



MURANG'A UNIVERSITY COLLEGE

(A Constituent College of Jomo Kenyatta University of Agriculture and Technology)

DIPLOMA IN APPLIED BIOLOGY

SCHOOL OF PURE AND APPLIED SCIENCES

CLASS: AS/BIO/13D

COURSE CODE: ASB 13

ANATOMY AND PHYSIOLOGY

BIOCHEMISTRY ANATOMY AND PHYSIOLOGY

JULY 2015

DATE: 22ND JULY 2015

TIME 3HRS

INSTRUCTIONS

This paper consists of two sections A and B.

Answer **ALL** questions in section A and any **THREE** in section B

SECTION A

1. i) Name any **TWO** primary salivary glands. (2 marks)
- ii) State any **FOUR** functions of the tongue (2 marks)
2. State the role of the hormones involved in the selective re-absorption in the kidneys (4 marks)
3. State the **FOUR** factors that affect the efficiency of diffusion of gases across the alveoli (4 marks)
4. Define the terms
 - i) Implantation (1 marks)
 - ii) Ectopic pregnancy (1 marks)
- b) Identify the hormone produced by the blastocyst and its role in pregnancy. (2 marks.)

5. A 1400ml urine sample obtained from a healthy man over a 24 hour period was found to contain organic constituents urea, creatinine, amino acid and uric acid.

Organic constituent	Concentration (in grams)
W	0.7 g
X	1.5 g
Y	0.8 g
Z	25.0 g

- Suggest the organic constituents W,X,Y, and Z (4 marks)
6. a) State the advantage of cross pollination (2 marks)
- b) Name *TWO* ways in which cross pollination is favoured (2 marks)
7. State *FOUR* characteristics of the xylem tissue that make it suitable for Long distance transport of water and mineral salts (4 marks)
8. Distinguish between an exocrine gland and an endocrine gland (4 marks)
9. i) Name *TWO* theories that explain translocation in plants. (2 marks)
- ii) Distinguish between hypogeal and epigeal germination (2 marks)
10. Briefly explain the effects of temperature and P^H on enzyme activity (4 marks)

SECTION B

11. Draw a flow chart to show the synthesis of glucose from pyruvate (10 marks)
- Compare and contrast between photosynthesis and anaerobic respiration (10 marks)
12. Explain Why plants suffer permanent physiological damage if exposed to temperatures in excess of 30° when the humidity is high (3 marks)
- b) The latent heat of evaporation of sweat is 2.45 kJ/cm^3 . Calculate the percentage of energy lost by sweating from a heavy manual worker who loses 4 dm^3 per day of sweat and has a daily energy intake of 50, 000 KJ (4 marks.)

- c) Draw a labeled diagram of a human sperm cell (6 marks)
13. Discuss pollination in flowering plants (20 marks)
14. Describe the formation of urine (20 marks)
15. a) Describe the following processes
- Inhalation
- Exhalation (12 marks)
- b) Explain how the lungs are adapted to their function (8 marks)