INSTRUCTIONS TO CANDIDATES:

- Write your name and index number in the spaces provided.
- Sign and write date of examination in the spaces provided above
- Answer all the questions in section A and B

For Examiner’s Use Only:

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1. State the branch of Biology that would be used in solving the problem of disputed parentage. (1mk)

2. Why would carboxyhaemoglobin lead to death? (2mks)

3. State the functions of each of the following parts of male reproductive system. (3mks)
   (a) Sertoli Cells.
   (b) Epididymis
   (c) Seminiferons tubules.

4. The Biological name of housefly is MUSCA DOMESTICA.
   (i) State two mistakes in the way the biological (scientific) name is written. (2mks)
   (ii) Write the name in the correct manner following the rules of binomial nomenclature. (1mk)

5. What is the role of the xylem tissue in plant nutrition (1mk)

6. Identify the type of muscles found in:
   a) Sweat duct (1mk)
   b) Heart (1mk)
7. A certain species of flowering plant relies entirely on sexual reproduction for propagation. The chromosome number of the cell in the ovarian wall is 16.

a) the pollen tube nucleus. 

b) A cell of the endosperm.

8. a) What are fossils? 

b) State two limitations of the use of fossils as an evidence of evolution.

9. When are the following hormones secreted?

a) Insulin hormone. 

b) Anti-diuretic hormone (ADH)

10. The schematic diagram below shows main stages in blood clotting.

   Blood platelets ———-> L
   Prothrombin ————> M
   N ————————> Fibrin

   (a) (i) Identify each of the substances L and N

   (ii) Name the enzyme involved in the formation of substance M.

   (b) (i) State one difference between N and fibrin.
(ii) Which substance in blood prevents the ordinary conversation of N to fibrin within blood. (1mk)

11. State two functions of large intestines in man. (2mks)

12. The diagram below represents part of the mammalian blood circulatory system and some associated glands.

(a) Name the blood vessels A and B. (2mks)

(b) State two structural differences between the blood vessels labeled A and C (2mks)

13. State two methods of preventing malaria. (2mks)

14. a) Name two photochemical cells in the human retina. (2mks)

b) Name one chemical substances and two mineral ions involved in impulse transmission in mammals. (2mks)
15. During oxidation of certain food substances the respiratory quotient was found to be 0.718.

(i) Name the type of food substance being oxidized. (2mks)
…………………………………………………………………………………………………………
…………………………………………………………………………………………………………

(ii) State two advantages of using the food substances named. (2mks)
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16. The diagram below represents a bone obtained from a mammal.

i) Name bone labeled X (1mk)
…………………………………………………………………………………………………………

ii) Name structure P. (1mk)
…………………………………………………………………………………………………………

iii) Which bones articulate with the bone shown at the notch. (1mk)
…………………………………………………………………………………………………………

17. The diagram below represents a maize seedling.

a) Name the structure labeled A and C (2mks)
A……………………………………………………………
C……………………………………………………………

b) (i) State the functions of parts labeled B and C (2mks)
B…………………………………………………………………………………………………………
C…………………………………………………………………………………………………………
(ii) Name the type of germination exhibited by maize. (1mk)

18. Below are different cell divisions stages. Study the diagram and answer the questions that follow.

![Diagram of cell division stages A and B]

a) Name the stages labelled A and B. (2mks)
A: .......................................................... 
B: ..........................................................

b) Give major changes that occur in the cell in the stage B (1mk)
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19. Explain any three adaptations of root hair cells to their functions. (3mks)
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20. Give three reasons as to why biological control is preferred to chemical control in the control of pests. (3mks)
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21. State the type of solution that makes the plant cell. (2mks)
i) Flaccid
..........................................................................................................................

ii) Turgid
..........................................................................................................................
22. The graph below shows relative levels of oestrogens and progesterone during the human menstrual cycle.

![Graph showing relative levels of oestrogens and progesterone during the human menstrual cycle.]

a) Mark on the graph the curves that represents
   i) Progesterone
   ii) Oestrogen

b) Which is the most likely day of ovulation from the graph?

23. State the roles of gibberellin hormone in growth and development of plants.

24. Name the organisms that cause each of the following diseases.
   i) Amoebic dysentery.
   ii) Birlhazia

25. Explain how marine fish regulate their osmotic pressure.

26. Name the carbohydrate stored in:
   i) Cell wall.
ii) Mammalian liver. (1mk)

27. a) Give an example of a sex-linked trait on x-chromosome. (1mk)

b) Below is a nucleotide strand

| A | A | G | T | C |

(i) Identify the type of nucleic acid strand. (1mk)

(ii) Give a reason for your answer in (b) (i) above. (1mk)

(iii) Write down the complimentary base sequence in the other strand. (1mk)

28. a) Name the body covering found in members of phylum Arthropoda. (1mk)

b) State three uses of the structure identified in (a) above for the survival of Arthropodas. (3mks)

29 A rhinocerous in a national park was found to be infected with ticks. State the trophic level occupied by the:

(i) Rhinocerous. (1mk)

(ii) Ticks (1mk)