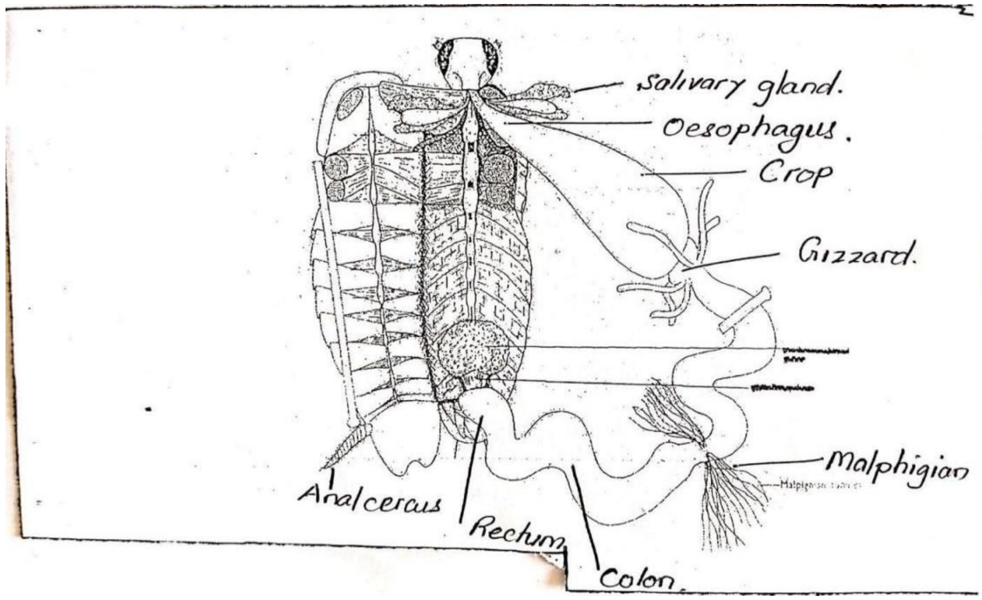
CHRISTIAN SOCIAL SERVICES COMMISSION (CSSC)
NORTHERN ZONE JOINT EXAMINATIONS SYNDICATE (NZ-JES)

FORM SIX PRE-NATIONAL EXAMINATIONS 2026
133/3A BIOLOGY 3A

MARKING SCHEME

1. **A WELL LABELED DIAGRAM OF A DISSECTED SPECIMEN A1 TO SHOW THE VISCERAL GENERAL.**

Labeled diagram of female cockroach to show digestive and excretory system



Labeled diagram of male cockroach to show digestive and excretory system

MARKS ALLOCATION

Title......................(1 mark)

Correct diagram.....................................(2mark)

Magnification.............................(1/2 mark)

O.S.A...(5marks)

(Any five labeled part @ 1/2 marks = total 2.5 mark)

(a) i. **MALE** – Have narrow abdomen

- Have anal style

FEMALE – have wide abdomen

- Absence of anal style (**1 mark).**

ii. **BUCCAL CAVITY** – It hydrolyses starch into maltose

OESOPHAGUS – It pushes food into the crop

CROP – It stores food temporary

GIZZARD – For grinding the food

MESENTRONE - It produces digestive enzymes such as amylase, maltase, lipase and protease

ILEUM – Absorption of digested food materials (**0.5Mark@)**

iii. The color of the blood of the specimen A1 is not red it is colourless due to the absence of hemoglobin. The blood of the cockroach is known as hemolymph. **(2 marks)**

iv. **Cannibal** species **(1 marks)**

v. – In specimen A1, an open type blood vascular system is present. Blood does not flow through the blood vessel, rather blood or hemolymph is pumped into the body cavity.it consist of haemocoel, heart and hemolymph. Therefore, specimen A1 do not have blood vessel. **(2.5 marks)**

2 (a) (i) The mixture retained the brown color of iodine solution **(1 mark)**

(ii)Starch was absent in solution z **(1 mark)**

(a)(i)The mixture retained the blue color of Benedicts solution **(1 mark)**

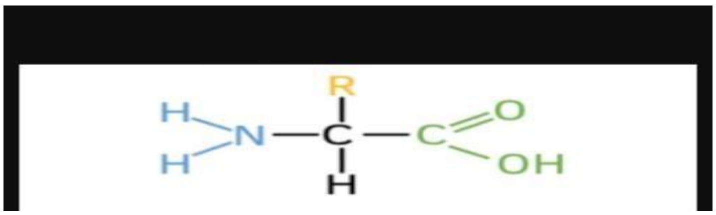
(ii)Reducing sugar was absent in solution z **(1 mark)**

(b)

i. Purple colour was observed in the resulting mixture **(1 mark)**
ii. Protein was present in solution z **(1 mark)**

(c)i. Protein

i. Peptide bond **(1 mark)**
ii. Structure of amino acid **(2 marks)**



iii. The food present in solution z is not stored in the body, when in excess, it is removed from the body by deamination process which occur in the liver **(2 marks)**
(stored/not stored – 1mark, explanation 1 mark)
iv. Biuret test **(1 mark)**
v. In the presence of dilute CUSO4 in alkaline solution, nitrogen atoms in the peptide chain form purple complex (copper II ions (CU^{2+}) **(2 marks)**

3.(i)

Specimens	Common name
W1	Housefly
W2	Butterfly
W3	Bettle
W4	Cockroach
W5	Grasshopper
W6	Spider
W7	Moss plant

(3.5 marks)

ii) The features do all the specimens **W1, W2, W3, W4, W5, W6** have in common and the mode of feeding of each specimen

- They have jointed legs
- They have exoskeleton made of chitin
- They have segmented body (**1.5 marks)**

iii) Construct a simple numbered key that would separate specimens **W1, W2, W3, W4, W5 and W6. (5 marks)**

1.(a) Wings present..go to 2
(b) Wings absent…..spider
2.(a) One pair of wing...Housefly
(b)Two pair of wings...go to 3
3.(a) Outer wings harder...beetle
(b) Outer wing soft..go to 4
4.(a) Scale present on wings…..butterfly
(b) Scale absent on wings…..go to 5
5.(a)body shaped flattened dorsal ventrally..cockroach
(b) body shaped not flattened dorsal ventrally..grasshopper

(iv) Distinctive features of the division in which specimen **W7** belong

- They have a dominate gametophyte generation
- They do not have vascular system
- They have homosporous
- They have leaflike structure (thallus) and rootlike structure (rhizoids) with no true leaves**. (1.5 mark).**

Reasons

- Specimen W7 is partially adapted to live on land **(1mark).**
- It depends on water for gametes to swim during fertilization **(1mark).**

The organs in mammals with similar functions as those organ mention in specimen **w5**.

Organs of specimen W5	Organs of mammals
Spiracle	Lung
Antennae	Skin
Tympanum	Ears

(1.5 marks)