BUNGOMA DISTRICT MOCK EXAMINATION

231/1
BIOLOGY
PAPER 1

INSTRUCTIONS TO CANDIDATES

Answer ALL questions in this paper in the spaces provided.

For Official Use Only

This paper consists of 8 printed pages. Candidates should check the question paper to ensure that all the pages are printed as indicates and no questions are missing.
1. (a) **State** the role of the DNA in a cell.  
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(b) **Give two** structural adaptations of the chloroplast to its function.  
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2. (a) **Define** the term balanced diet.  
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(b) **State** the importance of roughage in a diet.  
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3. (a) **State** the composition of an ecosystem.  
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(b) **Explain** why the ecosystem is said to be a self- sustaining natural unit.  
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4. (a) **Differentiate** between the apical meristem and the cambium.  
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(b) **State** the role at the following in germination.  
(i) **Hypocotyl** in epigeal germination  
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(ii) **Coleoptiles** in hypogeal germination.  
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5. **Give three** structural differences between the skeletal muscles and smooth muscles.  
(3marks)

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6. (a) **State** the functions of the placenta in a pregnant mammal.  
(2marks)

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(b) **Give one** function of amniotic fluid during pregnancy.  
(1mark)

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7. (a) **How** are the wind pollinated flowers adapted to their function?  
(2marks)

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(b) **State two** advantages of cross – pollination.  
(2marks)

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8. **Explain** how fossil records can be used as evidence for evolution.  
(3marks)

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9. **State** how the leaf of the hydrophyte is adapted to its function.  
(3marks)

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10. Explain the role of antidiuretic hormone when there is less water in the human body.  
(3marks)

11. (a) A form two student observed the skull of a carnivorous mammal; State two observable features that the student used to classify the skull as that of a carnivore.  
(2marks)

(b) State the function of the two features named in (a) above.  
(2marks)

12. The plant shoot was observed to have curved towards unilateral source of light. Explain what happened.  
(3marks)

13. The diagram below represents a vertical section through a mammalian skin.

(a) Name the structure labeled U  
(1mark)
(b) **State** the physiological changes that would occur in the following structures when the surrounding temperature was raised towards 40°C  

(i) **R:**
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(ii) **T:**
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(iii) **S:**
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14. **State three** distinguishing features for members of phylum chordata.  
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15. (a) **State the** reasons for the following adaptations of the xylem vessels.  

(i) Narrow lumen:
…………………………………………………………………………………………

(ii) Lack of cross walls:
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(b) **State two** distinguishing features of the phloem sieve tubes.  
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16. **Study** the table below and till the blank spaces  

<table>
<thead>
<tr>
<th>ORGAN</th>
<th>HORMONE</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pituitary</td>
<td></td>
<td>(i) Causes ovulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(ii) Stimulate production of progesterone</td>
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<tr>
<td>Ovarian tissue</td>
<td>Oestrogen</td>
<td></td>
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<tr>
<td>Pituitary</td>
<td>Follicle stimulating Hormone</td>
<td></td>
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</tbody>
</table>
17. **State three** ways in which the vessels that link arterioles with venules are suited to carrying out their functions. (3marks)

18. (a) **How** do the following factors affect the rate of diffusion? (3marks)
   (i) Surface area to volume ratio

18. (b) **Name** the physiological process that requires energy to occur. (1mark)

19. (a) **Define** the term habitat (2marks)

19. (b) **Explain** how competition is a factor that regulate the animal population in a habitat. (2marks)

20. **State three** adaptations of the mammalian Nephron to reabsorption of useful substances into the blood stream. (3marks)
21. The diagrams below represent a nerve cell

(a) **Identify** the nerve cell. (1 mark)

(b) (i) **Give** a reason for your answer in (a) above (1 mark)

(ii) **Show** by use of an arrow the direction of flow of the nerve impulses. (1 mark)

22. State how excessive use of agrochemicals affects the large water bodies. (2 marks)

23. (a) **State** the functions of each of the following cell organelles (2 marks)

(i) Golgi bodies

(ii) Smooth Endoplasmic

(b) **Name two** structures that are found in plant cells but absent in animal cells. (2 marks)

24. Explain how the Mammalian alveoli are suited to gaseous exchange (3 marks)
25. (a) **Name three** limiting factors that affect the rate of photosynthesis (3marks)

(b) **Which** of the limiting factor is used in the dark stage of photosynthesis? (1mark)

26. The diagram below illustrates a certain **eye defect**.

(a) State the eye defect in the above diagram (1mark)

(b) (i) State the cause of the above eye defect (1mark)

(ii) **What role** does the concave lens play in the correction of the above defect? (2marks)

27. (a) Nitrogen in the atmosphere can not be directly utilized by plants. **State two** ways by which this Nitrogen is made available for plant use. (2marks)

(b) **State** the importance of saprophytic bacteria in the environment. (2marks)