

**CHUKA**



**UNIVERSITY**

**UNIVERSITY EXAMINATIONS**

**FIRST YEAR EXAMINATION FOR MASTER OF SCIENCE (NURSING)**

**NUMS 821: ADVANCED PATHOPHYSIOLOGY 1**

**STREAMS: MSc Nursing (Y1 T2)**

**TIME: 3 HOURS**

**DAY/DATE: TUESDAY 13 /07/ 2021**

**11.30 AM – 1.30 PM**

**INSTRUCTIONS:**

- Do not write anything on the question paper.
- Mobile phones and any other reference materials are **NOT** allowed in the examination room.
- The paper has five questions. **ALL** the Questions are compulsory.
- Number **ALL** your answers and indicate the order of appearance in the space provided in the cover page of the examination answer booklet.

**QUESTION ONE**

A 50 year old man with history of familial hyperlipidemia is now admitted in the cardiology unit with coronary artery disease due to atherosclerosis. If this is not addressed, the disorder may progress to myocardial infarction.

- a) Describe the mechanism through which ischemia is likely to injure the myocytes resulting in their death  
10 marks
- b) Explain five(5) other causes of cell injury other ischemia indicating the mechanism of each [10 marks]

**QUESTION TWO**

A blood gas analysis for a given patient returned the following results:

**pH- 7.4, pCO<sub>2</sub>-9kpa, pO<sub>2</sub>-6 kpa, SBC-30 mmol/L.**

- a) What acid base imbalance does the patient have? Explain your answer [2 marks ]
- b) Explain five(5) possible causes of the above condition [10 marks]
- c) Describe two(2) biochemical buffers found in the extra-cellular fluid indicating how they operate to guard against acid base imbalance [ 8 marks]

**QUESTION THREE**

Inflammation is a protective response, designed to rid the organism of the initial cause of cell injury and the consequences of such injury. It involves the release of mediators that produce stereotypic vascular and cellular responses.

- a) Describe the role of the following mediators in the inflammatory response
  - i) Complement [ 5 marks]
  - ii) Bradykinin [5 marks]
- b) Explain five(5) mechanisms through which an acute inflammatory response is terminated [10 marks]

**QUESTION FOUR**

Sixty percent of our body weight is water. Body water is distributed in various compartments and contains dissolved and suspended substances

- a) Describe the role of the following hormones in the regulation of water and electrolyte balance
  - i) Vasopressin [5 marks]
  - ii) Aldosterone [5 marks]
- b) Explain five(5) effects of hypertonic water imbalance [10 marks]

**QUESTION FIVE**

A 24 year old man developed a severe anaphylactic reaction after receiving an injection of penicillin.

a) Describe four(4) types of hypersensitivity reactions [12 marks]

b) Describe the pathophysiology of following types of shock:

i) Cardiogenic [4 marks]

ii) Hypovolemic [4 marks]

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