

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

DATE.....SIGNATURE.....INDEX NUMBER.....

231/1
BIOLOGY
PAPER 1
TIME: 2 HOURS
TERM TWO 2021

MECS CLUSTER JOINT EXAMINATION
Kenya Certificate of Secondary Education

INSTRUCTIONS TO CANDIDATES

- Write your name and admin number in the spaces provided above
- Sign and write the date of examination in the spaces provided above
- Answer **ALL** questions in the spaces provided
- This paper consists of 8 printed pages
- Candidates should check the question paper to ascertain that all the pages are printed and that no questions are missing

FOR EXAMINERS USE ONLY

QUESTION	MAX. SCORE	CANDIDATE'S SCORE
1-29	80	

1. Name the product of anaerobic respiration that is essential in: (2marks)
a) The brewing industry

.....
b) The bread making industry

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2. (a) What part of the human body is affected by the virus that causes poliomyelitis? (1mark)

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(b) What is a vaccine? (1 mark)

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(c) Other than poliomyelitis name another immunizable disease in Kenya (1mark)

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3. A student mixed a sample of urine from a person with Benedict's solution and heated, the colour changed to orange.

a) What was present in the urine sample? (1 mark)

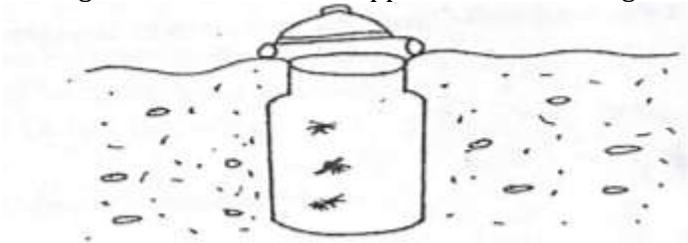
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b) What did the student conclude on the health status of the person? (1mark)

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7. Name three tissues responsible for secondary growth in flowering plants. (3marks)

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8. A certain plant was found to have 22 chromosomes in its calyx cells. State the number of chromosome present in: (2marks)

- a) Egg cell.....
- b) Endosperm cell

9. The diagram below shows an apparatus used during collection of specimen



- a) Identify the apparatus (1mark)
- b) What is the use of the apparatus named above (1 mark)

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10. A DNA strand has the following base sequence G C C T A G A T C A C

What is the sequence of the:

- a) Complementary DNA strand (1 mark)
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- b) m-RNA strand copied from this DNA strand (1 mark)

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11. Phagocytes, also called granulocytes or polymorphs are cells found in the blood where they ingest pathogens and cell debris

- a) Why are they called polymorphs? (1 mark)
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- b) Name the cell organelle most abundant in phagocytes to enable them function effectively (1 mark)

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12. a) State three evidence of organic evolution. (3marks)

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b) Explain why continuous use of antibiotics results to resistance. (2marks)

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13. State three biotic factors that could affect a zebra living in the Nakuru National Park. (3marks)

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14. List three methods used to show energy flow through the ecosystem. (3 marks)

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15. Name three organelles that would be abundantly present in secretory cells (3 marks)

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16. Name the part of the seed whose growth brings about epigeal germination. (1 mark)

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17. State three aspects of light that affect the rate of photosynthesis. (3 marks)

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18. a) State two environmental problems that can be solved by studying biology. (2 marks)

b) State two characteristics of organisms that are easily observed in both animals and plants.

(2marks)

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19. A student smeared the abdomen of a locust with Vaseline.

(a) What were the likely results after ten minutes? (1 mark)

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(b) Account for the results obtained above. (2marks)

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(c) When the locust blood was analysed it was found that the blood does not have blood pigments such as haemoglobin. Explain (2marks)

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20. Name the causative agents of the following diseases:

(a) Cholera..... (1 mark)

(b) Malaria..... (1 mark)

21. Name the only epidermal cell in plants that contain chloroplast (1 mark)

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22. Name two end products of the dark stage of photosynthesis. (2 marks)

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23. Name the fins that prevent the following movements of fish during swimming (3marks)

a) Yawing.....

b) Pitching.....

c) Rolling.....

24. The scientific name of a bean is *Phaseolus vulgaris*. What do these names represent?

a) *Phaseolus*.....(1 mark)

b) *vulgaris*.....(1mark)

25.a)Name the process by which urea is formed in the liver (1mark)

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b) Name one class of animals that excrete their nitrogenous waste product mainly in the form of uric acid. (1mark)

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26. State two functions of sweat in the human body (2marks)

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27. Name two vitamins which their absence in the diet may cause a dental disease called gingivitis (2marks)

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28. State three reasons why *Drophila melanogaster* is preferred for genetic study. (3marks)

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29. a) Explain what would happen to a plant cell if it is placed in a concentrated salt solution. (3marks)

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b) How can plasmolysis be reversed? (1mark)

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