

**THE UNITED REPUBLIC OF TANZANIA  
MINISTRY OF DEFENCE AND NATIONAL SERVICE  
MILITARY SCHOOLS AND ASSOCIATION.  
FORM FOUR MILITARY EXAMINATION 2026,  
MARKING SCHEME**

**BIOLOGY 2B**

1. (a)

| FOOD TESTED                    | PROCEDURES                                                                                                                                                                                                                                                                                                  | OBSERVATION                                                                                                                 | INFERENCE                           |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| STARCH<br><br>00½              | 2cm <sup>3</sup> of Solution J was added to a test tube, followed by 2 drops of iodine solution, then shaken gently. 0½ mark                                                                                                                                                                                | The mixture turned into blue black. 00½                                                                                     | Starch was present 00½              |
| REDUCING SUGAR<br><br>00½      | 2cm <sup>3</sup> of solution J was added in test tube, 2cm <sup>3</sup> of Benedict's solution were added then boiled. 0½ mark                                                                                                                                                                              | A series of colour changes was observed in the mixture, from blue to green to yellow to orange and finally to brick red 00½ | Reducing Sugar was present. 00½     |
| NON- REDUCING SUGAR<br><br>00½ | 2cm <sup>3</sup> of Solution J was added in test tube, 1cm <sup>3</sup> of dilute hydrochloric acid was added, boiled then cooled, followed by addition of 1 cm <sup>3</sup> of sodium hydroxide solution for neutralization, then 2cm <sup>3</sup> of Benedict's solution was added and reboiled. 0½ marks | A series of colour changes was observed from blue to green to yellow to orange and finally to brick red. 00½                | Non reducing sugar was present. 00½ |
| PROTEIN<br><br>00½             | 2cm <sup>3</sup> of solution J was added in test tube.<br>2cm <sup>3</sup> of sodium hydroxide solution was added followed by 1% of copper II sulphate solution drop by drop while shaking after each drop. 0½ mark                                                                                         | The mixture retained the blue colour of copper II sulphate solutions. 00½                                                   | protein was absent. 00½             |
| LIPIDS<br><br>00½              | 2cm <sup>3</sup> of solution J was added in test tube, 3 drops of Sudan III solution were added and shaken vigorously and left to settle for five minutes. 0½ mark                                                                                                                                          | The solution formed a homogenous mixture with Sudan (III) solution. 00½                                                     | Lipid was absent. 00½               |

TOTAL = 15 marks

- 01 -



b). Natural sources of

a. Starch are maize, rice and cassava

b. Reducing sugar are ripe mangoes, tomato, germinating millets, onion

c). excess food from solution J is stored as glycogen in liver and body muscles

d). because pancreas secretes insulin hormone which deals with accelerating of glucose into the liver also stimulate liver to convert glucose to glycogen

e). because insulin is secreted directly in the blood streams then transported to the liver for conversion process

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2. (a) Specimen's common names.

- A. Bee
- B. Earthworm
- C. Frog
- D. Groundnut plant

1 @ = 04

| ORGANISM                | KINGDOM      | PHYLUM/DIVISION      | CLASS              |
|-------------------------|--------------|----------------------|--------------------|
| (A (Bee) 00½            | Animalia 00½ | Arthropoda 00½       | Insecta 00½        |
| B (Earthworm) 00½       | Animalia 00½ | Annelida 00½         | Oligochaeta 00½    |
| C (frog) 00½            | Animalia 00½ | Chordate 00½         | Amphibia 00½       |
| D (Groundnut plant) 00½ | Plantae 00½  | Angiospermophyta 00½ | Dicotyledoneae 00½ |

= 08

(c) Economic importance's of Specimen A are:

- i. Used as the source of food such as honey.
- ii. Used in pollination in plants.
- iii. Used in biological control.
- iv. Used in biological studies.
- v. Cause death to other living things.
- vi. Improve soil fertility.

1½ @ = 12 (only six points)

Features of Kingdom plantae

- i. They are multicellular organisms
- ii. They have eukaryotic cells.
- iii. They are autotrophs
- iv. They have cellulose cell wall
- v. They store food as starch

1 @ = 04 (only four points)



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**FORM FOUR PRE-NATIONAL EXAMINATIONS AUGUST 2026**  
**BIOLOGY 2A MARKING SCHEME.**

1. (a) (i) Blue black colour was observed.

(ii) Sample A contained starch. @ 02marks = 04 marks

(b) (i) Protein and lipids. 02 marks.

Protein: When 2mls of Sodium hydroxide solution were added in test tube 1 followed by drops of 1% Copper Sulphate solution while shaking, a purple/violet colour was observed to confirm the presence of protein in Solution B.

Lipids: When two drops of Sudan III solution were added in test tube 2 containing 2mls of Solution B and the mixture was shaken well then left to settle, a red ring formed on top of the mixture to confirm the presence of lipids.

@justification 03 marks = 06 marks.

(ii) Starch -provides energy to the body.

Protein -Promotes growth.

-Builds the body and repair worn out tissues.

- Makes protoplasm, enzymes, antibodies, hormones.

Lipids -Provide energy to the body

-Protects vital organs such as a heart and kidneys by acting like shock-absorbers.

any 1 function in each case @ 02marks = 06mark

(b) (iii) Starch, vitamins, minerals and roughage/water

@ 01 mark = 04 marks.

(c) Maltase, peptidase (Erepsin) and Lipase.

@ 01mark = 03 marks

**GRAND TOTAL = 25 marks.**

2. (a) (i) P-Spider

S-Moss plant

Q-Hibiscus Flower

T-Cactus stem

R-Butterfly

U-Tilapia fish/bony fish

@00<sup>1</sup>/<sub>2</sub> = 03 marks.

| (ii) Specimen  | Kingdom  | Phylum/Division  |
|----------------|----------|------------------|
| P(spider)      | Animalia | Arthropoda       |
| S (Moss plant) | Plantae  | Bryophyta        |
| T(Cactus stem) | Plantae  | Angiospermophyta |
| U(Tilapia)     | Animalia | Chordata         |

**@00<sup>1</sup>/<sub>2</sub> mark = 04 marks.**

- (b) -It simplifies the study of living things.  
 -Makes communication easy among biologists.  
 - Enables man to identify and name numerous organisms.  
 -Helps to understand evolutionary relationship of organisms.  
 -Scientists can predict characteristics of an organism basing of those of its group.

**any 3 points @ 01mark = 03 marks.**

- (c) -It Lacks antennae  
 - It has two body parts  
 -It possesses eight legs (4 pairs of legs)

**@01 mark = 03 marks**

(d) (i). It is a reproductive structure. **01 mark**

(ii) Best pollinator: Insects **01mark**

Reasons: - It has nectaries used by insects as food.

- Has brightly coloured petals to attract insects.
- It has large, sticky pollen grains to stick to the insect's body.
- It has sticky stigma for pollen grains to stick on them.
- Stigmas and anthers are firmly held to protect them from insect's destruction.

**any 3 points @ 01 mark = 03 marks.**

- (iii) - It causes production of seeds for continuation of life.  
 - Fruits are produced some of which are used as food by animals.  
 - Increases the population of such plants.  
 - It shows the development of species in order to preserve it and avoid vanishing.  
 - Maintains good and desirable traits within the species.

**any 3 points @ 01 mark = 03 marks.**



- (e)
- Source of food to human and other animals.
  - Provide income to fishing communities.
  - Some of its products can be processed into chicken feed and glue.
  - Fish oils are useful sources of medicine.
  - Some are kept in aquarium and used as pets or for ornamental purposes.
  - Some bony fish are used in biological studies and research.

**any 4 points @ 01mark = 04 marks.**

**GRAND TOTAL = 25 marks.**

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