PRESIDENT'S OFFICE

REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

ADVANCED CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

MOCK EXAMINATION SOUTHERN ZONE

(MTWARA AND LINDI)

133/3A **BIOLOGY 3A**

MARKING SCHEME

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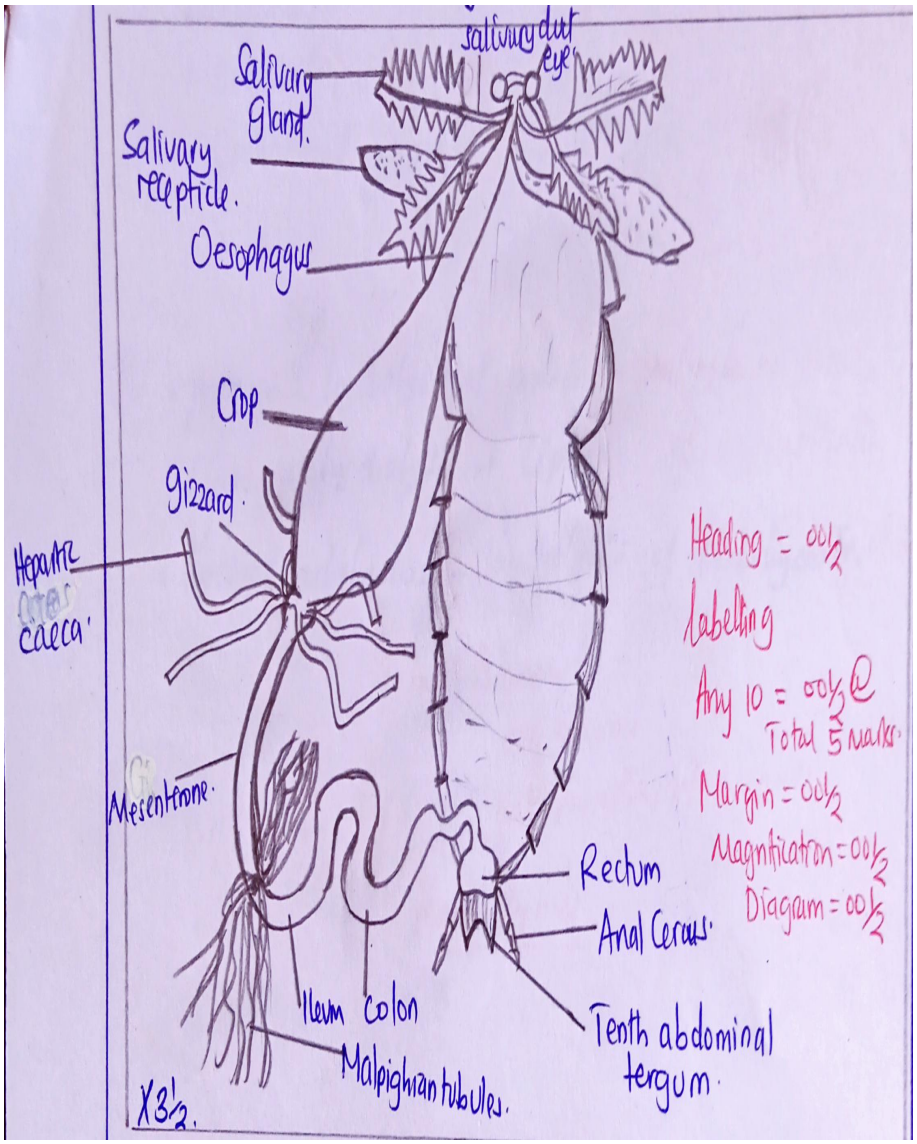
1. (a) A WELL LABELED DIAGRAM OF SPECIMEN R-COCKROACH.



(b) (i) The gizzard **(00$\frac{1}{2}$ marks)**

(ii) Rectum **(00$\frac{1}{2}$ marks)**

(c) (i) Malphigian tubule **(01 marks)**

(ii) Adaptations

* Posses numerous endothelial cells for selective reabsorption. **(00$\frac{1}{2}$ marks)**
* Presence of branch border cells that increase the surface area for rate of simple diffusion. **(00$\frac{1}{2}$ marks)**

(d) (i) Male sex due to; **(00$\frac{1}{2}$ marks)**

* Tests
* Vas differes
* Mushroom gland

∗ Ejaculatory (**00$\frac{1}{2}$ marks**)

OR

(ii) Female due to; (**00$\frac{1}{2}$ marks**)

∗ Ovaries

∗ Oviducts

∗ Collecteral gland. (**00$\frac{1}{2}$ marks**)

(e) Proteace- hydrolysis of protein (**@00$\frac{1}{2}$ = 01 marks**)

Lipase- hydrolysis of lipids (**@00$\frac{1}{2}$ = 01 marks**)

Carbohyadrase- hydrolysis of carbohydrate (**@00$\frac{1}{2}$ = 01 marks**)

2. (a) The reason for peeling the onion is to remove the died cells. **(02 marks)**

   (b) The role of clean sand in the experiment is for easy griding and softening of onion pieces. **($02\frac{1}{2}$ marks)**

   (c) In order to obtain a clear solution. **(02 marks)**

   (d) When the obtained clear solution together with Benedict's solution was boiled and cooled down, the mixture solution was changed from blue, green, yellow, orange and finally brick red preciipitate form. **($02\frac{1}{2}$ marks)**

   (e) Conclusion, reducing sugar present in onion bulb. **(02 marks)**

   (f) Function of reducing sugar(carbohydrate)

      (i) Used in synthesis of RNA and ATP eg Ribose **(01 marks)**

      (ii) Used in synthesis of Deoxyribonucleic acid DNA. **(01 marks)**

      (iii) Glucose is a source of energy when oxidized **(01 marks)**

      (iv) Reducing sugar such as glucose used in the synthesis of disaccharide and polysaccharide example starch **(01 marks)**

      NOTE: Answer should be based on reducing sugar

3. (a) Q=Moss plant **(00$\frac{1}{2}$ marks)**

R=Cactus plant **(00$\frac{1}{2}$ marks)**

Y=Millipede **(00$\frac{1}{2}$ marks)**

X=Butterfly **(00$\frac{1}{2}$ marks)**

(b) Adaptation of specimen R(cactus)

(i) Cactus plant have wide and deep roots that absorb rain water and reach the underground water. **(01 marks)**

(ii) Have leaves that are reduced to spines to reduce water loss through transpiration. **(01 marks)**

Adaptation of specimen Q(Moss plant)

(i) They have limited height(they are small) to overcome problems associated with lack of vascular tissues, water and mineral salt can move by capillarity in short stem. **(01 marks)**

(ii) They posses rhizoid for anchorage on soil as well as absorption of water and mineral salts. **(01 marks)**

(c) Consider

SPECIMEN	KINGDOM	PHYLUM/DIVISION	CLASS
Q	Plantae **(00$\frac{1}{2}$)**	Bryphyta **(00$\frac{1}{2}$)**	Bryopsida **(00$\frac{1}{2}$)**
R	Plantae **(00$\frac{1}{2}$)**	Magnoliophyta **(00$\frac{1}{2}$)**	Magnoliopsida **(00$\frac{1}{2}$)**
Y	Animalia **(00$\frac{1}{2}$)**	Arthropoda **(00$\frac{1}{2}$)**	Diplopoda **(00$\frac{1}{2}$)**
X	Animalia **(00$\frac{1}{2}$)**	Arthropoda **(00$\frac{1}{2}$)**	Insecta **(00$\frac{1}{2}$)**

(d) (i) Both are plant, belong to plant Kingdom. **(01 marks)**

(ii) Both are autotrophs. **(01 marks)**

(e) Butterfly attracted to bright flower and feed nectar, when they feed its body collect pollen and carry it to other plants.
So it help in pollination of flowering plants. **(01 marks)**