Pharmacology week 1 – General Principles part 1

Contributes to 'General Pharmacology' which makes up 13% of the pharmacology MCQ matrix.

Reference: Katzung's Basic and Clinical Pharmacology, 14th edition. Chapters 1-3.

Focus on pharmacodynamics, pharmacokinetics comes up next week

Learn the definitions by rote, you should be able to describe them succintly in a short statement

Aim to be able to draw and explain the associated graph of a concept and provide examples

Learning Outcomes LOA 1

- Pharmacodynamic principles
  - Mechanisms of action
  - Receptors and their regulation
  - Second messengers and G-proteins
  - Dose response
  - Dosing issues

Definitions to learn

- Drug
- Receptor
- Pharmacodynamics
- Agonist (and their variants)
- Antagonist (and their variants)
- Potency
- ED50 vx EC50
- Efficacy
- TD50
- LD50
- Tachyphylaxis

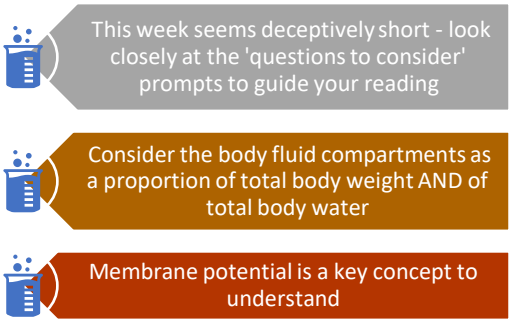
Questions to consider

- Explain chemical and physical antagonism with examples
- Explain the difference between efficacy and potency using dose-response curves
- Explain the difference between an agonist, partial agonist, competitive and non-competitive antagonist using dose-response curves
- Give examples of the different mechanisms of drug signalling
- What role does ionisation and pH partitioning play in the ability of a drug to cross membranes?

Physiology week 1 – Principles of Cellular Function part 1

Contributes to 'Principles of Cellular Function', which makes up 5% of the physiology MCQ matrix.

Reference: Ganong's Review of Medical Physiology, 26th edition. Chapters 1-2.



Learning Outcomes LOA 1

- Principles of cellular function

Definitions to learn

- Moles
- Osmoles
- Equivalents
- Oxidation
- Reduction

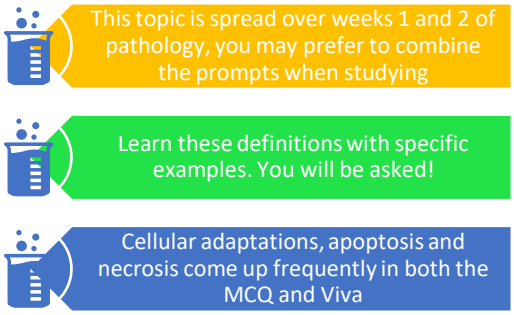
Questions to consider

- What determines the membrane potential?
- What is normal osmolality? How is it calculated? How does it differ from osmolarity?
- What is tonicity? Why does it matter?
- What is a buffer? Give examples
- Describe the body fluid compartments, their composition and how they are measured

Pathology week 1 – Cellular Adaptations, Injury and Death part 1

Contributes to 'Cellular Injury', and to 'Tissue Response to Injury' which make up 5% and 8% of the pathology MCQ matrix respectively.

Reference: Robbins and Cotran Pathologic Basis of Disease, 9th edition. Chapters 1-2.



Learning Outcomes LOA 1

- Mechanisms of cellular injury
- Cell response to injury (including morphological changes, sequence of events)

Definitions to learn

- Reversible cell injury
- Irreversible cell injury
- Necrosis
- Apoptosis
- Residual bodies
- Ischaemia
- Hypoxia
- Reperfusion injury

Questions to consider

- Define necrosis and give examples
- Contrast the morphological patterns of cell death
- How do free radicals cause cell injury and what mechanisms prevent this?
- What changes are seen in reversible versus irreversible cell injury?

Anatomy week 1 – Tissues & Structures

'Tissues & Structures' makes up 5% of the anatomy MCQ matrix.

Reference: Moore and Dalley's Clinically Oriented Anatomy, 8th edition. Chapter 1.

Bursae and potential spaces (especially in the upper limb) are important clinically

Anatomical planes and terminology will be assumed knowledge throughout the MCQ and Viva exams

Examples of the different joint and cartilage types crop up commonly in the MCQs

Learning Outcomes LOA 1

- Anatomical planes and positions
- Anatomical terms of relationship, comparison, laterality and movement
- Bursae, fascial compartments and potential spaces
- Types of cartilage with examples
- Types of joints with examples, joint stability
- Bone formation and markings
- Nervous system divisions: central/peripheral, somatic/autonomic

Learning Outcomes LOA 2

- Muscular system: skeletal, cardiac striated, smooth
- Vascular circuits and vessels
- Lymphoid system

Learning Outcomes LOA 3

- Integumentary system: tension lines, layers and functions
- Common anatomical variations

Questions to consider

- Describe Hilton's law
- What is a functional unit with regards muscle?
- What are the functions of the lymphatic system? How does it communicate with the circulation?
- What is the function of the autonomic system?
- Describe the ganglia and neurotransmitters of the autonomic nervous system
- Describe the axial and appendicular skeletal components