GRADE 11 **JUNE EXAM 2021** **MARKS: 100**

TIME: 2 Hours

Instructions:

1. Answer ALL the questions
2. Number and answer correctly according to the numbering system used in the question paper.
3. Present your answer according to the instructions of each question.
4. Do ALL drawings in pencil and label them in blue or black ink.
5. Write neatly and legibly.

SECTION A

QUESTION 1

1.1 Various options are provided as possible answers to the following questions. Choose the answer and write only the letter (A to D) next to the question number (1.1.1 to 1.1.10) in the ANSWER BOOK, for example 1.1.11 D.

1.1.1 The generation that is dominant in flowering plants is…

A spores

B gametophyte

C sporophyte

D gametes

1.1.2 The significance of the folded nature of the lining of the small intestine in the human digestive system is to..

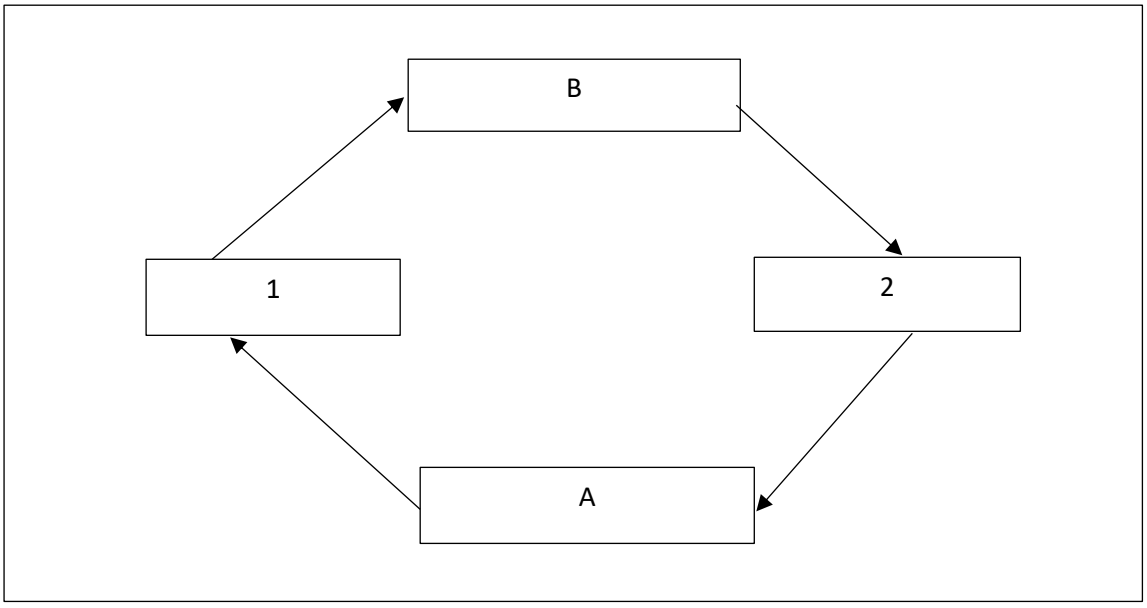
A increases digestion.

B increases secretions.

C increases surface are for absorption

D decreases surface area for assimilation.

QUESTION 1.1.3 is based on the diagram below.



1.1.3 If **A** is carbon dioxide and **B** is oxygen, then process 1 and 2 are respectively…

A cellular respiration and photosynthesis

B anaerobic respiration and fermentation

C fermentation and photosynthesis

D photosynthesis and cellular respiration

1.1.4 The following organism belongs to the phylum Platyhelminthes:

A Round worm

B Flatworm

C Rung worm

D Segmented worm

1.1.5 A vector is an organism that…

A is affected by pathogens.

B carries a disease from one organism to another.

C is autotrophic.

D improves immunity.

1.1.6 Which ONE of the following groups of organisms does the malaria parasite belong to?

A Algae

B Fungi

C Bacteria

D Protista

1.1.7 The pistil of a flower consists of the…

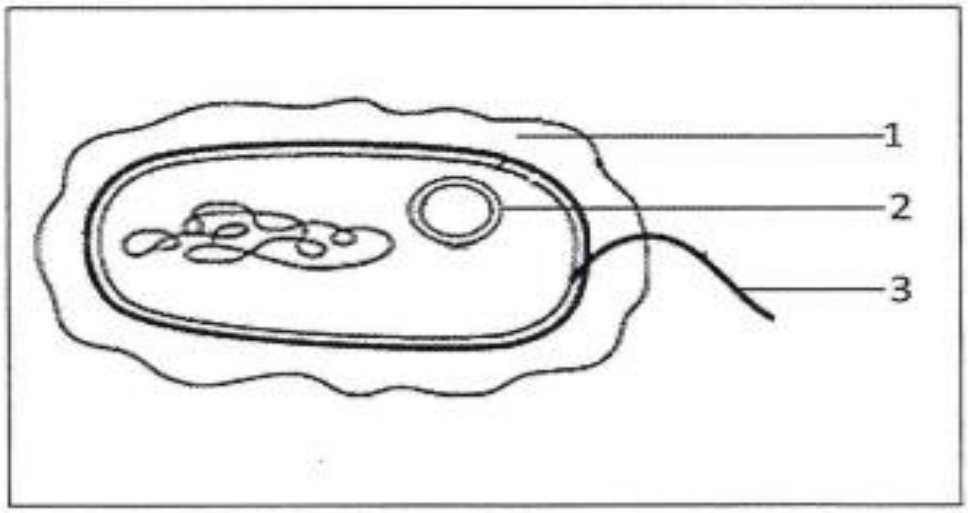
A anther, style, and ovary.

B stigma, filament, and ovary.

C anther, filament, and ovary.

D stigma, style, and ovary.

1.1.8 The diagram below represents an organism that you studied.



Which of the following represents parts **1**,**2** and **3** respectively?

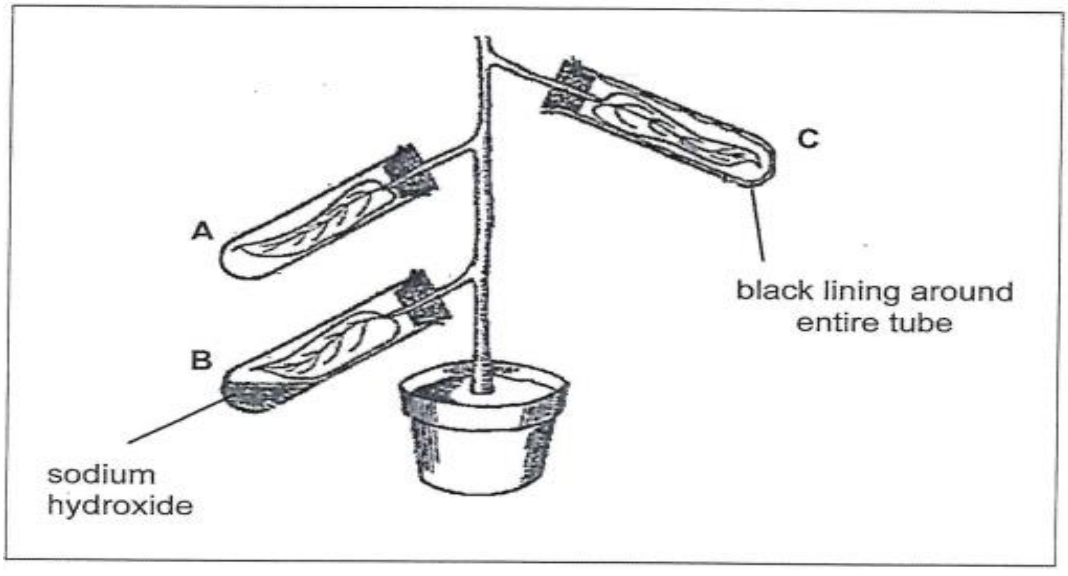
A Plasmid, flagellum, slime capsule

B Flagellum, slime capsule, plasmid

C Plasmid, slime capsule, flagellum

D Slime capsule, plasmid, flagellum

The diagram below represents a part of a potted plant showing three leaves. Each leaf is treated differently. This apparatus is used to investigate the factors essential for photosynthesis.



1.1.9 After a few hours in the sun, which of the following will give a positive result with the iodine test?

A **A** only

B **B** only

C **A** and **B** only

D **A, B** and **C**

1.10 Which ONE of the following combinations of test tube/s and aim of investigation is correct?

A Test tube **A** – to show that oxygen is given off during photosynthesis

B Test tube **B** – to show that carbon dioxide is given off during photosynthesis

C Test tube **C** – to show that light is necessary for photosynthesis

D Test tube **A**, **B** and **C**- to show that chlorophyll is necessary for photosynthesis

(10 X 1= 10)

1.2 Give the correct biological term for each of the following descriptions. Write only the term next to the question number (1.2.1 to 1.2.10) in the ANSWER BOOK.

1.2.1 A type of diet that excludes all animal products including eggs and dairy products

1.2.2 A type of anaerobic respiration that occurs in yeast cells

1.2.3 The general energy carrier in all living cells

1.2.4 Photosynthetic tissues in the leaf consisting of elongated cells

1.2.5 A group of organisms composed of multinucleate, aseptate hyphae

1.2.6 Site of the light-independent phase of photosynthesis in the chloroplast

1.2.7 A leaf that has areas containing chlorophyll and areas without chlorophyll

1.2.8 Places where seeds are stored to help preserve biodiversity

1.2.9 Structure from which a fruit develops after fertilisation

1.2.10 Animals that remain attached to a substrate for most of their lives.

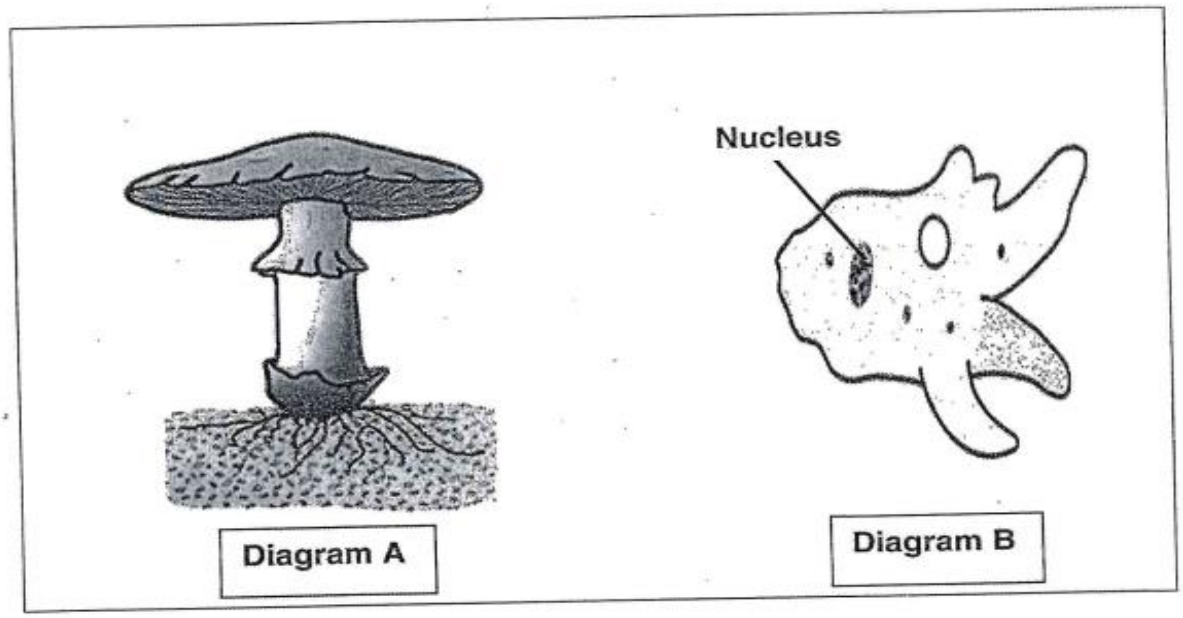
(10 X1 = 10)

1.3 Indicate whether each of the descriptions in COLUMN I applies to **A ONLY**, **B ONLY**, **BOTH A AND B** or **NONE** of the items in COLUMN II. Write **A only**, **B only**, **both A and B** or **none** next to the question number (1.3.1 to 1.3.5) in the ANSWER BOOK.

COLUMN I	**COLUMN II**
1.3.1 Gland that function as both exocrine and endocrine	A: Liver B: Pancreas
1.3.2 A plant body that has not differentiated into true roots, stems and leaves	A: Thallus B: Sorus
1.3.3 The site for cellular respiration	A: Chloroplast B: Mitochondria
1.3.4 Plants with naked seeds	A: Pteridophytes B: Bryophytes
1.3.5 A fluid filled body cavity	A: Gut B: Coelom

(5 X 2)

1.4 Study the diagrams below.



1.4.1 Name the Kingdom represented by each of the following

(a) Organism **A** (1)

(b) Organism **B** (1)

1.4.2 State TWO characteristics features of the kingdom represented by organism **A**. (2)

1.4.3 The Kingdom to which organism **A** belong is valuable to the environment.

(a) Mention **ONE** medicinal value (1)

(b) Mention **ONE** other industrial/ economic value (1)

1.4.4 Malaria is a disease caused by organisms that belong to Kingdom **B**

State **TWO** symptoms of malaria. (2)

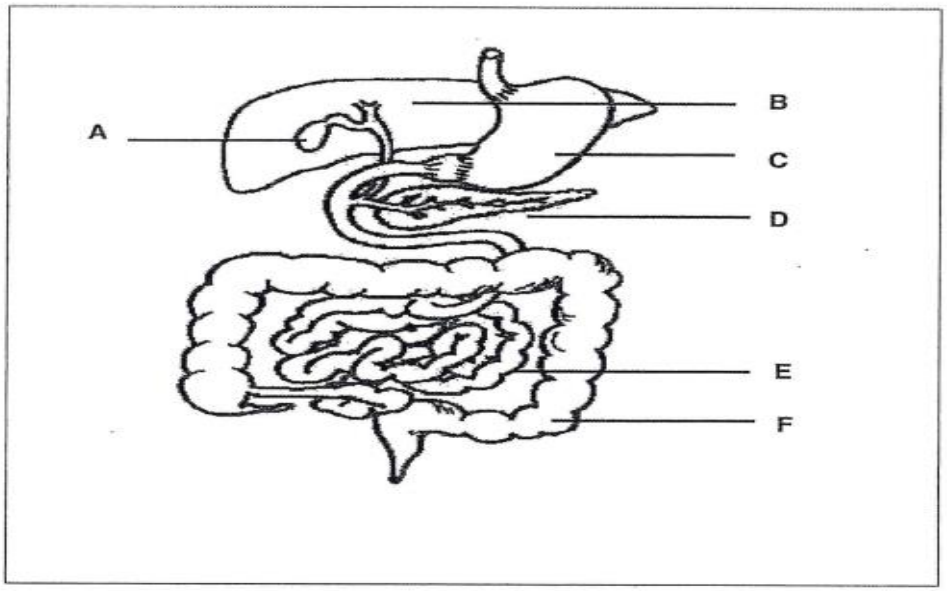
1.4.5 Explain **ONE** way how the group of organisms represented by diagram **B** play a role in maintaining balance in the environment. (2)

(10)

SECTION B

QUESTION 2

2.1 Study the diagram below showing part of the human digestive system and answer the questions that follow.



2.1.1 Identify parts **A**, **C**, **E** and **F** (4)

2.1.2 Explain **ONE** structural adaptation of the oesophagus for its function. (1)

2.1.3 Name the disease related to a high blood sugar level. (1)

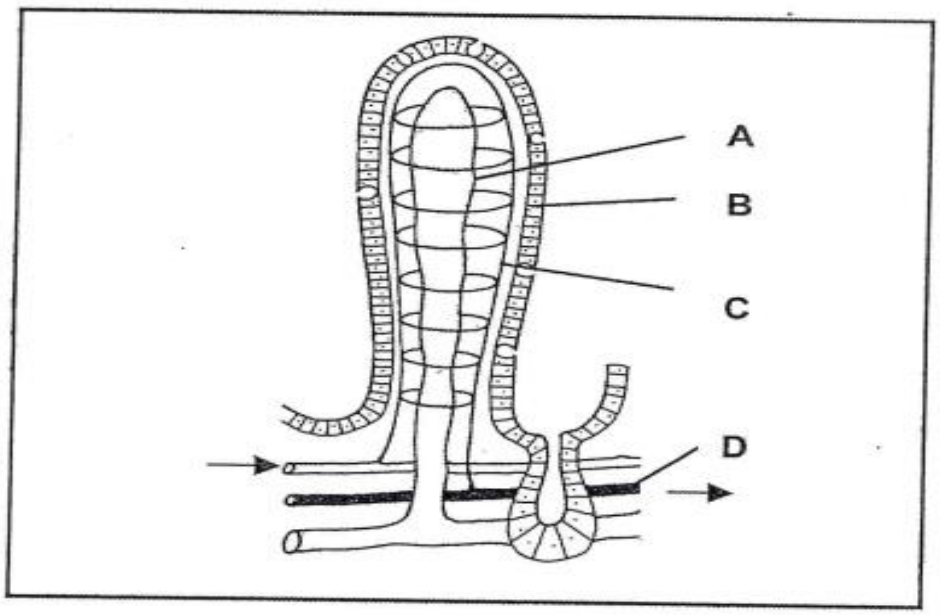
2.1.4 Describe the role of part **B** and **D** when the blood glucose level…

2.1.4.1 Decreases below normal. (3)

2.1.4.2 Increases above normal. (3)

(12)

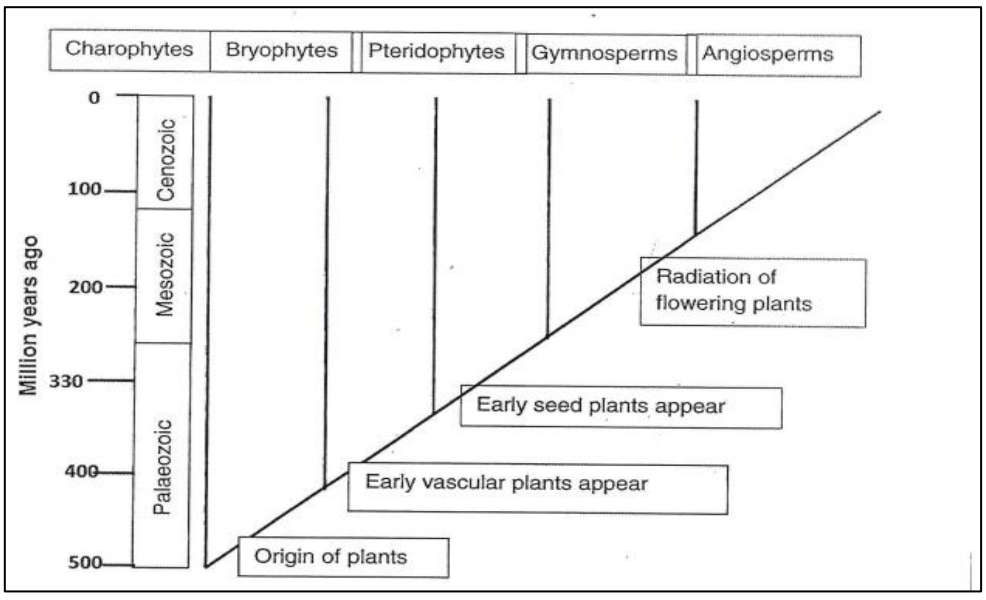
2.2 The structure below is found in the small intestine and is responsible for absorption of food.



Identify

(a) Part **A** (1)
(b) Tissue **B** (1)
(c) Part **C** (1)
(d) Vessel **D** (1)
(4)

2.3 Study the information below and answer the questions that follow.



2.3.1 What is the name given to the above diagram? (1)

2.3.2 In which era did the bryophytes first appear? (1)

2.3.3 Identify **ONE** characteristic from the diagram that is shared by pteridophytes but is absent in bryophytes. (1)

2.3.4 According to the diagram, what characteristics is shared by the gymnosperms and angiosperms only? (1)

2.3.5 Are bryophytes or pteridophytes more closely related to angiosperms? (1)

2.3.6 Give a reason for your answer in **QUESTION 2.3.5** (1)

2.3.7 State **ONE** advantages of storing seeds in seed banks. (1)

(7)

2.4 Read the extract below and the answer the questions that follow

The need for oxygen supply

Cellular respiration is the process in which cells use oxygen to produce ATP. During exercise muscles cells have to work harder which increase their demand for oxygen and thus breathing and heart rate increases to help increase the oxygen in the bloodstream. During high speed athletics, the oxygen supply is less than the demand therefore muscles begin converting glucose into lactic acid instead of energy. At the end of the race, athletes have to breath deeper and faster.

2.4.1 Name the type of respiration that requires no oxygen. (1)

2.4.2 An athlete runs very fast for 200m. When he stops running, his breathing rate and his heart rate remain high for several minutes.

Explain why his breathing rate and heart rate remain high. (2)

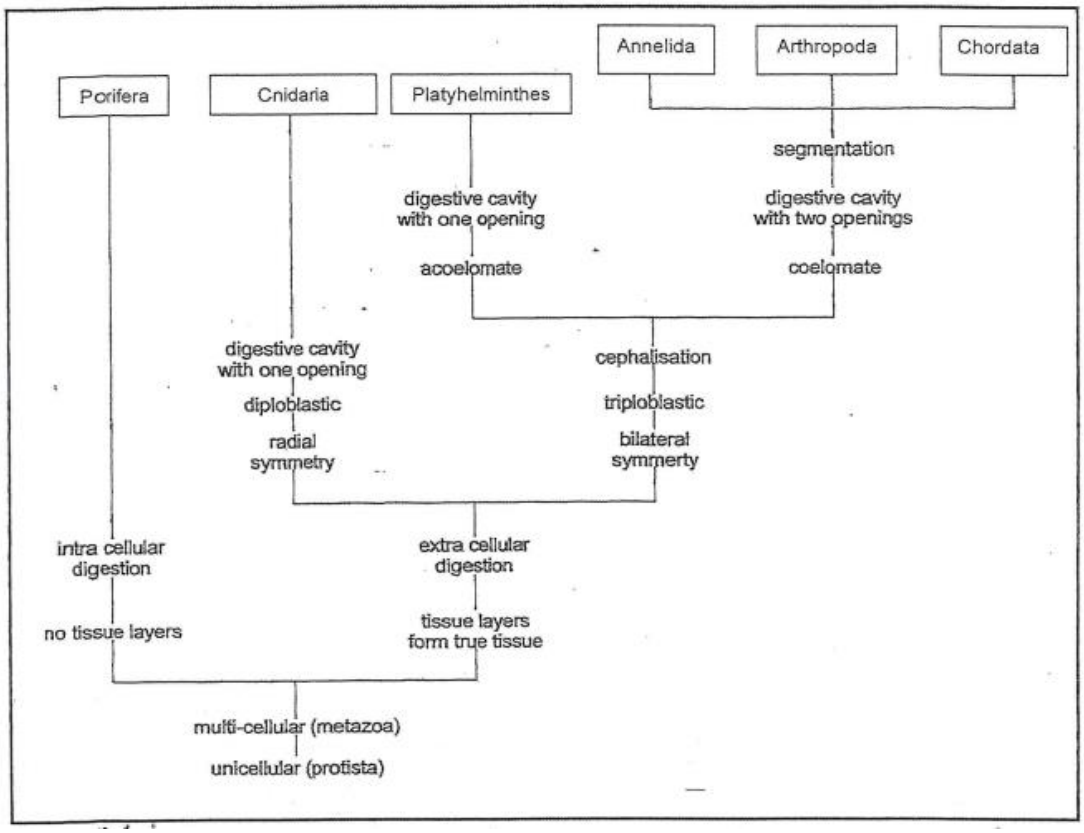
2.4.3 Tabulate **TWO** differences between aerobic and anaerobic respiration. (4)

(7)

[30]

QUESTION 3

3.1 The phylogenetic tree below shows different groups of animals.



3.1.1 Name the ancestral form of all groups of animals shown. (1)

3.1.2 List **THREE** evolutionary features, from the phylogenetic tree, that Cnidaria and Platyhelminthes have in common. (3)

3.1.3 Tabulate any **TWO** structural differences, from the phylogenetic tree, between Cnidaria and Platyhelminthes. (4)

3.1.4 State why annelids are more closely related to arthropods than to platyhelminths. (2)

3.1.5 Identify a feature of cnidarians, from the phylogenetic tree, that suits a sedentary mode of life. (1)

(11)

3.3 The table shows the effect of temperature on the rate of photosynthesis in a species of plant.

Temperature ^{o} C	Rate of photosynthesis (arbitrary units)
15	14
20	17
25	20
30	15
35	10

3.3.1 Draw a line graph to represent the data in the table. (4)

3.3.2 Why is the rate of photosynthesis low at a temperature of 15 ^{o}C (1)

3.3.3 Explain **TWO** reasons why an increase in carbon dioxide concentration may not necessarily lead to an increase in the process of photosynthesis. (2)

(7)

[30]

SECTION A = 40 **SECTION B = 60**
TOTAL = 100