Name..... Index No.....

School.....Candidates Signature.....

Date: .....

231/1

PRE-MOCK

Kenya Certificate of Secondary Education

BIOLOGY

PAPER 1

(THEORY)

Time: 2 Hours

INSTRUCTIONS TO CANDIDATES

Answer all the questions in the space provided.

Additional pages MUST not be inserted.

Candidates may be penalized for false information and even wrong technical terms.

FOR EXAMINER'S USE ONLY

QUESTION	MAXIMUM SCORE	CANDIDATE SCORE
1 – 24	80	

This paper consists of 10 printed pages.

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

1. During an ecological trip students found a green plant whose height averaged 20cm growing on a damp rock. The plant had a long stalk which bore a club-like capsule. The plant was attached to the rock by means of root like structures.

(a)Name the Division to which the plant belonged. (1mk)

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(b)Name the long stalks on which the capsules were borne. (1mk)

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(c)State the significance of capsule to the life of the plant. (1mk)

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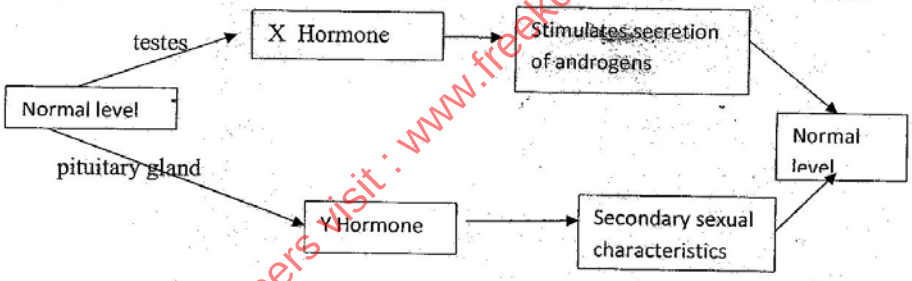
2. The diagram below represents a simple endocrine feedback mechanism in human male.



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

X.....

Y.....

(b)State **three** differences that may be observed between a normal male and one who is incapable of producing hormone labelled Y (3mks)

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c. If the testes were ovaries, what would be hormone Y. (1mk)

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d. State the hygienic practices which should be observed during menses. (2mks)

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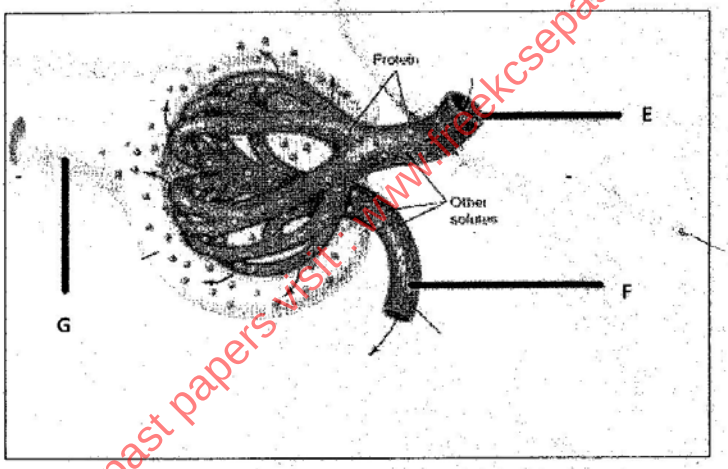
3. The figure below shows a section through a mammalian kidney nephron.



(a) On the diagram label X the part of the kidney ultra-filtration would occur (1mk)

(b) State three components of substances that flow through E and not X (2mks)

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(c) Give a reason why there is a difference in diameters in E and F (2mks)

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(d) What happens on the lower section of G? (2mk)

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4. A new born baby has general heartbeat of 120 to 140 per minute while that of adult is 70 per minute on average. Account for the difference. (2mks)

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5. It was observed that when an amoeba was transferred to a certain environment, its contractile vacuole became very active.

(i) Suggest what this environment was likely to be. (1 mk)

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(ii) Give two reasons for your answer. (2mk)

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6. Student smeared Vaseline jelly on the lower epidermis of a leaf of a potted green plant which had been kept in the dark for 24 hours. She then transferred the plant to the light for 6 hours. Starch test on the leaf was negative. Account for the observation. (2 mks)

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7. Suppose you are asked to study population of fish in a school pond.

(a) Name the apparatus you would need for this investigation. (3 mks)

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(b) (i) Work out a mathematical formula you would use to calculate the total population in the pond. (2 mks)

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(ii)What assumptions are made when using formula in (b) (i) above? (2 mks)

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8. Explain how light intensity would affect the distribution of fish in this pond. (3 mks)

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8.A microscope used in an experiment had the specifications below: Low power magnification x100, high power magnification x500, a low power field of view of 1,500 microns. Calculate the high power field of view of this microscope. (2mks)

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9.Explain why the left ventricle has thicker walls than the right ventricle. (2 mks)

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10. State **three** ways in which seed dormancy benefits a plant. (3 mks)

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11. In determining the blood group of a patient, it was seen that it agglutinates with antisera A and B but not with antiserum

(a) What was the blood group of the patient? (1mk)

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(b) A woman gave birth to triplets, two of which were identical twins. Explain how this could have occurred. (2mks)

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c) State **two** roles of amniotic fluid in placental mammals. (2mk)

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12. Form three students carrying out a field work on classification encountered an animal with wings, fur on the body, two legs and ears. Which class does it belong (1 mk)

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13. The oxidation of a certain food substance is represented by the chemical equation shown below:

$C_{57}H_{104}O_6 + 80O_2 \longrightarrow 57CO_2 + 52\ H_2O$ + Energy

(a) Calculate the respiratory quotient (RQ) of the food substance. (2 mks)

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(b) (i) Name the class of food substance being oxidised above. (1 mk)

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(ii) Explain why this food substance is not the principal respiratory substrate. (2 mks)

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14. (a) (i) Name the blood vessels which link pulmonary venules with pulmonary arterioles.

(1 mk)

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(ii) Explain two ways in which the blood vessels named in (a) (i) above are adapted to carry out their functions. (2 mks)

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(b) State two differences in the composition of blood in the pulmonary venule and pulmonary arteriole. (2 mks)

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15.Name organisms which cause the following diseases: (2 mks)

(a) Bilharzia .....

(b) AIDS.....

16. State three social economic implications of rapid human population growth rate.(3mks)

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17. Why is it dangerous to breath in motor car exhaust fumes? 2mks

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18. Give reasons why when a person lacks vitamin K experiences excessive bleeding even from a small cut. 2mks

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19. State one significance of interphase in cell division (1mk)

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20.Name the structures used for locomotion in the following organisms (2mks)

(a) Euglena.....

(c) Paramecium.....

21 The table below show the percentage composition of carbon (iv) oxide and oxygen inhaled and exhaled in air

Gases	inhaled air	exhaled air
Oxygen	20%	17%
Carbon (IV) Oxide	0.04%	4.0%

(a) Explain the differences in percentage of the two gases in inhaled and exhaled air (2mks)

(i) Oxygen

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(ii) Carbon (IV) Oxide

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22. The Kenyan athletes anticipating to be involved in a London marathon prepares themselves in the slopes of Mt Kenya in most of the times for a prolonged period of about four months before actual competition. Explain (2mks)

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23.A butterfly has a lifecycle involving both physical and physiological changes.

(a) Name the term used to refer to the above changes (1mk)

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(b) What type of growth curve does it exhibit (1mk)

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(c) State two advantages of these changes in the life of a butterfly. (2mks)

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24. Young growing children excrete lesser nitrogen compared to what they consumed.

Explain (2mks)

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END