

Name _____ Index No. _____

Candidate's signature _____

Date _____

231/2
BIOLOGY
PAPER 2
THEORY
JULY/AUGUST 2014
2 HOURS

MWALA DISTRICT FORM IV JOINT EXAMINATION 2014
Kenya Certificate of Secondary Education
BIOLOGY
PAPER 2
2 HOURS

INSTRUCTIONS TO CANDIDATES

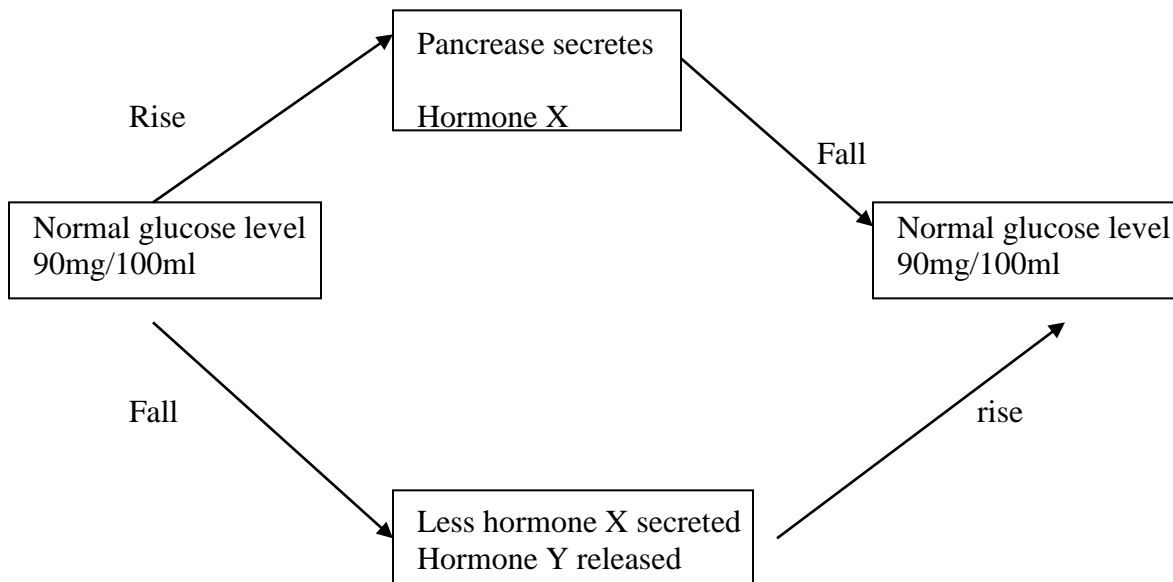
1. Write your name and index number in the spaces provide above
2. Sign and write the date of examination in the spaces provided above
3. This paper consists of 2 sections A and B
4. Answer ALL the questions in section A in the spaces provided
5. In section B answer question 6 (compulsory) and either question 7 or 8 in the spaces provided after question 8

For examiner's use only

| Section | Question | Maximum score | Candidate score |
|---------|--------------|---------------|-----------------|
| A | 1 | 8 | |
| | 2 | 8 | |
| | 3 | 8 | |
| | 4 | 8 | |
| | 5 | 8 | |
| B | 6 | 20 | |
| | | 20 | |
| | Total | 80 | |

SECTION A

1. The diagram below shows how blood glucose in mammalian body is regulated.



(a) Name the hormone X and Y (2mks)

X _____

Y _____

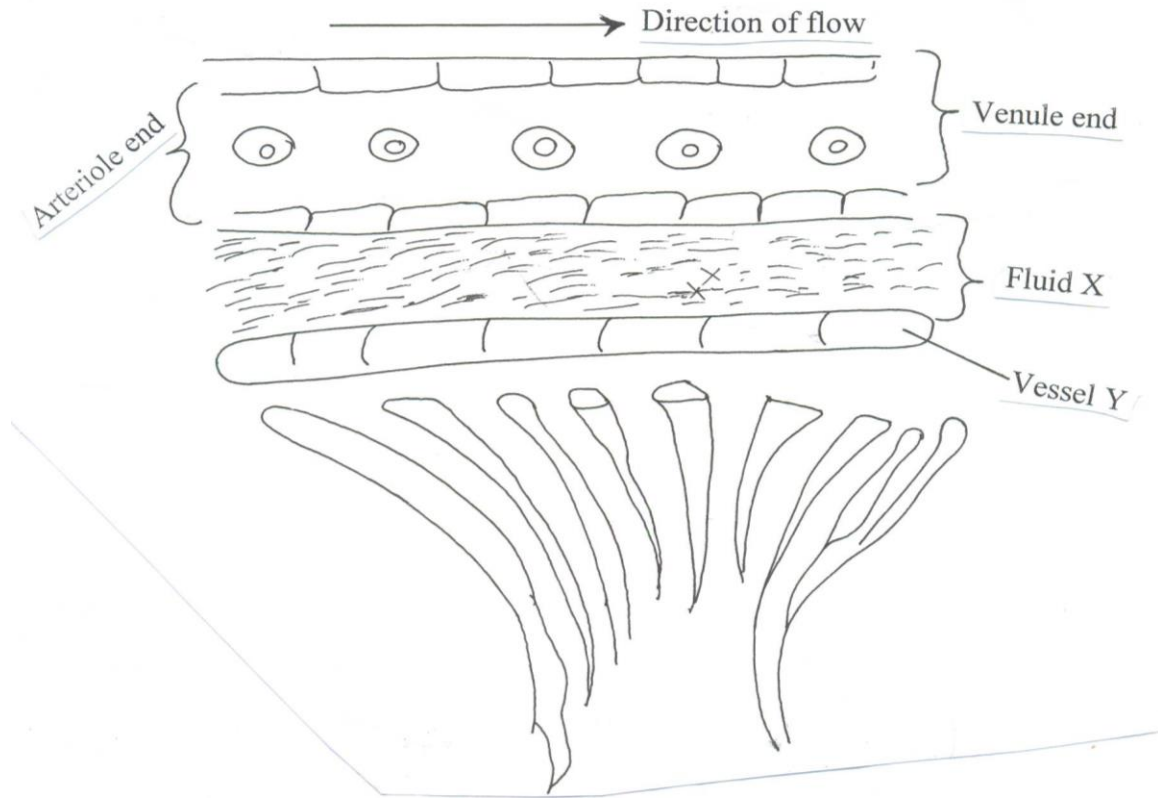
(b) State two ways by which hormone X lowers glucose level in the blood when it rises above 90mg/100ml (2mks)

(c) Name the organ that produces hormone Y (1mk)

(d) Suppose there is deficiency of hormone X, state the disease the person would suffer from (1mk)

(e) Explain how the disease mentioned in (d) above can be controlled. (2mks)

2. The following is a representation of a capillary bed. Using the diagram answer the questions that follow.



(a) Give two names that may be used to refer to the fluid labeled X (2mks)

(b) State two ways in which fluid X differs from blood plasma (2mks)

(c) Name the process by which fluid X is formed (1mk)

(d) (i) What name is given to vessel Y? (1mk)

(ii) State the circulatory system of the vessel Y named in d(i) above (1mk)

(e) What is the role of vessel Y in the body of a living organism (1mk)

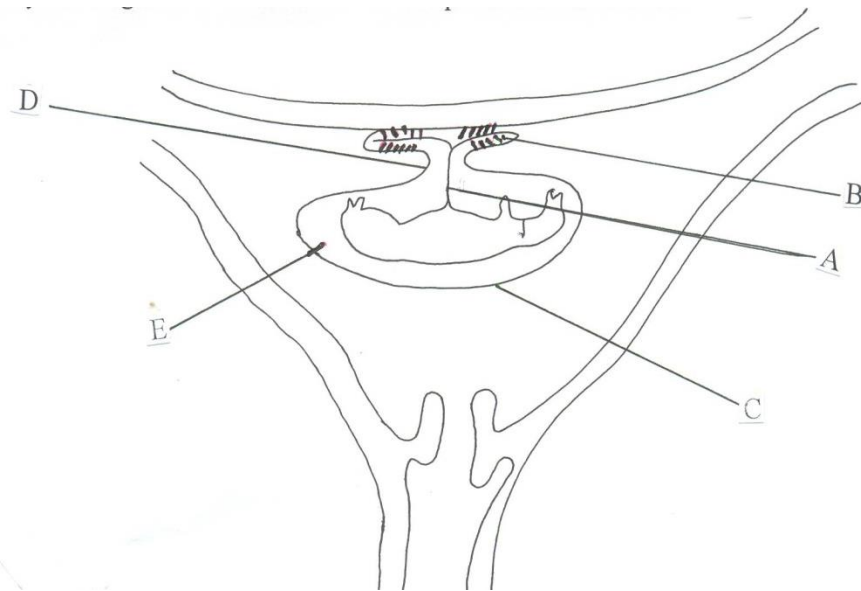
3. (a) In cattle, the gene for hornless condition is dominant over the one for horned condition. A pure hornless cow was mated to a horned bull. Using genetic symbols show the possible genotypes and phenotypes of the F1 offspring. (4mks)

(b) (i) A bull whose horns were removed was mated to a horned cow. Show the possible phenotype of the F1 offspring. (3mks)

(ii) Give a reason for your answer in (b) (i) above

(1mk)

4. Study the diagram below and answer the questions which follow



(a) Name the parts labeled

(3mks)

A _____

B _____

C _____

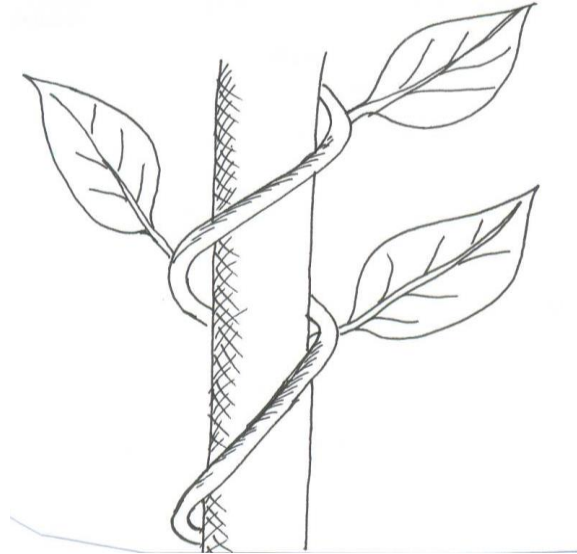
(b) State three functions of part B

(3mks)

(a) Removal of the ovaries after the 4th month of pregnancy does not terminate pregnancy. Explain

(2mks)

5. The figure below shows the stem of a plant growing round a tree trunk



(a) (i) State the response that causes the twisted growth (1mk)

(ii) State the hormone responsible for the growth (1mk)

(b) Explain how the twisting process is accomplished (2mks)

(c) (i) Name two other growth hormones in plants (2mks)

(ii) State one way in which each of the hormones in (i) affect growth (2mks)

SECTION B (40 MARKS)

Answer question 6 (compulsory) in the spaces provided and either question 7 or 8

6. The table below shows how the quantities of sweat and urine produced by a healthy adult human varies with external temperature.

| | | | | | | | | |
|--------------------------------------|-----|----|----|----|----|----|-----|-----|
| External temp./ ⁰ c | 0 | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| Urine produced/cm ³ /hour | 100 | 90 | 80 | 70 | 60 | 50 | 40 | 20 |
| Sweat produced/cm ³ /hour | 2 | 6 | 10 | 15 | 30 | 60 | 100 | 200 |

(a) Using the same axes, draw graphs of quantities of urine and sweat against external temperature (8mks)

(b) Account for the amount of sweat produced as the external temperature rises. (4mks)

(c) Explain the effect of temperature on the amount of urine produced (4mks)

(d) Explain how the following structures reduce body heat loss when the external temperatures are low

(i) Skin hairs (2mks)

(ii) Blood vessels (2mks)

ANSWERS:

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