable route
Antidote	must be memorized with toxicity pattern
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Laxative and Antidiarrheal Drugs

Term	Definition / exam meaning
Mechanism	classify by receptor/enzyme/channel/site of action
Prototype	learn one clean drug per class
Toxicity	signature adverse effects identify the answer
Clinical selection	comorbidity and contraindication decide final choice
First-line	drug used when no special contraindication exists
Alternative	used in allergy, pregnancy, organ failure, or resistance
Emergency drug	chosen for fast onset and suitable route
Antidote	must be memorized with toxicity pattern
Hemodynamics	Map drug action to preload, afterload, contractility, heart rate, and conduction.
Outcomes	Mortality benefit matters more than symptom relief in chronic disease.
Electrolytes	Potassium, magnesium, sodium, and calcium strongly affect cardiac drug safety.
Contraindications	Asthma, heart block, pregnancy, renal artery stenosis, and shock states are frequent traps.
Monitoring	BP, ECG, renal function, electrolytes, INR, and drug levels where relevant.

Fast toxicity and decision cues

Cue	Recall
First-line	drug used when no special contraindication exists
Alternative	used in allergy, pregnancy, organ failure, or resistance
Emergency drug	chosen for fast onset and suitable route
Antidote	must be memorized with toxicity pattern
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

GIT Drugs

Term	Definition / exam meaning
Mechanism	classify by receptor/enzyme/channel/site of action
Prototype	learn one clean drug per class
Toxicity	signature adverse effects identify the answer
Clinical selection	comorbidity and contraindication decide final choice
First-line	drug used when no special contraindication exists
Alternative	used in allergy, pregnancy, organ failure, or resistance
Emergency drug	chosen for fast onset and suitable route
Antidote	must be memorized with toxicity pattern
Hemodynamics	Map drug action to preload, afterload, contractility, heart rate, and conduction.
Outcomes	Mortality benefit matters more than symptom relief in chronic disease.
Electrolytes	Potassium, magnesium, sodium, and calcium strongly affect cardiac drug safety.
Contraindications	Asthma, heart block, pregnancy, renal artery stenosis, and shock states are frequent traps.
Monitoring	BP, ECG, renal function, electrolytes, INR, and drug levels where relevant.

Fast toxicity and decision cues

Cue	Recall
First-line	drug used when no special contraindication exists
Alternative	used in allergy, pregnancy, organ failure, or resistance
Emergency drug	chosen for fast onset and suitable route
Antidote	must be memorized with toxicity pattern
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Antiplatelet and Procoagulants, Thrombolytics and Antithrombolytics

Term	Definition / exam meaning
Mechanism	classify by receptor/enzyme/channel/site of action
Prototype	learn one clean drug per class
Toxicity	signature adverse effects identify the answer
Clinical selection	comorbidity and contraindication decide final choice
First-line	drug used when no special contraindication exists
Alternative	used in allergy, pregnancy, organ failure, or resistance
Emergency drug	chosen for fast onset and suitable route
Antidote	must be memorized with toxicity pattern
Hemodynamics	Map drug action to preload, afterload, contractility, heart rate, and conduction.
Outcomes	Mortality benefit matters more than symptom relief in chronic disease.
Electrolytes	Potassium, magnesium, sodium, and calcium strongly affect cardiac drug safety.
Contraindications	Asthma, heart block, pregnancy, renal artery stenosis, and shock states are frequent traps.
Monitoring	BP, ECG, renal function, electrolytes, INR, and drug levels where relevant.

Fast toxicity and decision cues

Cue	Recall
First-line	drug used when no special contraindication exists
Alternative	used in allergy, pregnancy, organ failure, or resistance
Emergency drug	chosen for fast onset and suitable route
Antidote	must be memorized with toxicity pattern
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Oral and Parenteral Anticoagulants

Term	Definition / exam meaning
Mechanism	classify by receptor/enzyme/channel/site of action
Prototype	learn one clean drug per class
Toxicity	signature adverse effects identify the answer
Clinical selection	comorbidity and contraindication decide final choice
First-line	drug used when no special contraindication exists
Alternative	used in allergy, pregnancy, organ failure, or resistance
Emergency drug	chosen for fast onset and suitable route
Antidote	must be memorized with toxicity pattern
Hemodynamics	Map drug action to preload, afterload, contractility, heart rate, and conduction.
Outcomes	Mortality benefit matters more than symptom relief in chronic disease.
Electrolytes	Potassium, magnesium, sodium, and calcium strongly affect cardiac drug safety.
Contraindications	Asthma, heart block, pregnancy, renal artery stenosis, and shock states are frequent traps.
Monitoring	BP, ECG, renal function, electrolytes, INR, and drug levels where relevant.

Fast toxicity and decision cues

Cue	Recall
First-line	drug used when no special contraindication exists
Alternative	used in allergy, pregnancy, organ failure, or resistance
Emergency drug	chosen for fast onset and suitable route
Antidote	must be memorized with toxicity pattern
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Hematinics, Iron and Chelators

Term	Definition / exam meaning
Mechanism	classify by receptor/enzyme/channel/site of action
Prototype	learn one clean drug per class
Toxicity	signature adverse effects identify the answer
Clinical selection	comorbidity and contraindication decide final choice
First-line	drug used when no special contraindication exists
Alternative	used in allergy, pregnancy, organ failure, or resistance
Emergency drug	chosen for fast onset and suitable route
Antidote	must be memorized with toxicity pattern
Hemodynamics	Map drug action to preload, afterload, contractility, heart rate, and conduction.
Outcomes	Mortality benefit matters more than symptom relief in chronic disease.
Electrolytes	Potassium, magnesium, sodium, and calcium strongly affect cardiac drug safety.
Contraindications	Asthma, heart block, pregnancy, renal artery stenosis, and shock states are frequent traps.
Monitoring	BP, ECG, renal function, electrolytes, INR, and drug levels where relevant.

Fast toxicity and decision cues

Cue	Recall
First-line	drug used when no special contraindication exists
Alternative	used in allergy, pregnancy, organ failure, or resistance
Emergency drug	chosen for fast onset and suitable route
Antidote	must be memorized with toxicity pattern
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Cytotoxic Drugs

Term	Definition / exam meaning
Alkylators	cyclophosphamide, ifosfamide, busulfan, nitrosoureas, platinum drugs
Antimetabolites	methotrexate, 5-FU, cytarabine, gemcitabine, 6-MP
Microtubule drugs	vinca alkaloids, taxanes
Topoisomerase inhibitors	etoposide, irinotecan, topotecan
Antitumor antibiotics	doxorubicin, bleomycin, actinomycin D
Cyclophosphamide	hemorrhagic cystitis prevented by mesna
Methotrexate	folate antagonist; leucovorin rescue
5-FU	thymidylate synthase inhibition; hand-foot syndrome
Vincristine	neurotoxicity, constipation
Doxorubicin	cardiomyopathy prevented partly by dexrazoxane
Bleomycin	pulmonary fibrosis
Hemodynamics	Map drug action to preload, afterload, contractility, heart rate, and conduction.
Outcomes	Mortality benefit matters more than symptom relief in chronic disease.
Electrolytes	Potassium, magnesium, sodium, and calcium strongly affect cardiac drug safety.
Contraindications	Asthma, heart block, pregnancy, renal artery stenosis, and shock states are frequent traps.

Fast toxicity and decision cues

Cue	Recall
Cyclophosphamide	hemorrhagic cystitis prevented by mesna
Methotrexate	folate antagonist; leucovorin rescue
5-FU	thymidylate synthase inhibition; hand-foot syndrome
Vincristine	neurotoxicity, constipation
Doxorubicin	cardiomyopathy prevented partly by dexrazoxane
Bleomycin	pulmonary fibrosis
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Targeted Therapy and Monoclonal Antibodies

Term	Definition / exam meaning
Mechanism	classify by receptor/enzyme/channel/site of action
Prototype	learn one clean drug per class
Toxicity	signature adverse effects identify the answer
Clinical selection	comorbidity and contraindication decide final choice
First-line	drug used when no special contraindication exists
Alternative	used in allergy, pregnancy, organ failure, or resistance
Emergency drug	chosen for fast onset and suitable route
Antidote	must be memorized with toxicity pattern
Hemodynamics	Map drug action to preload, afterload, contractility, heart rate, and conduction.
Outcomes	Mortality benefit matters more than symptom relief in chronic disease.
Electrolytes	Potassium, magnesium, sodium, and calcium strongly affect cardiac drug safety.
Contraindications	Asthma, heart block, pregnancy, renal artery stenosis, and shock states are frequent traps.
Monitoring	BP, ECG, renal function, electrolytes, INR, and drug levels where relevant.

Fast toxicity and decision cues

Cue	Recall
First-line	drug used when no special contraindication exists
Alternative	used in allergy, pregnancy, organ failure, or resistance
Emergency drug	chosen for fast onset and suitable route
Antidote	must be memorized with toxicity pattern
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Anesthetic Pharmacology

Term	Definition / exam meaning
Inhalational	sevoflurane, desflurane, isoflurane, nitrous oxide
IV induction	propofol, etomidate, ketamine, thiopentone
Local anesthetics	esters and amides
Neuromuscular blockers	depolarizing succinylcholine; nondepolarizing rocuronium, vecuronium, atracurium
Adjuncts	opioids, benzodiazepines, dexmedetomidine
Propofol	rapid induction; hypotension, respiratory depression, antiemetic
Etomidate	hemodynamic stability; adrenal suppression
Ketamine	dissociative anesthesia; bronchodilation, emergence reactions
Succinylcholine	rapid paralysis; hyperkalemia, malignant hyperthermia, apnea
Bupivacaine	long acting local; cardiotoxicity
Target	Ion channels, transporters, GPCRs, and enzymes dominate CNS pharmacology.
Latency	Some effects are immediate; antidepressant and antipsychotic benefits often take weeks.
Dependence	Sedatives, opioids, and alcohol drugs require withdrawal awareness.
Toxicity	CNS drugs are tested through adverse-effect signatures.
Interactions	CYP effects and additive CNS depression are common exam traps.

Fast toxicity and decision cues

Cue	Recall
Propofol	rapid induction; hypotension, respiratory depression, antiemetic
Etomidate	hemodynamic stability; adrenal suppression
Ketamine	dissociative anesthesia; bronchodilation, emergence reactions
Succinylcholine	rapid paralysis; hyperkalemia, malignant hyperthermia, apnea
Bupivacaine	long acting local; cardiotoxicity
Unsafe-answer check	Pregnancy, renal/hepatic failure, ECG/electrolytes, bleeding risk, respiratory disease, allergy, interaction.

Final antidote and emergency prompts

Situation	Drug / action to recall
Opioid toxicity	Naloxone plus airway and ventilation support.
Benzodiazepine toxicity	Supportive care; flumazenil only in selected cases due seizure risk.
Organophosphate poisoning	Atropine, pralidoxime early, benzodiazepine for seizures, decontamination.
Paracetamol overdose	N-acetylcysteine.
Heparin bleeding	Protamine sulfate.
Warfarin serious bleeding	Vitamin K plus PCC/FFP depending severity and protocol.
Dabigatran bleeding	Idarucizumab where available.
Factor Xa inhibitor bleeding	Andexanet alfa where available, or PCC depending protocol.
Methotrexate toxicity	Leucovorin rescue; glucarpidase in selected severe toxicity.
Cyclophosphamide cystitis	Mesna and hydration.
Malignant hyperthermia	Dantrolene and supportive cooling.
Local anesthetic systemic toxicity	Lipid emulsion therapy plus resuscitation.
Torsades de pointes	IV magnesium, correct potassium, stop QT-prolonging drugs.