

(Affiliated to the Tamil Nadu Dr M.G.R Medical University, Chennai)

B. Sc. CARDIOPULMONARY PERFUSION CARE TECHNOLOGY

1411 – PHARMACOLOGY

II YEAR

UNIT V – DRUGS OR FLUIDS FOR SERUM ELECTROLYTES AND ITS CHANGES

I. ELABORATE ON

10 MARKS

REFERENCE – THE TAMILNADU DR.M.G.R MEDICAL UNIVERSITY QUESTION PAPER

S.no	Questions	Reference	Bloom's Taxonomy
1	Define Hypokalemia . Discuss its causes (especially those induced by diuretics), detailed clinical manifestations (ECG changes), and the pharmacological principles for its correction and management.	AUGUST 2024	Analyze
2	Define Hyponatremia . Classify it based on volume status (hypovolemic, euvoletic, hypervolemic) and discuss the detailed pathophysiology and specific therapeutic approach for each type.	APRIL 2025	Analyze
3	Discuss the physiological regulation of Calcium and Phosphate . Elaborate on the role of Parathyroid Hormone (PTH) and Vitamin D. Detail the causes and acute management of Hypocalcemia .	FEBRUARY 2024	Analyze
4	Define Hyperkalemia . Discuss its common etiologies (including drug-induced causes like ACE inhibitors) and describe the detailed step-by-step emergency management protocol to stabilize the heart and shift potassium intracellularly.	AUGUST 2024	Apply
5	Elaborate on the clinical manifestations and management of Hypernatremia . Discuss the importance of calculating the water deficit and the precautions required during its correctional therapy.	APRIL 2023	Evaluate

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S.no	Questions	Reference	Bloom's Taxonomy
6	Discuss the role of the Renin-Angiotensin-Aldosterone System (RAAS) in regulating sodium and potassium homeostasis. Explain how Mineralocorticoid Antagonists (e.g., Spironolactone) affect serum electrolytes.	FEBRUARY 2023	Analyze
7	Describe the mechanisms, common causes, and clinical features of Hypomagnesemia . Discuss its close association with other electrolyte changes and its pharmacological correction.	AUGUST 2023	Understand
8	Discuss the relationship between acid-base balance and serum potassium levels . Explain the mechanism of potassium shift in metabolic acidosis and its clinical significance in cardiac patients.	APRIL 2022	Analyze
9	Elaborate on the causes, cardiovascular effects (ECG changes), and therapeutic management of Hypercalcemia . Detail the role of Saline Diuresis and Bisphosphonates.	FEBRUARY 2021	Apply
10	Describe the clinical significance of Phosphate Imbalances (Hypo- and Hyperphosphatemia). Discuss the causes and the specific pharmacological strategies for treating acute Hypophosphatemia.	AUGUST 2020	Apply

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S.no	Questions	Reference	Bloom's Taxonomy
1	Write notes on the ECG changes associated with Hypokalemia.	APRIL 2024	Understand
2	Discuss the mechanism and use of Calcium Gluconate in acute Hyperkalemia.	AUGUST 2022	Apply
3	Write notes on the causes and clinical features of Syndrome of Inappropriate Antidiuretic Hormone Secretion (SIADH).	FEBRUARY 2022	Understand
4	Differentiate between Diabetes Insipidus (DI) and other causes of Polyuria leading to Hypernatremia.	APRIL 2021	Analyze
5	Discuss the association between Hypokalemia and Digoxin toxicity.	AUGUST 2021	Analyze
6	Write notes on the use of Potassium-sparing Diuretics and their risk of Hyperkalemia.	FEBRUARY 2020	Understand
7	Explain the mechanism by which Insulin and Glucose treat acute Hyperkalemia.	APRIL 2020	Apply
8	Write notes on the causes and effects of Hypermagnesemia.	AUGUST 2019	Understand
9	Discuss the importance of correcting Hypomagnesemia before correcting Hypokalemia.	FEBRUARY 2019	Apply
10	Briefly explain the pharmacology of oral iron	APRIL 2018	Understand

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S.no	Questions	Reference	Bloom's Taxonomy
	therapy and its interaction with serum phosphate levels.		

III.WRITE SHORT NOTES ON

3 MARKS

REFERENCE – THE TAMILNADU DR.M.G.R MEDICAL UNIVERSITY QUESTION PAPER

S.no	Questions	Reference	Bloom's Taxonomy
1	Give two common causes of Hypokalemia .	AUGUST 2026	Remember
2	Name the initial drug used to cardiac stabilization in Hyperkalemia.	APRIL 2025	Remember
3	What is the main cause of Hypovolemic Hyponatremia ?	FEBRUARY 2024	Understand
4	State the normal range for Serum Sodium .	AUGUST 2024	Remember
5	Name two diuretics that can cause Hyperkalemia .	APRIL 2023	Remember
6	Define Hypernatremia .	FEBRUARY 2023	Remember
7	Give two signs of Hypocalcemia .	AUGUST 2022	Remember
8	State the mechanism of action of Sodium Polystyrene Sulfonate (Kayexalate) .	APRIL 2022	Understand

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S.no	Questions	Reference	Bloom's Taxonomy
9	What is the risk of rapid correction of Hyponatremia ?	FEBRUARY 2021	Understand
10	Name the primary hormone regulating serum calcium levels.	AUGUST 2021	Remember
11	Give one common drug cause of Hypomagnesemia .	APRIL 2020	Remember
12	State the common ECG change seen in severe Hyperkalemia .	FEBRUARY 2020	Remember
13	Define Isotonic Saline .	AUGUST 2019	Remember
14	Name a drug class that can cause dilutional Hyponatremia .	APRIL 2018	Understand
15	What is the therapeutic use of Vaptans ?	FEBRUARY 2017	Remember