



UNIVERSITY OF EMBU

2017/2018 ACADEMIC YEAR

SECOND SEMESTER EXAMINATIONS

**SECOND YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF
SCIENCE COMMUNITY HEALTH**

HCS 122: PHYSIOLOGY II

DATE: APRIL 9, 2018

TIME: 2:00 – 4:00 PM

INSTRUCTIONS:

Answer Question ONE and ANY Other TWO Questions

QUESTION ONE (30 MARKS)

The heart pumps blood into large vessels that branch into smaller ones leading into the organs in cardiovascular system.

- a) Describe the blood vessels involved in the blood circulation (8 marks)
- b) Explain the path way of blood in the heart (12 marks)
- c) Discuss how blood pressure and blood pH affect mean arterial pressure (10 marks)

QUESTION TWO (20 MARKS)

Respiration is the exchange of gases between the atmosphere, lungs, blood, and tissue.

- a) State the requirements for gas exchange surfaces (3 marks)
- b) Describe the inspiration processes in the respiratory system (5 marks)

c) Discuss the functions of:

i) Upper respiratory tract (6 marks)

ii) Lower respiratory tract (6 marks)

QUESTION THREE (20 MARKS)

In the kidneys, a fluid that resembles plasma is filtered through the glomerular capillaries into the renal tubules.

a) Outline Na⁺ movement in the renal tubule (4 marks)

b) State 8 factors affecting Glomerular filtration rate (8 marks)

c) Describe how the counter-current mechanism in the kidney operates to produce hypertonic or hypotonic urine (8 marks)

QUESTION FOUR (20 MARKS)

The male reproductive system consists of the testes and a series of ducts and glands. Sperm are produced in the testes and are transported through the reproductive ducts.

a) State the stages involved in the process of sperm production (6 marks)

b) State the differences between male and female gamete development (6 marks)

c) Describe changes at puberty in males (8 marks)

QUESTION FIVE (20 MARKS)

Gastrointestinal System is responsible for the breakdown and absorption of various foods and liquids needed to sustain life.

a) State major activities of gastrointestinal tract (6 marks)

b) Outline functions of Gastric Hydro chloric acid in the stomach (6 marks)

c) Describe mechanism of food absorption (8 marks)

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