

FORM FOUR TERM ONE EXAM 2017

BIOLOGY

PAPER 3

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This paper consists of 4 printed pages. Candidates should check to ascertain that all pages are printed as indicated and that no questions are missing.

1. You are provided with solutions P and N.

a) Use Iodine solution to test for the food substance present in solution **P**;

Food substance (1 mk)

.....

Procedure (1 mk)

.....

Observation (1 mk)

.....

Conclusion (1 mk)

.....

b) Use Benedict's solution to test for the presence of the food substance in solution **P**.

Food substance (1 mk)

.....

Procedure (2 mks)

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Observation (1 mk)

.....

Conclusion (1 mk)

.....

c) Place 3 ml of solution P in a test tube. Add 3 ml of solution N and place the test tube in a water bath maintained at 37°C. Allow to stand for about 30 minutes. Test for the food substance using Benedict's solution.

i) Record your observation.

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ii) Account for your observation in c (i) above. (2 mks)

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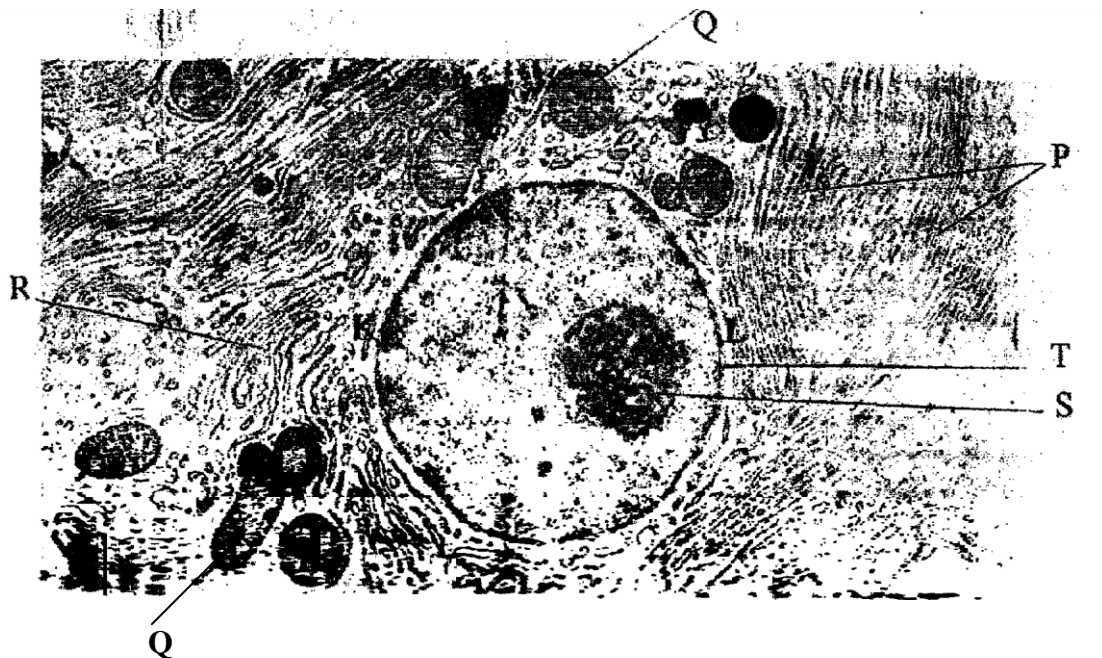
d) Suggest the identity of solution N (1mk)

N

e) Why was the test tube placed in a water bath maintained at 37°C? (2 mks)

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2. The figure below is an electron micrograph showing parts of a cell.



a) In the table below, name the organelles labeled **Q**, **R**, **S** and **T**. For each organelle, state one function. (8 mks)

| Organelle | Name | Function |
|-----------|------|----------|
| Q | | |
| R | | |
| S | | |
| T | | |

b) (i) Measure the diameter of the nucleus in the micrograph between point K and point L in mm.

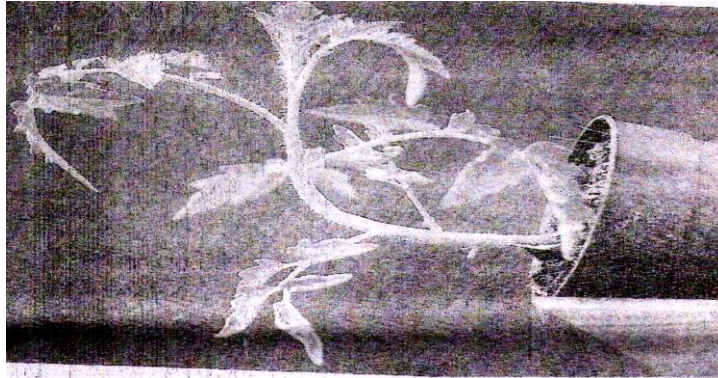
Diameter=.....mm (1 mk)

(ii) If the magnification of the parts of the cell in the micrograph is x5000, calculate the actual diameter of the nucleus in micrometres (μm) (2 mks)

c) How is part **Q** adapted to its function? (2 mks)

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3. a) Below is a photograph of a young seedling grown in uniform conditions of light.



i) Name the response exhibited by the seedling in the photograph. (1 mk)

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ii) Explain how the response named in a (i) above occurred. (5 mks)

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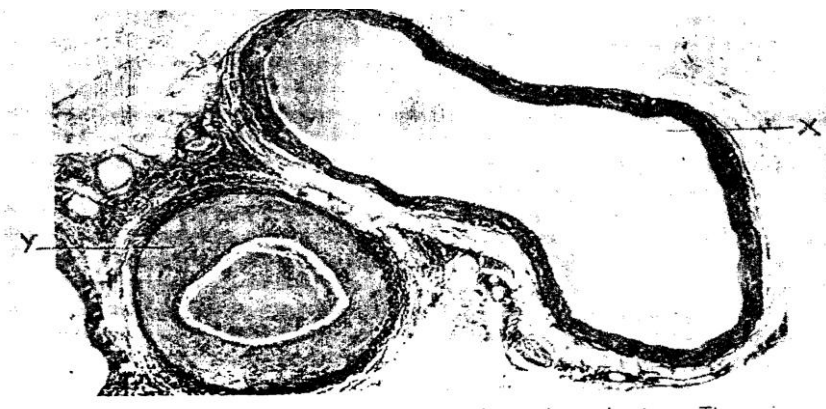
iii) Name an instrument that can be used to cancel the response exhibited in the photograph above. (1 mk)

.....

iv) State **one** significance of the response in the photograph to the plant. (1 mk)

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b) The photograph below shows the transverse section of blood vessels labeled X and Y.



With a reason, identify the type of each of the blood vessels. (4 mks)

X

Reason

.....

Y

Reason