

June 2016

Section A

1. (a) List the characteristics common to insects. (7marks)

(b) Describe the life cycle of a Housefly. (11 marks)

(c) How are insects beneficial in nature? (7marks)

(Total = 25 marks)

2. (a) Give a balanced equation that summarizes aerobic respiration. (5marks)

(b) Describe an experiment to demonstrate that germinating seeds produce heat.(13marks)

(c) Give the differences between aerobic and anaerobic respiration. (7marks)

(Total = 25 marks)

3. (a) Give an account of the circulation of water in nature. (15marks)

(b) Describe an experiment to demonstrate Osmosis in living tissue. (10marks)

(Total = 25 marks)

4.(a) What is genetic engineering? (3 marks)

(b) Give an account of the importance of genetic engineering to man. (10 marks)

(c)How is light important to

(i) Plants,

(ii) Animals? (12 marks)

(Total = 25 marks)

SECTION B

1. (a) How is the leaf of a plant suited for photosynthesis?. (15marks)

(b) How would you demonstrate that light is necessary for photosynthesis? (10marks)

(Total = 25 marks)

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2. (a) Define the term Excretion. (4 marks)
- (b) List the excretory products of plants and their methods of elimination (8marks)
- (c) List the excretory organs in man and state what each eliminates. (8marks)
- (d) How is osmoregulation carried out in a fresh water amoeba? (5marks)
- (Total = 25 marks)

3.(a) Define the following terms:

- (i) Genetics.
- (ii) Genotype.
- (iii) Heterozygous.
- (iv) Fertilization (8 marks)

(b) A Gardener crossed a white flowered plant and a red flowered plant and the resulting F₁ plants had pink flowers. When he crossed the pink flowered plants among themselves, the next generation of plants (F₂) had 22 red, 80 pink and 20 white flowers.

Using suitable genetic symbols and diagrams, describe the genetics of the above crosses as fully as possible. (17marks)

(Total = 25 marks)

1. (a) Define the following terms:

- (i) Stimulus.
- (ii) Tropism. .
- (iii) Reflex action. (11marks)
- (b) Describe what happens when the hand accidentally touches a hot object.(10marks)
- (c) How are tropisms important to plants? (4marks)

(Total= 25 marks)