

BIOLOGY ENTRANCE TEST SAMPLE PAPER

sample paper only provide
10 MCQ and 2 SAQ

Actual Paper
Total 30 MCQ + 4 SAQ

Each MCQ is 2 marks
Each SAQ is 10 marks

Instructions

1. This is a **closed-book** test.
2. It has a time limit of **90 minutes** and allows for only **ONE attempt (submission)**.
3. Alert the invigilator if you are facing technical difficulties.
4. You are to **ensure** that:
 - your laptops, computers and any other devices used for this test is in good functioning order and have uninterrupted power supply and internet connection throughout the duration of the test.
 - you are in a conducive environment throughout the duration of the test.
 - your answers are correctly saved by the end of the test.
5. You are **allowed** to use:
 - a scientific calculator.
 - a blank piece of paper (no larger than A4 size) for rough work. The paper will not be accepted for submission at the end of the test.
6. You are **not allowed** to:
 - leave the test or leave your devices throughout the duration of the test.
 - use the washroom throughout the duration of the test.
 - communicate with any person, either face-to-face or through any communication device, other than the invigilator.
 - refer to any references, e.g. textbooks, resources from a laptop or smart devices etc.
 - share materials (e.g. electronic calculator) during the test.
 - use any communication devices such as mobile phones, tablets, smart watches, headsets during the test.
7. Enter the password provided by the invigilator to start Test paper.

Section A

Choose the most appropriate answer from the options provided. Each MCQ is worth 2 marks.

Question 1

Figure 1 shows the structure of a cell. Which statement below is **CORRECT**?

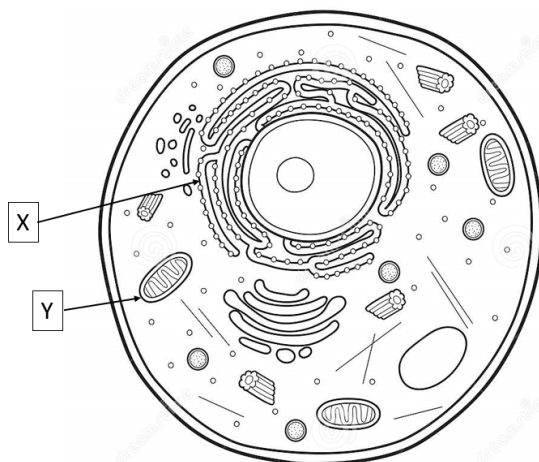


Figure 1

- A. This is an animal cell and organelle X provides the energy for the cell.
- B. This is an animal cell and organelle Y provides the energy for the cell.
- C. This is a plant cell and organelle X provides the energy for the cell.
- D. This is a plant cell and organelle Y provides the energy for the cell.

Question 2

Food sample testing was conducted and the results are shown in **Table 1** below:

| Test | Food Sample Test Result |
|-----------------|-------------------------|
| Iodine test | Blue-black |
| Biuret test | Purple |
| Emulsion test | Clear |
| Benedict's test | Blue |

Which organic molecules are most likely found in the food?

- A. Starch and glucose
- B. Protein and glucose
- C. Starch and protein
- D. Protein and oil

Question 3

Figure 2 shows the rate of activity of an enzyme-catalysed reaction. What happens when the solution becomes more alkaline, e.g., with pH 12?

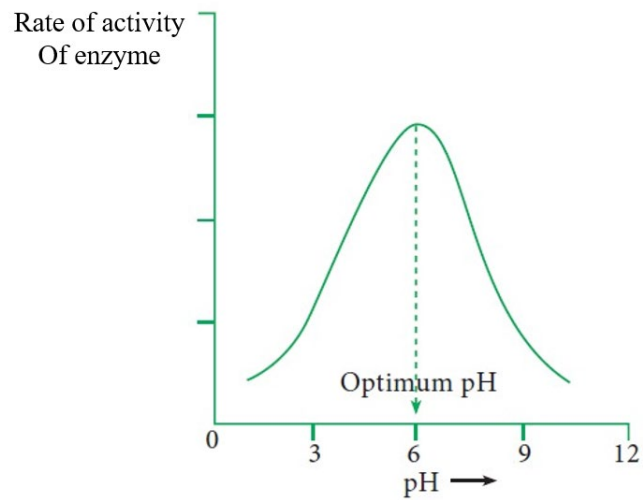


Figure 2

- A. Active site of the enzyme changes shape.
- B. Active site of the substrate changes shape.
- C. Activation energy of the enzyme increases.
- D. Activation energy of the enzyme decreases.

Question 4

Which of the following options describes “Diffusion”?

Key: “✓” = True; “x” = False

| | Occurs in any substances, e.g., gas and liquid | Takes place through a partially permeable membrane | Substances move down a concentration gradient |
|---|--|--|---|
| A | x | x | ✓ |
| B | ✓ | x | ✓ |
| C | ✓ | ✓ | x |
| D | x | ✓ | ✓ |

Question 5

Which of the following events would directly increase the area of carbon sinks in an ecosystem?

- A. Burning more plants
- B. Humans eating more meat
- C. Increasing soil stability
- D. Draining lakes

Question 6

Figure 3 shows the effect of varying light intensity and CO₂ level on the rate of photosynthesis.

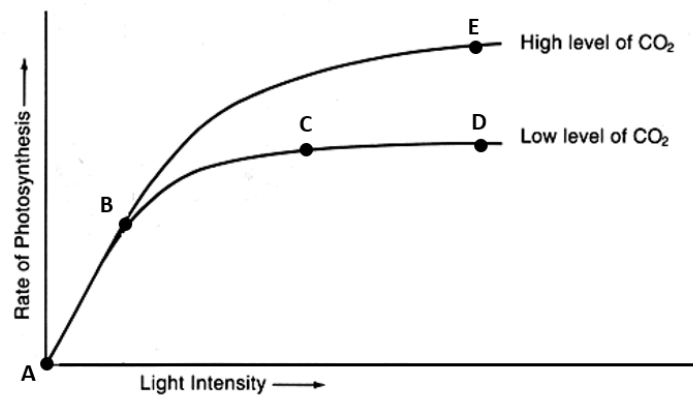


Figure 3

What is limiting the rate of photosynthesis?

- A. Light intensity between Point A to B
- B. Light Intensity between Point C to D
- C. CO₂ level between Point A to B
- D. CO₂ level between Point B to C

Question 7

Figure 4 shows a genetic condition that is genetically inherited in a family.

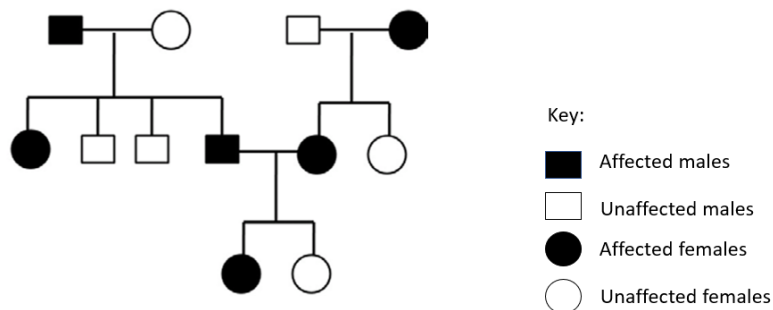


Figure 4

What does the family tree show about this condition?

- A. It could be dominant or recessive.
- B. It is co-dominant.
- C. It is dominant.
- D. It is recessive.

Question 8

Which of the following is an example of an ecological community?

- A. All the cells of a dog
- B. All the bees in a colony
- C. The people living in the same village
- D. The many types of microbes living in a human intestine

Question 9

Figure 5 shows the structure of the eye. The part labelled X is the _____, which controls the amount of light entering the pupil.

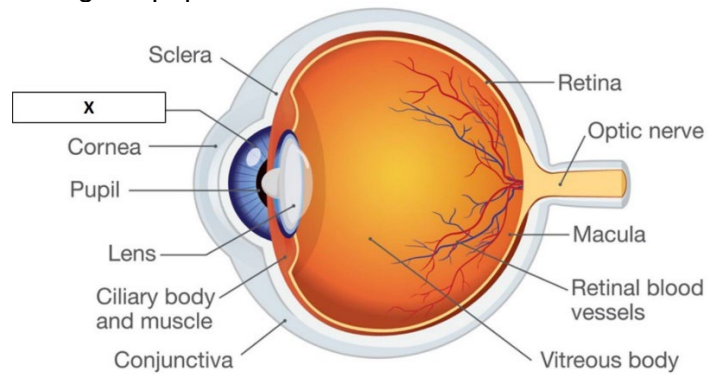


Figure 5

- A. Iris
- B. Blind spot
- C. Suspensory ligament
- D. Rectus muscle

Question 10

The diagram below shows the pathway of air flow into the body. The box labelled "X" should be _____.



- A. Pharynx
- B. Nasal passage
- C. Diaphragm
- D. Trachea

End of Section A

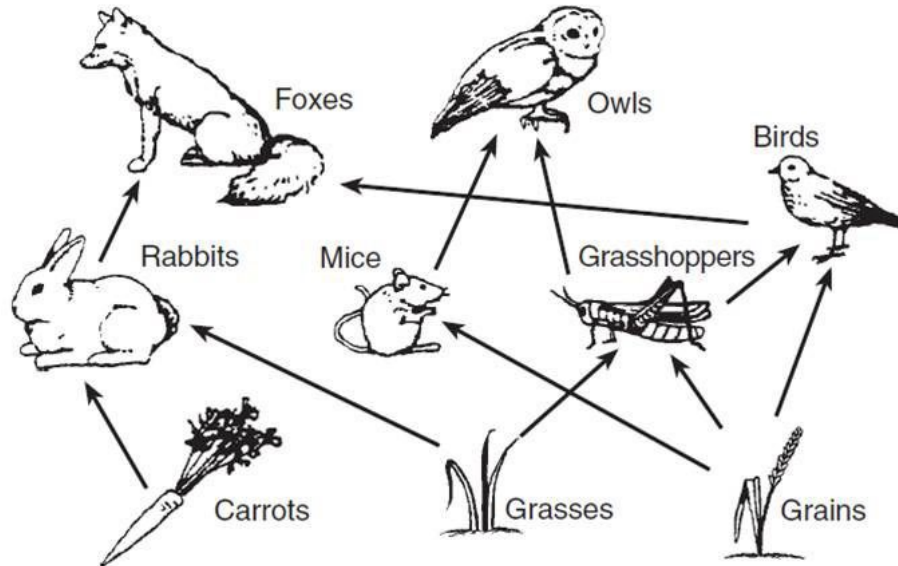
Section B

Provide your answers in the spaces below each question.

NOTE: Round off your answers to 2 decimal places, if applicable.

Question 11

Figure 6 shows a food web. Answer the following questions. **(Total marks: 10 marks)**



(Not drawn to scale)

Figure 6

a) Identify **ONE** producer and explain why it is a producer in the food web. (4 marks)

b) Identify **TWO** secondary consumers and explain why they are secondary consumers in the food web. (3 marks)

c) State **THREE** ways in which energy may be lost between trophic levels. (3 marks)

Question 12

Answer the following questions. **(Total marks: 10 marks)**

- a) Describe how carbon in the atmosphere is cycled in the Earth's ecosystem. (6 marks)

- b) Give **FOUR** reasons why phosphorus is important in the human body. (4 marks)

End of Section B

END OF PAPER