



MACHAKOS UNIVERSITY

University Examinations for 2021/2022 Academic Year

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

THIRD YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF EDUCATION (SPECIAL NEEDS EDUCATION)

BACHELOR OF SCIENCE(BIOLOGY)

BACHELOR OF EDUCATION (SCIENCE)

SZL 306: HUMAN BIOLOGY

DATE:26/8/2022

TIME: 2.00-4.00 PM

INSTRUCTIONS

Answer question one and any other two questions

SECTION A

QUESTION ONE (30 MARKS)

- a) Explain how a fat free diet may make people unhealthy (3 marks)
- b) Explain the significance of the following (3 marks)
- Basophils
 - Serous membranes
 - a sympathetic stimulation of the body
- c) Explain the autorhythmicity of the heart (3 marks)
- d) Explain how prolonged cigarette smoking may affect human body function (3 marks)
- e) The following values were obtained in an experiment
- Vital capacity – 3 litres
Inspiratory reserve volume – 2 litres
Expiratory reserve volume – 0.5 litres
Residual volume – 1 litre
Hourly respiratory movements – 960
Heart rate – 1 beat per second
End diastolic volume – 80 ml
End systolic volume – 20 ml
- From the data above, calculate the following: (3 marks)
- Tidal volume
 - Minute respiration volume
 - Total Lung capacity

- f) Outline three human disorders that may cause jaundice in a male adult. (3 marks)
- g) Explain the role of hormones in the human kidney function. (3 marks)
- h) Explain why long term intake of a vegetarian diet may not be recommendable for young women. (3 marks)
- i) Describe three problems a person may experience as a result of a malfunctioning hypothalamus. (3 marks)
- j) Describe the significance of accessory glands in a male reproductive system. (3 marks)

SECTION B

QUESTION TWO (20 MARKS)

Explain the significance of the following in human well being

- a) Minerals (10 marks)
- b) Digestive glands (10 marks)

QUESTION THREE (20 MARKS)

Discuss homeostatic roles of the following:

- a) Kidney (10 marks)
- b) Blood (10 marks)

QUESTION FOUR (20 MARKS)

Outlining the adaptive mechanisms, trace the path of an oxygen molecule from the atmosphere to the human brain

QUESTION FIVE (20 MARKS)

Explain:

- a) Complications that may arise in the human body as a result of severe insulin deficiency. (10 marks)
- b) Why a couple who have no problems in their sexual life may have issues of infertility (10 marks)