UNEB 2023 U A C E P530/2 BIOLOGY THEORY PAPER 2

SECTION A (40 marks)

1. Illustration **1** shows the effect of temperature variation on the rate of photosynthesis and respiration in leaves of the same plant. The plant was given adequate amounts of light with other factors kept constant.

Illustration **2** shows the effect of temperature variation on the amount of the carbon dioxide absorbed by two plant species; **A** and **B**. Plants **A** and **B** each uses a different carbon dioxide fixation pathway.

Study the two illustrations and answer the questions that follow.

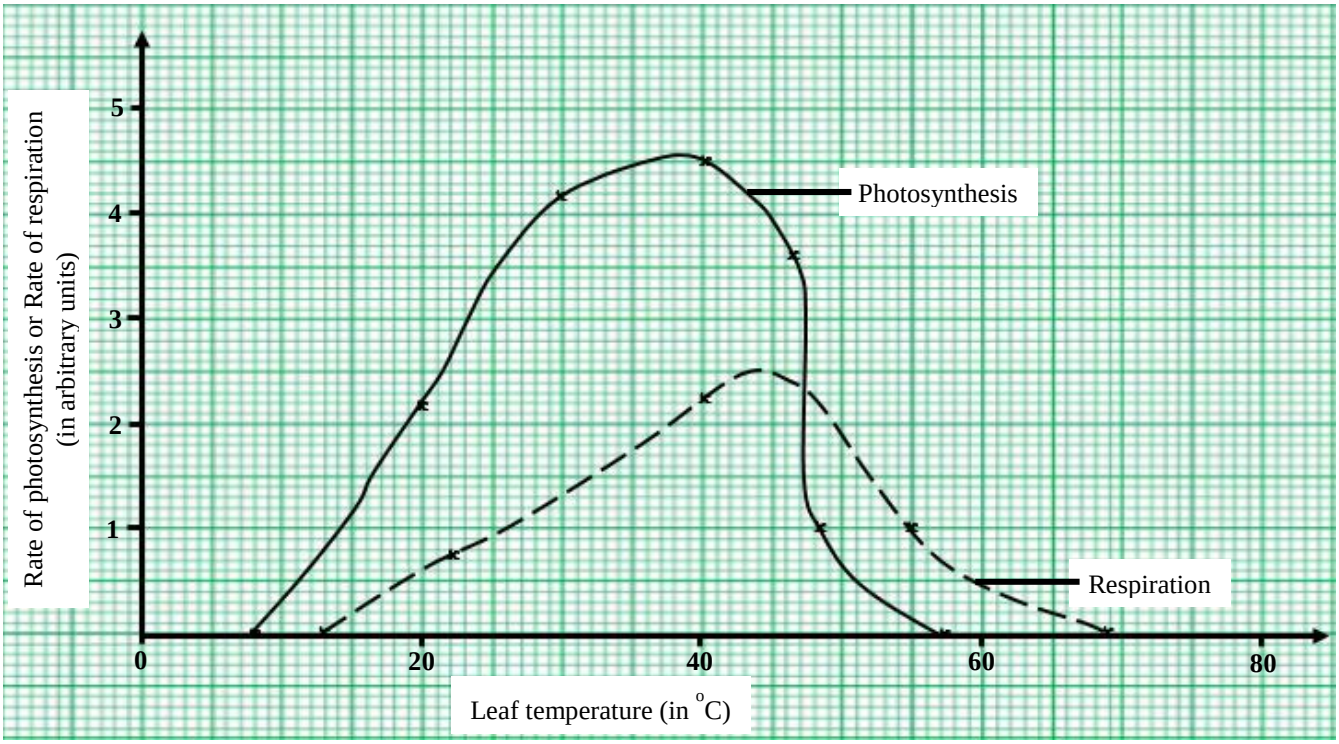

Illustration 1

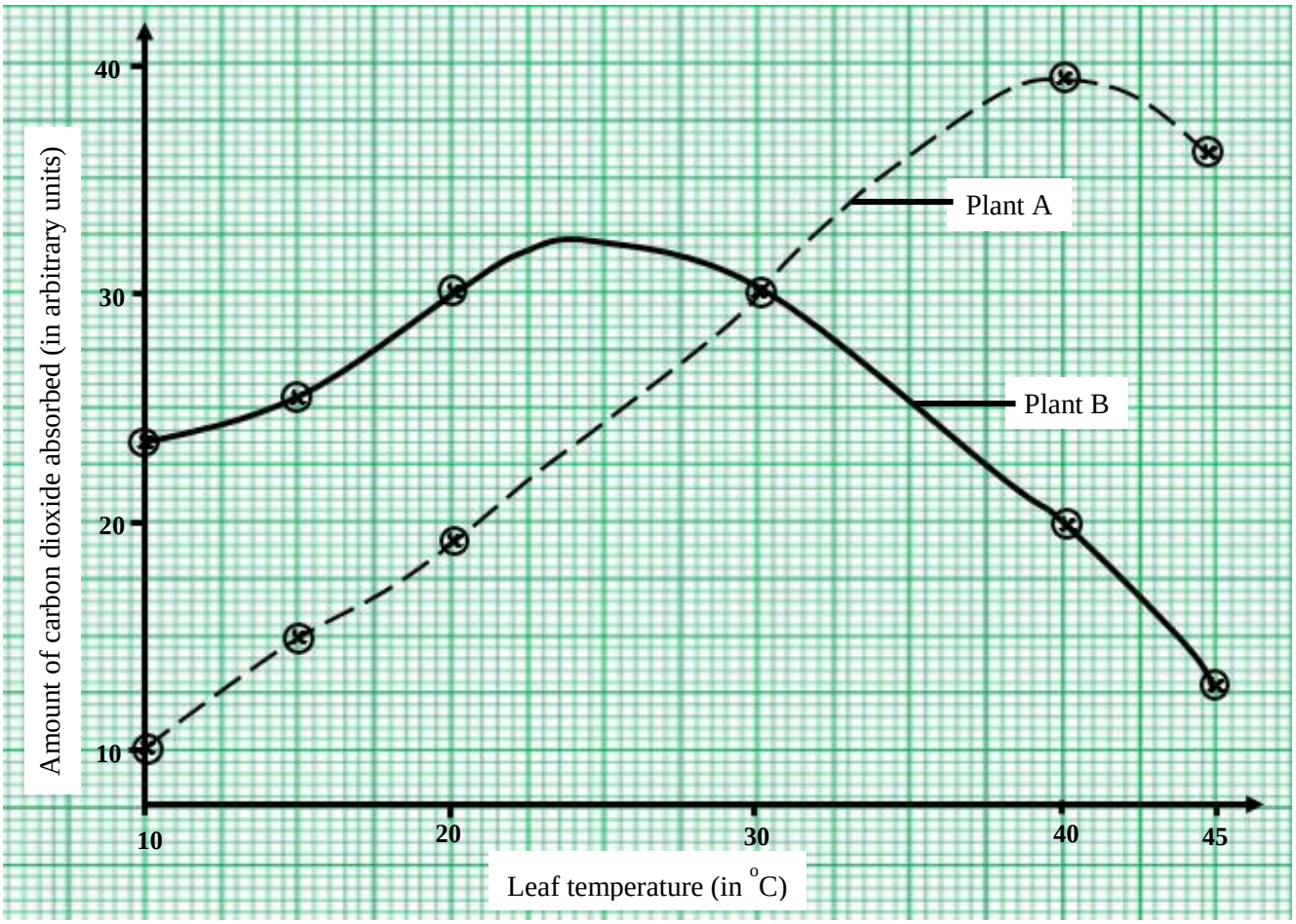

Illustration 2

(a) From illustration **1**:

(i) Describe how the rate of photosynthesis varies with temperature of the leaf. (*04 marks*)

(ii) Explain how the rate of respiration varies with temperature of the leaf. (*05 marks*)

(iii) Explain the difference in the rates of photosynthesis and respiration between leaf temperatures 40 °C and 70 °C. (*08 marks*)

(iv) Explain the relationship between respiration and photosynthesis. (*04 marks*)

(b) Compare the amount of carbon dioxide absorbed by each of the two plant species **A** and **B** in illustration **2**. (07 marks)

(c) From illustrations **1** and **2**, suggest the plant species whose rate of photosynthesis was studied in illustration 1. *Give reason (s) for your answer*. (*04 marks*)

(d) Explain any two other factors that can affect the rate of photosynthesis. (*04 marks*)

(e) Describe how carbon dioxide from the atmosphere is fixed in the bundle sheath cells. (*04 marks*)

SECTION B (60 MARKS)

2. (a) Describe the ecological significance of each of the following forms of behaviour:

(i) Territorial behaviour. (*06 marks*)

(ii) Courtship behaviour. (*07 marks*)

(b) Giving example in each case, suggest ways by which animals avoid predation. (*07 marks*)

3. (a) Describe the structure of the mature vascular tissues in flowering plants.

(*10 marks*)

(b) Explain how the movement of water from the soil provides support in a herbaceous plant. (*10 marks*)

4. (a) How is the human placenta adapted for exchange of materials between the mother and the foetus? (*05 marks*)

(b) The mammalian embryo develops inside the mother's womb before being born. Explain the importance of this type of embryo development. (*06 marks*)

(c) Describe the different exchange mechanism by which materials move between the foetus and the mother. (09 marks)

5. (a) Giving examples, describe the different functions performed by proteins in mammals. (14 marks)

(b) Explain the factors that can cause protein denaturation. (06 marks)

6. (a) State **three** major distinguishing features of gaseous exchange in fish and terrestrial insects. (*03 marks*)

(b) How is gaseous exchange in a bony fish different from that of a cartilaginous fish? (*04 marks*)

(c) How is ventilation in man controlled? (*13 marks*)

RETYPED AND REDESIGNED BY: PROFESSOR GIDEON ALEXANDER

C I B TEXTBOOKS WILL START ANSWERING THIS PAPER TWO BUT ONLY QUESTIONS THAT CUT ACROSS BOTH A'LEVEL AND O'LEVEL SOON AS IT STIL CONTNUES WITH PAPER ONE.

MARVEL BIOLOGY, ADVANCED LEVEL BIOLOGY TEXTBOOK STILL UNDER DEVELOPMENT WILL ALSO BE REFERENCED TO ESPECIALLY TOPICS THAT I HAD ALREADY FINISHED AUTHORING

I will attempt the rest of the questions from topics that I had not yet authored in MARVEL BIOLOGY textbooks that belong to only advanced level biology