

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)

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 F_1 plants had pink flowers. When he crossed the pink flowered plants among themselves, the next generation of plants (F_2) 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)