

CHRISTIAN SOCIAL SERVICES COMMISSION (CSSC)
NORTHERNZONEJOINTEXAMINATIONSSYNDICATE(NZ-JES)



FORM FOUR PRE–NATIONALEXAMINATION2026
BIOLOGY 2B
MARKING SCHEME

QUESTION 1

(a) Specimen P = Onion (contains reducing sugar)

Food Test Report (Table 1)

Test For	Procedures	Observation	Inference
Starch	To 2mls of solution M in a test tube, 4 drops of Iodine solution was added. Then the mixture was well shaken.	Colour of the solution retained the colour of iodine solution	Starch was absent.
Reducing sugar	To 2mls of solution M in a test tube, 3cm ³ of Benedict's solution was added. Then the mixture was boiled.	The colour of the solution changed from blue to green, yellow, orange, finally brick red precipitate	Reducing sugar was present.
Protein	To 2mls of solution M in a test tube, 3 drops of Sodium Hydroxide solution were added followed by 3 drops of 1% Copper (II) Sulphate solution. Then the mixture was well shaken.	The colour of the solution retained the colour of of 1% Copper (II) Sulphate solution	Protein was absent.

@½ = 06 Marks

(i) Five procedures used to prepare solution M

1. Specimen M was peeled using a knife
2. Peeled specimen M was cut in to small pieces using a knife
3. The pieces were grinded using mortar and pestle
4. About 50 mls of distilled water was added
5. The mixture was filtered using sieve to obtain a clear filtrate labelled **Solution M**.

@1 = 05 Marks

(ii) Why was boiling important?

Boiling was important because:

- It provides heat needed for Benedict's reagent to react with reducing sugars.
- It speeds up the chemical reaction.
- It allows the brick-red precipitate to form if reducing sugar is present.

Any one reason @1 = 1 Marks

(iii) Three other sources of reducing sugars

- Grapes
- Ripe banana
- Carrots

Any 3 sources @1 = 3 Marks

(b) Specimen N = Groundnuts

(i) Procedure for preparing specimen N(Procedures @1 = 3 Marks)

- Peel the specimen N / Specimen N was peeled
- Rub the peeled specimen N on a piece of white paper
- Expose the filter paper to the light and compare the part of the paper rubbed with seeds with the part that was not

(ii) Food Test Report (Table 2) (@1 = 4 Marks)

Food tested	Procedures	Observation	Inference
Lipids (Fats/ Oils)	The peeled specimen N was rub on the filter paper	A permanent translucent greasy spot observed	Lipids (fats/oils) was present

(iii) Three functions of lipids (@ 1 = 3 Marks)

1. Store energy for the body/ source of energy in the body.
2. Provide insulation against heat loss.
3. Protect internal organs from mechanical injury.
4. Forming cell membranes
5. Aiding absorption of fat-soluble vitamins.

QUESTION 2

(a) Common names of the specimens (@1 = 4 Marks)

Specimen Common name

I	Bird/ chicken
J	Maize seedling
K	Housefly
L	Bean seedling

(b) Specimens J and L are in the same division but different classes

Both belong to **Division Angiospermophyta (Flowering plants)**.

Similarities (same division) (@1 = 3 Marks)

1. Both produce flowers.
2. Both produce seeds enclosed in fruits.
3. Both undergo double fertilization

Differences (different classes) (@1 = 3 Marks)

J (Maize seedling) – Monocotyledonae	L (Bean seedling) – Dicotyledonae
One cotyledon.	Two cotyledons.
Parallel leaf venation.	Reticulate (net) leaf venation.
Fibrous root system.	Tap root system.
Long and thin leaves	Short and broad leaves

(c) Three diseases transmitted by housefly (Specimen K) (@1 = 3 Marks)

Houseflies act as mechanical vectors by carrying disease-causing microorganisms from faeces and garbage onto food.

Diseases transmitted include:

1. Cholera
2. Typhoid
3. Dysentery
4. Trachoma

(d) Two characteristics common to Bird and Housefly (@2 = 4 Marks)

Both belong to **Kingdom Animalia**.

Common characteristics:

1. Both are multicellular organisms.
2. Both are capable of locomotion (movement).
3. Both possess nervous system
4. Both undergo heterotrophic nutrition

(e) Four adaptations of a bird for survival @ 2 = 4 Marks)

1. Streamlined body reduces air resistance during flight.
2. Wings with feathers enable flight.
3. Hollow (pneumatic) bones make the body light.
4. Strong breast (pectoral) muscles provide power for flying.
5. Beak adapted to feeding habits
6. Sharp eyesight, claws for perching/catching prey, and air sacs for efficient respiration.