

231/1
FORM 4 BIOLOGY
PAPER 1
TIME: 2 HRS

Answer all questions in the spaces provided.

1. State the two major characteristics of members of the kingdom plantae. (2 mks)

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2. Blocking of pancreatic duct has no effect on blood sugar regulation. Explain. (2 mks)

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3. List three characteristics of member of phylum Arthropoda. (3 msk)

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4. When a plant is covered with an opaque material with a hole on one side, it grows out through the hole. Explain. (3 mks)

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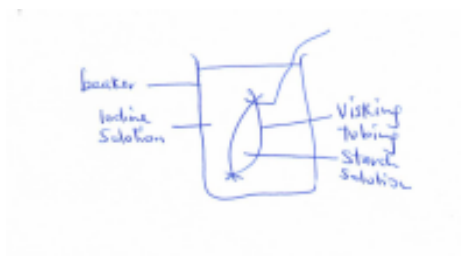
5. Explain cause and correction of short sightedness. (2 mks)

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6. A step up was done as shown below.



a) What was the observation in beaker and visking tubing? (2 mks)

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b) What was the aim of the experiment? (1 mk)

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c) What physiological process was being investigated? (1 mk)

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7. A variegated leaf was tested for starch.

(i) Name the reagent used. (1 mk)

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(ii) State the expected results. (1 mk)

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(iii) What was the aim of the experiment? (1 mk)

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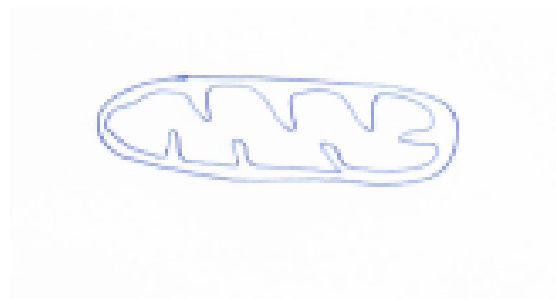
8. State two characteristics of anemophilous flowers. (2 mks)

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9. Study the cell organelle drawn below.



(i) Name the organelle (1 mk)

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(ii) State two adaptations of the organelle to its function. (2 mks)

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10.

a) State three differences between aerobic and anaerobic respiration. (3 mks)

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b) Name two uses of anaerobic respiration in industry. (2 mks)

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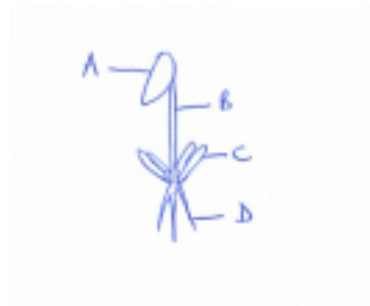
11. Name the gaseous exchange site in :

(i) Man

(ii) Fish

(iii) Insect

12. Study the diagram below.



- (i) Name the kingdom and division the organism belongs. (2 mks)

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- (ii) Name the parts A – C. (3 mks)

A -

B -

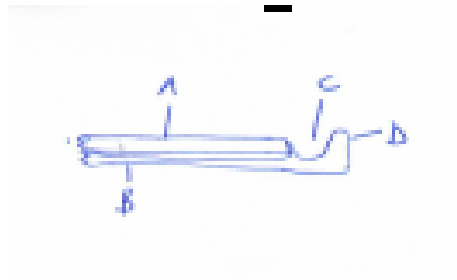
C -

D -

- (iii) State two functions of the part labelled D. (2 mks)

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13. Study the diagram below.



- (i) Name the parts A – D (4 mks)

A -

B -

C -

D -

- (ii) Name the bone articulating at part labelled C. (1 mk)

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- (iii) Name two functions of the part labelled D. (2 mks)

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14.

(i) Write the dental formula of an adult human being. (1 mk)

(ii) What is the importance of mastication? (2 mks)

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(iii) State the two types of dentition. (2 mks)

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15. State the function of

(i) Nucleolus (1 mk)

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(ii) Centriole (1 mk)

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(iii) Chloroplast (1 mk)

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16. In rats, black colour is dominant over white

a) Using appropriate letter symbols, make a cross of two heterozygous black rats. (4 mks)

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b) Indicate the genotypic and phenotypic ratios of their off springs. (2 mks)

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17.

a) Define convergent evolution. (1 mk)

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b) Explain two evidences in support of organic evolution theory. (4 mks)

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18. Explain double fertilization in flowering plants. (4 mks)

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19. Explain three adaptations of the root hair cell to perform its functions. (3 mks)

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20. State the function of the following parts of a light microscope.

(i) Lens (1 mk)

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(ii) Diaphragm (1 mk)

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(iii) Eye piece (1 mk)

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21.

- a) Describe three homeostatic functions of the mammalian skin. (3 mks)

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- b) Why do desert animals excrete nitrogenous wastes in form of uric acid? (2 mks)

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