

MURANGA EXTRA-COUNTY SCHOOLS JOINT EXAMS*Kenya Certificate of Secondary Education (K.C.S.E.)***FORM FOUR****END OF TERM TWO 2022****BIOLOGY 231/1****PAPER 1****TIME: 2 HOURS**

NAME.....ADM NO.....CLASS.....

DATE.....SIGN.....

INSTRUCTIONS TO CANDIDATES:

- (a) Write your name and Index Number in the spaces provided.
- (b) Sign and write the date of examination in the spaces provided.
- (c) Answer **ALL** questions in the spaces provided.
- (d) Wrong spelling especially of technical terms will be penalized.
- (e) This paper consists of 7 printed pages. Ascertain that the paper has all the printed pages.

FOR EXAMINER'S USE ONLY

QUESTION	MAX. SCORE	CANDIDATE SCORE
1 – 31	80	

1. A form one girl observed a bird laying eggs in a nest which later hatched into chicks. Name two characteristics of living things that she concluded from the observations (2marks)

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2. Name the stage in meiosis where chromosomes number is reduced by a half (1mark)

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3. State two characteristics of organisms that belong to the same species (2marks)

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4. a) Live specimens should always be returned to their habitats whenever possible. What is the biological importance of this practice? (1mark)

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b) Why is a dissecting pin important in biological experiments? (1mark)

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5. Mutations form basis for variations. Name the type of mutation that cause the following human disorders

(a) Albinism (2marks)

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(b) Down syndrome

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6. a) During a field trip a plant that had flowers drew the attention of a student. Name the division of the plant.

..... (1mark)

b) Students observed an animal with the following features

- Dorsoventrally flattened body
- One pair of legs per segment
- Poison claws on the head

i) Name the class to which the animal belongs. (1mark)

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ii) State the mode of feeding of the animal (1mark)

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7. Study the process below and answer the questions that follow



a) Name the process P (1mark)

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b) Name the part of a cell in which the process named in (a) above occurs (1mark)

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8. Account for the following observations.

a) When fish is taken out of water it dies (2marks)

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c) The palisade cells are closely packed together (1mark)

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9. a) Give the significance of the following features of the red blood cells.

Being biconcave in shape. (1mark)

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b) Lacking mitochondria (1 mark)

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10) A person fell from the third floor of a building and had part of his brain damaged. Name the part of the brain damaged if the person suffers from the following

a) Loss of speech (1mark)

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b) Inability to regulate body temperature (1mark)

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c) Lack of balance (1mark)

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11. In body cells of all organisms chromosomes occur in pairs. Members of each pair have a characteristic length and shape.

a) What is the scientific name of such a chromosome pair? (1mark)

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b) What name is given to a cell that contains one member of each pair of chromosomes? (1mark)

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c) Name the part in humans where meiosis takes place (2marks)

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12. Small birds like the European robin puff up (swell up) their feathers during winter. Explain the significance of the behavioral response. (3marks)

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13. Name the most appropriate tool that biology students can use for collecting (2marks)

i) Crawling animals

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ii) Stinging organisms

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14. During a microscopy class a student was unable to see the field of view. State two possible adjustments she needed to make to ensure that the field of view became visible. (2marks)

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15. Name the apparatuses used to measure the following abiotic factors. (2marks)

i) Penetration of light in water

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ii) Light intensity

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16. A lion is an exclusive carnivore. State two dental adaptations it has to its mode of feeding (2marks)

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17. a) State an example of structures in animals whose development demonstrates adaptive radiation (1mark)

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b) Treatment of malaria is still a challenge in the world despite the invention of many antimalarial drugs. Explain. (3marks)

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18. Name two processes that brings about the translocation of manufactured food (2marks)

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19. Name the disorder of the blood described by the following symptoms (2 marks)

a) In ability of the blood to clot.

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b) Crescent shaped red blood cells with abnormal haemoglobin.

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20. Explain how a nerve impulse is passed across a synapse (3marks)

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21.a) A large crocodile can survive on 20kg meat for a year. A small sized lion cannot. Explain (3marks)

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b) Name the part of the body that helps in insulation in the following: (2marks)

i) Birds

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ii) Mammals

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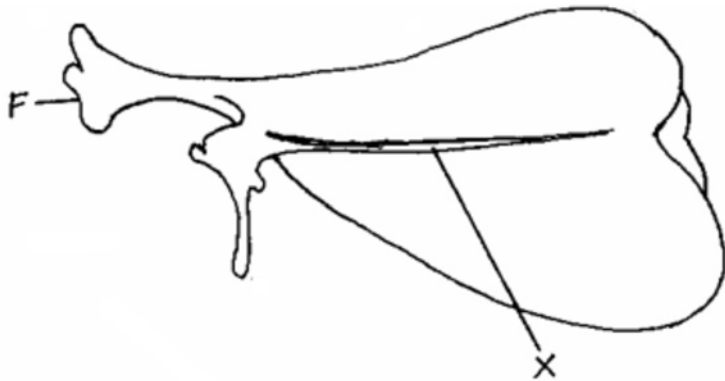
22. Name **two** types of valves in the heart. (2 marks)

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23. Sometimes when one stands up very quickly after a long period of sitting, she may feel faint or dizzy. Explain. (2 marks)

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24. The diagram below represents a bone of a mammal



(a) Identify the bone. (1 mark)

(b) Name the part marked X. (1 mark)

(c) Name the bone that articulates at the part labelled F. (1 mark)

(d) State two ways in which the bone is adapted to its function. (2 marks)

25. a) Under which of the following magnifications would one see a larger part of the specimen X 40 or X 500? Give a reason. (2 marks)

b) State how magnification is worked out in a light microscope (1mark)

26. State two characteristics of mammals that are not externally visible (2marks)

27. State three uses of digested food in the bodies of animals (3 marks)

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28. Which cell organelle is present in large numbers in cells that produce Insulin? Give a reason for your answer (2marks)

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29. Give three advantages of fossil records (3marks)

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30. What is the significance of diffusion to plant pollination? (1mark)

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31.a) Explain why it is not advisable to put a patient on a drip of distilled water for rehydration (3marks)

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b) Name the physiological process by which water molecules move from one cell to the other (1mark)

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