



**2<sup>ND</sup> Examination for Medical Degrees  
PHYSIOLOGY - Paper II**

DECEMBER 2014

Time: Three hours

Answer all five (05) questions. Use a separate book for each question.

1. A patient was brought to the hospital about 30 minutes after a road traffic accident. He has lost about 750 mL of blood. He was found to have pulse rate of 120 beats /min, blood pressure of 110/74 mmHg and packed cell volume (PCV) of 47%. His skin was cold and sweaty. Doctors felt that he was going into a state of shock.
  - 1.1. What is shock? (10 Marks)
  - 1.2. State different types of shock giving examples for each. (20 Marks)
  - 1.3. Explain reasons for the increase in pulse rate while maintaining the blood pressure close to the normal range in this patient. (40 Marks)
  - 1.4. Comment on the PCV of this patient. (10 Marks)
  - 1.5. List four hormones which are likely to be increased in this patient. (10 Marks)
  - 1.6. State the principles of management of hypovolaemic shock. (10 Marks)
  
2.
  - 2.1 List the types of intestinal movements. (10 Marks)
  - 2.2. Describe each type of movement stated in 2.1. (40 Marks)
  - 2.3 Describe the defecation reflex. (25 Marks)
  - 2.4 Describe two motility disorders that can affect the gastrointestinal system. (25 Marks)
  
3.
  - 3.1 Define the following terms.
    - 3.1.1 Vital capacity (10 Marks)
    - 3.1.2 Inspiratory capacity (10 Marks)
  - 3.2 State the two factors which affect the diffusion capacity of the lungs for a given gas. (10 Marks)
  - 3.3 Explain how factors mentioned in 3.2 are affected in
    - 3.3.1 emphysema. (15 marks)
    - 3.3.2 lung fibrosis. (15 Marks)
  - 3.4 Describe different ways by which CO<sub>2</sub> is transported in blood. (40 Marks)
  
4.
  - 4.1 List three hormones secreted by the kidney. (09 Marks)
  - 4.2 Describe the physiological role of each hormone mentioned in 4.1. (60 Marks)
  - 4.3 State the changes that happen to the above hormones in chronic kidney disease. (06 Marks)
  - 4.4 Describe the consequences of hormonal changes described in 4.3. (25 Marks)

**5 0 Explain the physiological basis of the following.**

5.1 HCG hormone is used to detect pregnancy.

5.2 Diet rich in salt leads to high urine output.

5.3 Dry mouth is associated with fearful situations.

(30 Marks)

(35 Marks)

(35 Marks)