

Name:..... ADM No:.....

Candidate's Signature:.....

Date:.....

231/2

**BIOLOGY Paper 2**

**March/April 2013**

**Time: 2 Hours**

## **CROSS COUNTRY JOINT REGISTRATION EXAM 2013**

*Kenya Certificate of Secondary Education*

### **Instructions To Candidates**

*Write your name and index number in the spaces provided above.*

*Sign and write the date of examination in the spaces provided above.*

*Answer all questions in section A the spaces provided*

*In section B, answer question 6 (compulsory) and either question 7 or 8.*

*You are required to spend the first 15 minutes of the time allocated for this paper reading the whole paper carefully before commencing your work.*

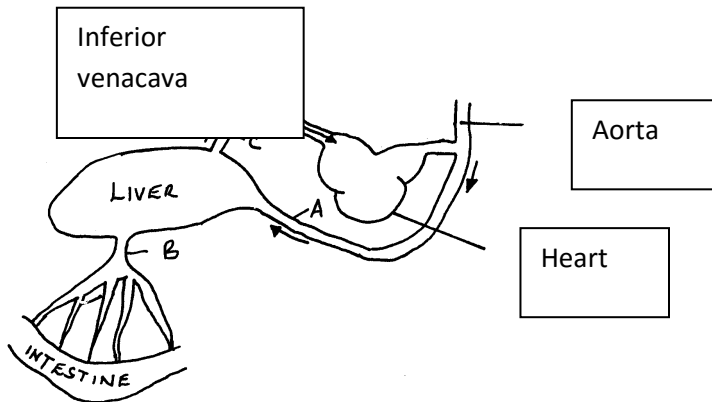
### **For examiners use only**

<b>Section</b>	<b>Question</b>	<b>Maximum Score</b>	<b>Candidate's Score</b>
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
B	6	20	
	7 or 8	20	
	<b>Total</b>	80	

*This paper consists of 6 printed pages*

*Candidates should check the question paper to ensure that all pages are printed as indicated and no questions are missing*

1. Study the diagram below and answer the questions that follow



a) Name the blood vessels labelled

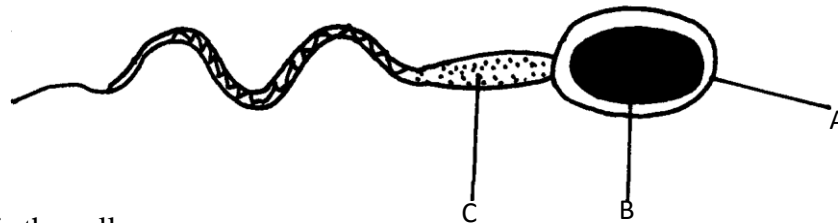
- A (1 mk)
- B (1 mk)
- C (1 mk)

b) In which of the vessels labeled A, B and C would you expect to find the highest concentration of;

- (i) Glucose (1 mk)
- (ii) Amino acids (1 mk)
- (iii) Urea (1 mk)

c) During fasting, the level of blood glucose in vessel C may be higher than the level in vessel B. Explain. (2mks)

2. The diagram below shows a specialized cell from a human being;



(a) Identify the cell (1mk)

(b) Name the part labelled A, B, and C

A..... (1mk)

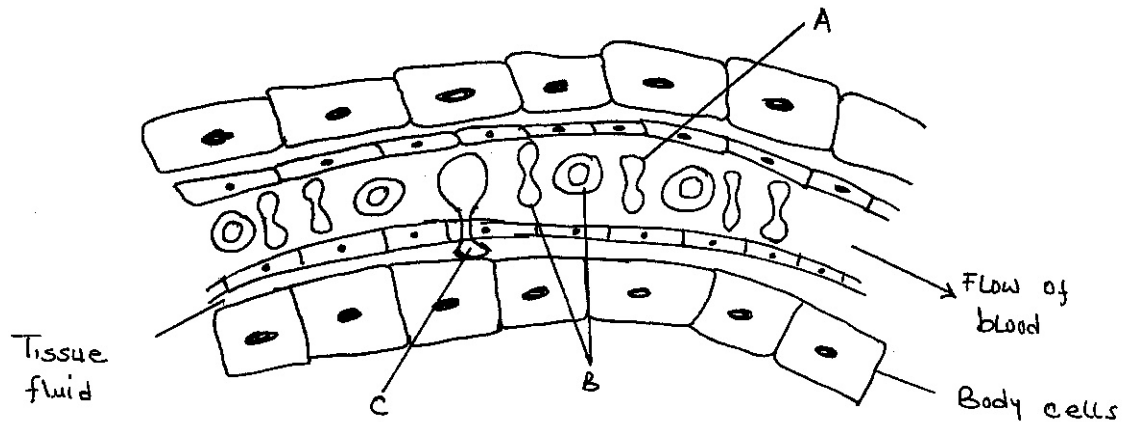
B..... (1mk)

C..... (1mk)

(c) State the functions of the parts labeled **D** (1mk)

(d) A student observed under a microscope and counted six (6) cells across the diameter of field of view. The diameter of field of view was found to be 1.25mm. Calculate the length of one of the cell observed (Give answer in micrometer) (3mks)

3. A woman whose blood group is O gives birth to a son whose blood group is A and a daughter whose blood group is B
- a. (i) State the possible genotype of the father. (1mk)
  - (ii) Using a punnet square work out the genotypes of the offsprings. (3mks)
  - b. (i) If the mother is rhesus positive and the father is rhesus negative what condition is the child likely to develop? (1mk)
  - (ii) How can the condition be controlled? (1mk)
  - c. Explain why the second born child is at risk of death that the first born child if no precaution is taken (2mks)
4. a) Define the term balanced diet (2mks)
- b) Explain the importance of each of the following during digestion in human beings
- i) Teeth (1mk)
  - ii) Saliva (2mks)
- c) State the role of each of the following in photosynthesis (3mks)
- (i) Light
  - ii) Chlorophyll
  - iii) Carbon (IV) oxide
5. The diagram **below** shows the exchange site between circulatory system and body cells.



- (a) State **two** adaptations of the capillaries. (2mks)
- (b) (i) Name the blood cells labeled **B**. (1 mk)
- (ii) State the gas that diffuse from **B** to the tissue cells. (1 mk)
- (c) State two functions of the part labeled **A**. (2mks)

- (d) Name the blood vessel with the highest concentration of
- (i) Oxygen. \_\_\_\_\_ (1 mk)
- (ii) Urea. \_\_\_\_\_ (1 mk)

### SECTION B

*Answer question 6 (compulsory) and either question 7 or 8 in the spaces provided at the end of the question 8.*

6. The table below shows the quantities of sweat and urine vary with external temperature.

External temperature	0	5	10	15	20	25	30	35
Urine cm <sup>3</sup> /h	100	90	80	70	60	50	40	30
Sweat cm <sup>3</sup> /h	5	6	10	15	30	60	120	200

- (a) Using the same axes, draw graphs of quantities of urine and sweat produced against the external temperature. (6mks)
- (b) At what temperature is the amount of sweat and urine produced equal? (1mk)
- (c) Account for the amount of sweat produced as the temperature rises (3mks)
- (d) Explain the observations made on the amount of urine produced as the temperature rises. (4mks)
- (e) Explain how the following help in temperature regulation when its cold;
- (i) Hair (3mks)
- (ii) Blood vessels (3mks)
7. Discuss the structural adaptations of the male reproductive features to their functions. (20mks)
8. a) State three aspects of light that are important in photosynthesis (3mks)
- b) Describe the adaptations of a leaf to its functions (17mks)