Roll No:_____

# ARMY BURN HALL COLLEGE FOR BOYS
## Model Paper – Class AS Level
## SUBJECT: BIOLOGY

**Time allowed: 30 Minutes** **Maximum Marks: 25**

## INSTRUCTIONS

- Write your Roll Number only on the top right corner.
- Do not write your name or any other information.
- Do not use lead pencil.
- Avoid erasing, cutting, overwriting, etc.
- Any sign, mark, name, etc written on Answer Script to disclose your identity will disqualify you for admission to the College.

## ATTEMPT ALL QUESTIONS

## SECTION–A (Marks 10)

**Q. 1 Multiple Choice questions. Each question carries 1 marks.**

(1) Two enzyme-controlled reactions are shown.

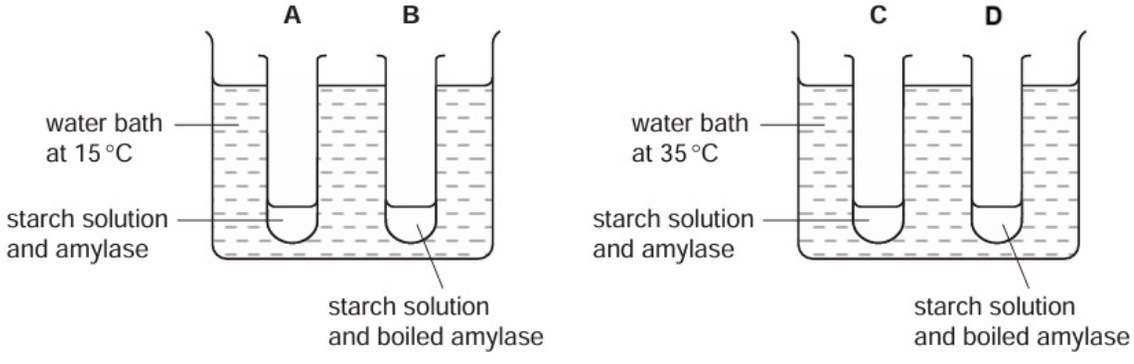
amino acids $\xrightarrow{\text{enzyme 1}}$ proteins

proteins $\xrightarrow{\text{enzyme 2}}$ amino acids

From these reactions, what deduction can be made about enzymes?

A. Enzyme 1 has been changed to enzyme 2.
B. Enzyme 2 slows down the production of amino acids.
C. Enzymes can build up large molecules.
D. Enzymes only break down large molecules.

(2) Four test-tubes were set up as shown in the diagram. In which tube is the starch digested most quickly?

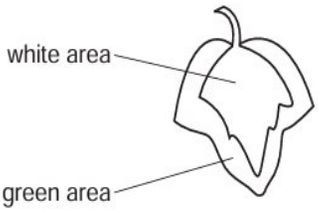


**DO NOT WRITE ANYTHING HERE**

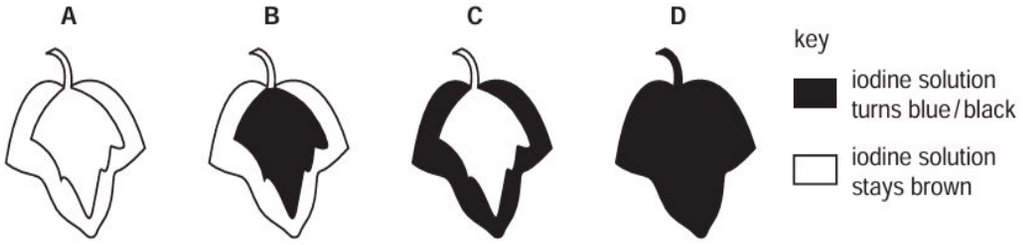
(3) Plants manufacture their own supplies of carbohydrate. What are the raw materials and the waste product of this process?

| | raw materials | waste product |
|---|---|---|
| **A** | carbon dioxide and chlorophyll | oxygen |
| **B** | carbon dioxide and water | oxygen |
| **C** | oxygen and chlorophyll | carbon dioxide |
| **D** | oxygen and water | carbon dioxide |

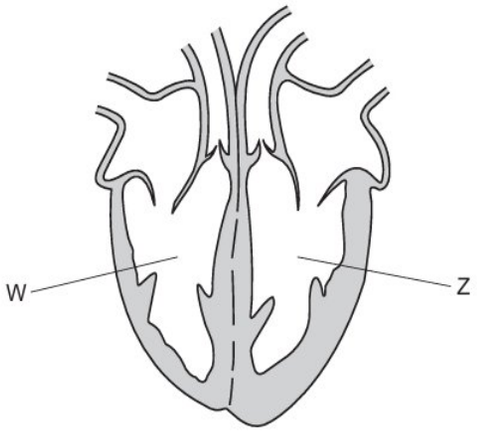
(4) In a photosynthesis experiment, a plant is left in bright sunlight for several hours. A leaf is then removed from the plant and tested for starch, using iodine solution. The diagram shows the leaf from the plant that was used in the experiment.




Which diagram shows the result of the experiment?




(5) The diagram shows the human heart and some of the blood vessels connected to it.




Before blood in W reaches Z it must

A. gain glucose.
B. give up heat to the skin.
C. pass through capillaries.
D. travel to the head.

**Q. 2 Fill in the blanks:** **[5]**

(1) Water is lost by the leaves by the process of _____.

(2) When a bright light suddenly shines to a person's eye, the lens becomes _____.

(3) If a person has low platelets level it means its _____ process is slower.

(4) For the test of reducing sugars _____ reagent is used.

(5) Urea is made in _____ of the body.

## SECTION–B (Marks 15)

### Structured/Short Answer Questions

**Attempt all questions.** **(3×3 = 9)**

Q.1 Ecologists study plants and animals in their natural environment. Some ecologists inserted probes into the water-conducting tissue in trees, as shown in Fig. 1.1.The ecologists measured the time taken for water to move up from probe 1 to probe 2.

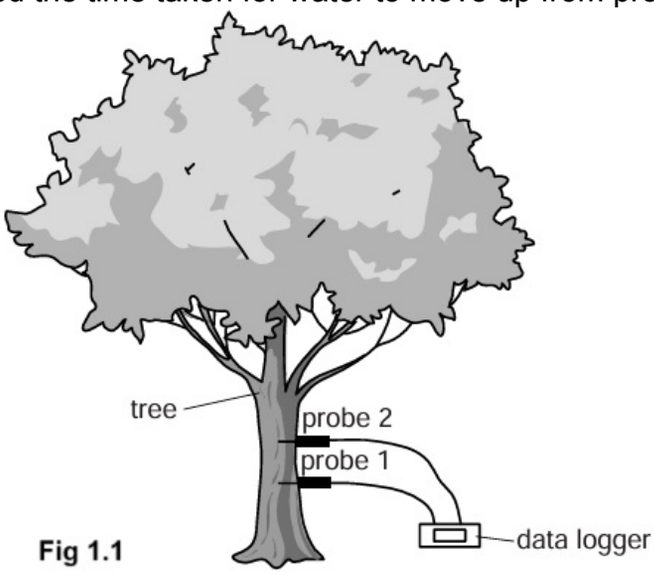



Fig 1.1

(i) Name the water-conducting tissue into which the two probes were inserted. **[1]**

(ii) Describe how the structure of water-conducting tissue is adapted to its function. **[2]**

Total [03]

Q.3 (a) Define the term genetic engineering. **[3]**

(b) Fig. 2.1 is a flow diagram that shows how insulin can be produced using genetic engineering. **[3]**

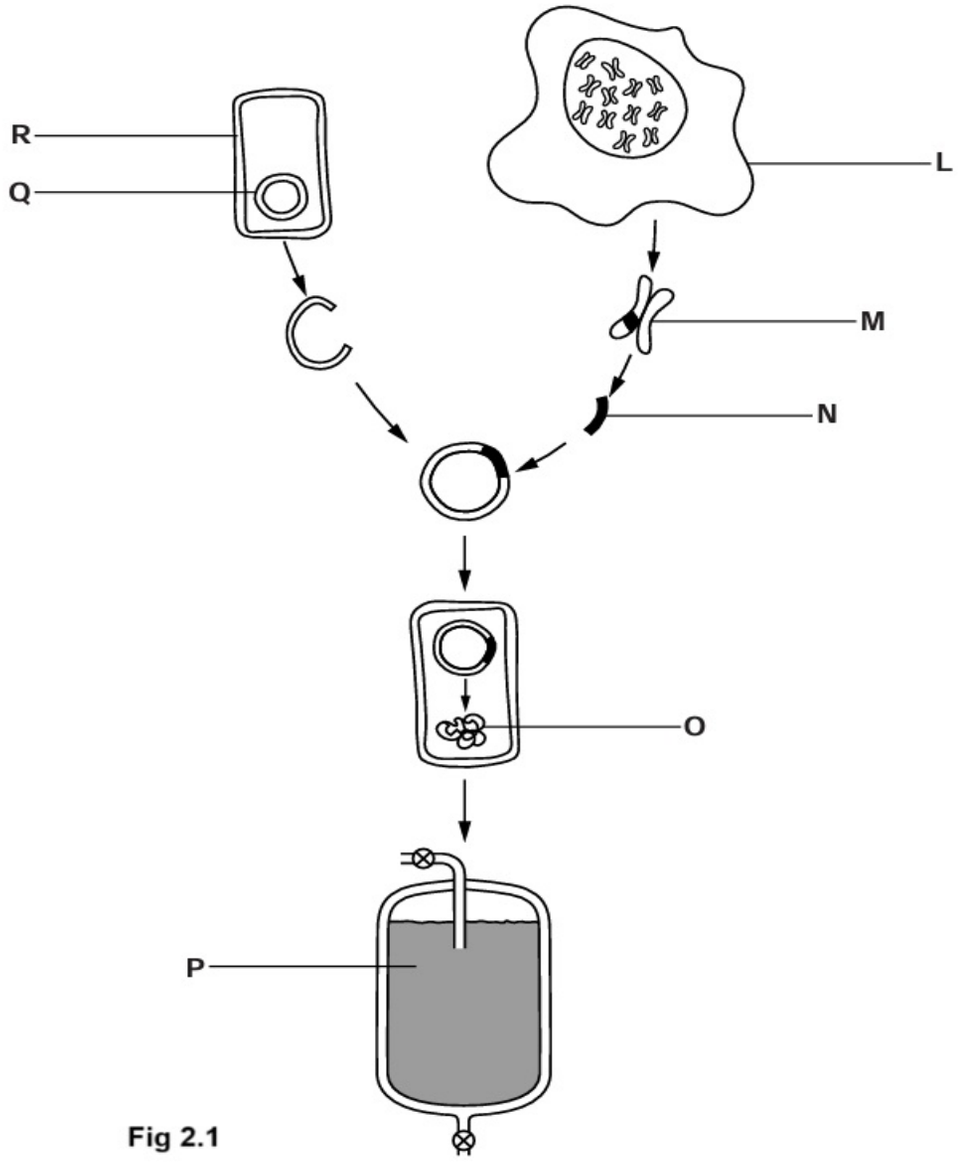



Fig 2.1

The genetically engineered cells in Fig. 2.1 reproduce asexually. Explain the advantages of asexual reproduction for insulin production by genetic engineering.

Total [07]

**Long Question:**

Q.4 Haemoglobin is a large protein molecule. The structure of each haemoglobin molecule is controlled by a gene that has two alleles:

- HbA codes for the normal form of haemoglobin,
- HbS codes for an abnormal form of haemoglobin.

◦ Red blood cells containing only the abnormal form of haemoglobin become a stiff, sickle shape in conditions of low oxygen concentration. This gives rise to sickle cell anaemia.

◦ Describe the harmful effects on the body of having red blood cells which become sickle-shaped.

Total [06]