Eldoret East Inter Schools Test-2013

Kenya Certificate of Secondary Education (K.C.S.E.)

Form Four

Instructions to Candidate

In section A, Answer ALL questions in the spaces provided after each question.

In section B, Answer question 6 (Compulsory) and either question 7 or 8 in the spaces provided after question 8.

For Examiner’s Use Only

<table>
<thead>
<tr>
<th>SECTION</th>
<th>QUESTION</th>
<th>Maximum Score</th>
<th>Candidates Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1</td>
<td>8</td>
<td></td>
</tr>
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<td></td>
<td>2</td>
<td>8</td>
<td></td>
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<tr>
<td></td>
<td>3</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>6</td>
<td>20</td>
<td></td>
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<tr>
<td></td>
<td>7</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
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<tr>
<td>Total Score</td>
<td>80</td>
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</tbody>
</table>

This paper consists of 8 printed pages. Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no question is missing.
1. In an experiment, equal volume of blood were incubated for one hour with different salt concentration. After incubation the number of red blood cells in each set up was determined. The result are as shown in the table below.

<table>
<thead>
<tr>
<th>Set up</th>
<th>Salt concentration percent</th>
<th>Number of red blood cells after incubation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0.9</td>
<td>All normal</td>
</tr>
<tr>
<td>B</td>
<td>0.5</td>
<td>Fewer than normal</td>
</tr>
<tr>
<td>C</td>
<td>0.3</td>
<td>None</td>
</tr>
</tbody>
</table>

a) Account for the result in set up A. (2 marks)

________________________________________________________________________
________________________________________________________________________

b) In what way would you expect the cells in set up to differ from those in set up A? (1 mark)

________________________________________________________________________


c) What observation would you expect to make with regard to the number of red blood cells if the experiment was repeated with a salt solution of 1.4 % (2 marks)

________________________________________________________________________
________________________________________________________________________

d) What process head to the observations made in B and C. (1 mark)

B________________________________________

C________________________________________

e) State two roles of the process mentioned in d above in plants. (2 marks)

________________________________________________________________________
________________________________________________________________________

2 a) Name two types of digestion that takes place in the mouth. (2 marks)

________________________________________________________________________
________________________________________________________________________

b) List two functions of hydrochloric acid in digestion. (2 marks)

________________________________________________________________________
________________________________________________________________________

c) What is the role of the liver in digestion. (2 marks)

________________________________________________________________________
________________________________________________________________________

d) Explain the following terms

a) Peristalsis (1 mark)

________________________________________________________________________

b) Assimilation (1 mark)

________________________________________________________________________
3. The diagram below is a summary of blood clotting mechanism in man.

![Blood Clotting Diagram]

a) Name substrate M Y and ion X. (3 marks)

M_______________________________________________________________________

Y_______________________________________________________________________

Ion X____________________________________________________________________

b) What is the significance of the process shown above? (2 marks)

_________________________________________________________________________

c) What other structure in the body can produce thromboplastin? (1 mark)

_________________________________________________________________________

d) How can low blood volume be normalized? (1 mark)

_________________________________________________________________________

e) Explain why blood rarely clots inside blood vessels. (1 mark)

_________________________________________________________________________

4. a) Explain how each of the following factors affect living organisms within an ecosystem.

i) Predators. (2 marks)

_________________________________________________________________________

_________________________________________________________________________

ii) Light. (2 marks)

_________________________________________________________________________

_________________________________________________________________________

iii) Competition. (2 marks)

_________________________________________________________________________

_________________________________________________________________________

b) Explain the role of each of the following features on Xerophytes.

i) Succulent stems and leaves (1 mark)

_________________________________________________________________________
5. a) What is gene linkage (1 mark)

ii) Short life cycle (1 mark)

b) Haemoglobin is a sex linked trait

i) If a normal woman but carrier for haemophilia marries a normal man, work out the phenotypes of the offspring using a genetic cross. (4 marks)

c) Why is haemophilia more common defect in males than in females. (1 mark)

d) Other than haemophilia state any other sex linked defect in man. (1 mark)

6. During germination and growth of a cereal the dry weight of endosperm, the embryo and total dry weight were determined at two day intervals for fourteen days. The result are as tabulated below.

<table>
<thead>
<tr>
<th>Time in (days)</th>
<th>Dry weight (mg)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Endosperm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>47</td>
<td>5</td>
<td>52</td>
</tr>
<tr>
<td>2</td>
<td>44</td>
<td>5</td>
<td>49</td>
</tr>
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<td>4</td>
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<td>4</td>
<td>35</td>
<td>39</td>
</tr>
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<td>2</td>
<td>42</td>
<td>44</td>
</tr>
<tr>
<td>14</td>
<td>2</td>
<td>44</td>
<td>46</td>
</tr>
</tbody>
</table>

a) Using the same axis, draw graphs for dry weight of endosperm, embryo, and total dry weight against time (7 marks)
b) What was the average dry weight of embryo on day 2?  
_________________________________________________________________________  

(1 mark)

c) Account for the shape of the curve for  
   i) Embryo from day 2 to day 12  
      _____________________________________________________________________  
      _____________________________________________________________________  
      (2 marks)

   ii) Total dry weight (gm) from day 0 to day 14.  
       _____________________________________________________________________  
       _____________________________________________________________________  
       (3 marks)

d) After how long was the dry weight of  
   i) Endosperm 30 g?  
      _____________________________________________________________________  
      (1 mark)

   ii) Embryo 35?  
      _____________________________________________________________________  
      (1 mark)
e) Explain the role of water in seed germination. (3 marks)

_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________

f) Other than water what two environmental factors are required for seed germination? (2 marks)

_________________________________________________________________________

7 a) What is the significance of transpiration to plants. (4 marks)
b) Explain how various environmental factors increase the rate of transpiration. (16 marks)

8 a) Describe how urea is formed. (5 marks)
b) Describe the path followed by urea until it is eliminated from the body. (15 marks)

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