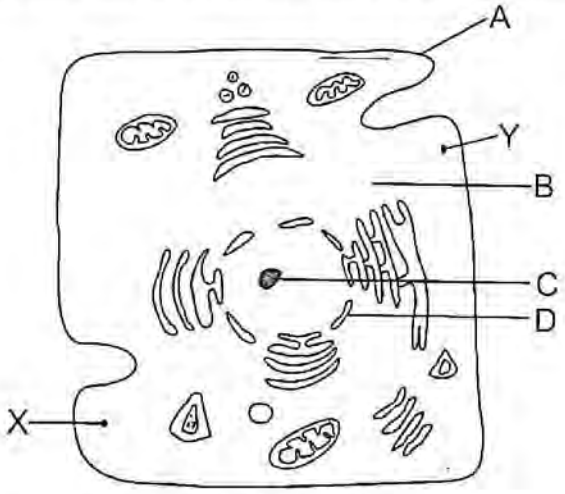
MAKUENI COUNTY CLUSTER PREPARATORY EXAMINATION 2016

231/2
BIOLOGY
PAPER 2
(THEORY)
JULY / AUGUST 2016
TIME: 2 HOURS

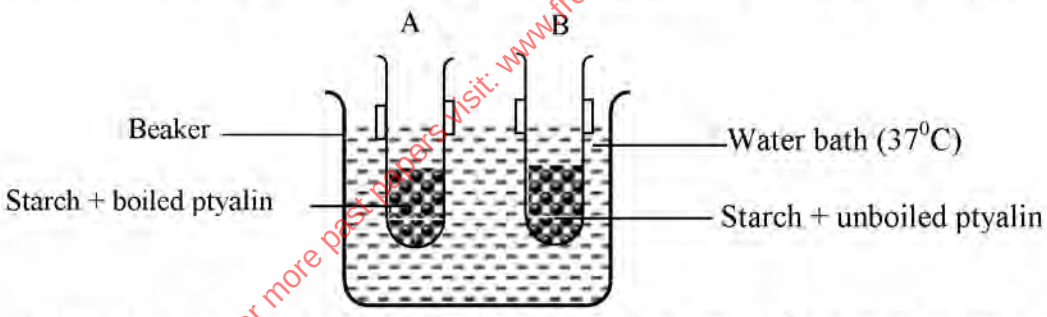
SECTION A (40 MARKS)
Answer all the questions in this section in the spaces provided

1. The diagram below shows a certain cell. Use it to answer questions that follow.



a) Identify structures labeled A, B, C, and D. (4 marks)
b) Measure the length of the distance between X and Y. If the magnification of the cell is X 10,000. Calculate the actual diameter of the cell between points X and Y in micrometers. Show your working. (2 marks)
c) With reason identify the kingdom from which the cell was obtained. (2marks)

2. In an experiment to investigate an aspect of digestion, two test tubes A and B were set up as shown below.



The test tubes were left in the water bath for 30 minutes. The contents of each test tube were then tested for starch using iodine solution.

a) State the aim of the experiment. (2marks)
b) What results were expected in test tubes A and B. (2 marks)
c) Account for the result in (b) above. (2marks)
d) Why was the set up left at 37°C. (1mark)
e) Give an appropriate conclusion from this experiment. (1mark)

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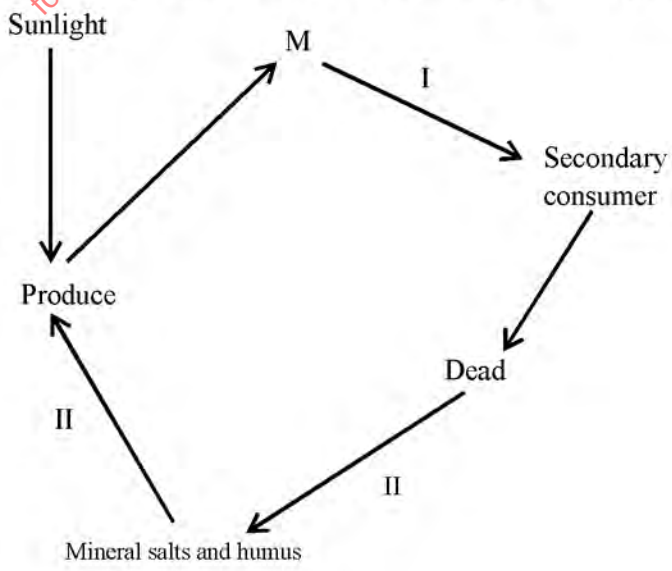
3. The diagram below indicates an organism that grows under shaded places with damp conditions. Study it and answer the questions that follow.

a) Name the division to which the specimen belongs. (1 mark)
b) Name the parts labeled Q, R and S. (3 marks)
c) State the functions of the parts labeled Q and S (2 marks)
d) Name the two body forms of the organism in its alteration of generations. (2 marks)

4. The diagram below shows a template strand of Deoxyribonuclenic acidmolecule.

a) i) Complete the diagram by drawing the missing complimentary strand. (1mark)
ii) Name two chemical components that make the backbone of deoxyribonuclenic acic molecule. (2marks)
b) A woman who is a carrier for haemophilia got married to normal man. Work out the genotypes of the offsprings. Take the gene for haemophilia to be "**h**" (4marks)
c) Name **one** disorder in humans due to chromosomal mutations. (1 marks)

5. The diagram below represents recycling of nutrients in a certain ecosystem. Study it and answer the questions that follow.



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a) Name the tropic level represented by M. (1mark)
b) Name the process represented by I, II, and III. (3 marks)
c) Name the organism involved in process II. (1mark)
d) What would happen within the ecosystem if all secondary consumers were eliminated? (3 marks)

SECTION B: (40 MARKS)

Answer questions 6 (compulsory) and either question 7 or 8 in the spaces provided

6. In an investigation two people M and N drunk some amount of strong glucose solution. Their blood sugar levels were immediately determined and thereafter at one hour intervals for the next six hours. The results were shown in the table below.

Time (hours)		0	1	2	3	4	5	6
Glucose level in mg/100ml of blood.	Person M	90	220	160	110	100	100	90
	Person N	110	340	320	300	260	245	215

a) In the grid provided, plot a graph for the blood glucose level against time for person M and N. (8 marks)
b) In man the normal blood sugar level is about 90ml/100ml of blood. Explain the change in the sugar level in person M during.
i) The first 4 hours. (2marks)
ii) The 6th hour. (2marks)
c) i) Suggest a possible reason for the high blood sugar in person N. (1mark)
ii) How can the high blood sugar in person N be controlled. (1 mark)
d) The pancreas and the liver work together in the regulation of glucose in the blood.
i) State the role of these organs when the concentration of glucose in blood is below normal. (2 marks)
ii) What would be the effect of removing the pancreas from the body? (1 mark)
iii) Distinguish between diabetes mellitus and diabetes insipidus. (2marks)
7. Describe the uptake and movement of water from the soil to the leaves of a tall plant till transpiration. (20 marks)
8. a) Describe the process of accommodation in the human eye. (10 marks)
b) Describe the mechanism of regulation of the amount of light entering the eye. (10 marks)

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