



BRAINWARE UNIVERSITY

Term End Examination 2024-2025

Programme – B.Sc.(CCT)-2021/B.Sc.(CCT)-2022/B.Sc.(CCT)-2023

Course Name – Clinical Scenario for Critical Care Technology

Course Code - BCCTC403

(Semester IV)

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

- (i) Select the right answer- How many types of pulmonary oedema exist.
 - a) 3
 - b) 2
 - c) 5
 - d) 4
- (ii) Write the name of the blood cells, whose reduction in number can cause clotting disorder, leading to excessive loss of blood from the body.
 - a) Erythrocytes
 - b) leucocytes
 - c) Neutrophils
 - d) Thrombocytes
- (iii) Choose the right answer- During the initiation of coagulation of blood, the platelets are activated by-
 - a) Thrombin
 - b) Trauma
 - c) Ca++
 - d) Thrombokinase
- (iv) Identify the medication class commonly associated with nephrotoxic AKI:
 - a) Beta blockers
 - b) NSAIDs
 - c) Antibiotics
 - d) Diuretics
- (v) Tell part of the brain is responsible for controlling balance and coordination and can be affected by strokes?
 - a) Cerebrum
 - b) Cerebellum
 - c) Brainstem
 - d) Hypothalamus
- (vi) Write which the following is a common symptom of transient ischemic attacks (TIAs)?
 - a) Sudden severe headache.
 - b) Loss of consciousness.
 - c) Temporary weakness or numbness of the face, arm, or leg, especially on one side of the body.
 - d) Blurred vision.
- (vii) Identify the primary hormone responsible for lowering blood glucose levels.
 - a) Glucagon
 - b) Insulin
 - c) Cortisol
 - d) Epinephrine

- (viii) Identify the hormone released by the adrenal glands during hypoglycemia to increase blood glucose levels.
- | | |
|--------------------|-------------------|
| a) Glucagon | b) Insulin |
| c) Thyroid hormone | d) Growth hormone |
- (ix) Identify a symptom of severe hyperglycemia.
- | | |
|------------|-----------------------------------|
| a) Tremors | b) Polyuria (excessive urination) |
| c) Nausea | d) Hunger |
- (x) Tell the potential effect of hyperglycemia on the skin.
- | | |
|-----------------------------|---------------------------------|
| a) Reduced risk of ulcers | b) Improved wound healing |
| c) Increased risk of eczema | d) Increased risk of infections |
- (xi) Tell the first step in treating a snake bite victim is to:
- | | |
|-----------------------|---|
| a) Apply a tourniquet | b) Wash the wound with soap and water |
| c) Suck out the venom | d) Keep the victim calm and immobilized |
- (xii) Select the purpose of a pressure bandage when treating a snake bite?
- | | |
|---------------------------|--------------------------------|
| a) To reduce swelling | b) To slow the spread of venom |
| c) To increase blood flow | d) To prevent infection |
- (xiii) Select the term describing the condition in which there is inadequate oxygenation despite adequate ventilation.
- | | |
|----------------------------------|------------------------------------|
| a) Hypoxemic respiratory failure | b) Hypercapnic respiratory failure |
| c) Acute respiratory failure | d) Chronic respiratory failure |
- (xiv) Identify the primary mechanism responsible for type I respiratory failure.
- | | |
|-------------------------|-----------------------------------|
| a) Hypoventilation | b) Ventilation-perfusion mismatch |
| c) Diffusion impairment | d) Shunt |
- (xv) Tell the characteristic blood gas values associated with acute respiratory failure.
- | | |
|---|---|
| a) pH < 7.35, PaCO ₂ > 45 mmHg, PaO ₂ < 60 mmHg | b) pH > 7.45, PaCO ₂ < 35 mmHg, PaO ₂ > 80 mmHg |
| c) pH < 7.35, PaCO ₂ < 35 mmHg, PaO ₂ > 80 mmHg | d) pH > 7.45, PaCO ₂ > 45 mmHg, PaO ₂ < 60 mmHg |

Group-B

(Short Answer Type Questions)

3 x 5=15

2. Choose the primary causes of coma. (3)
3. Explain the major complications that can arise from CKD, (3)
4. Write the main causes of pneumonia? (3)
5. Differentiate diabetes mellitus and diabetes insipidus (3)
6. Explain the indications for non-invasive positive pressure ventilation (NIPPV) in respiratory failure? (3)

OR

Differentiate between hypoxemic and hypercapnic respiratory failure

(3)

Group-C

(Long Answer Type Questions)

5 x 6=30

7. Describe the potential complications of skull fractures and their management. (5)
8. Discuss Acute Left Ventricular Failure (ALVF) and what are its primary causes? (5)
9. Describe the management of acute myocardial infarction, including both pharmacological and interventional strategies. (5)
10. Explain the significance of coagulation studies, including prothrombin time (PT), activated partial thromboplastin time (aPTT), and international normalized ratio (INR), in the assessment of coagulopathy. (5)
11. Compare and contrast the causes of pre-renal, intra-renal, and post-renal acute renal failure. (5)

12. Compare and contrast the differences between chronic and acute left ventricular failure. (5)

OR

Explain the pathophysiology of Acute Left Ventricular Failure. (5)

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