PAPER 3 (PRATICAL)

YEAR 2017

SPECIMEN;

A---- Winged termite

B---- Maggot (freshly procured)

C---- Adult butterfly with open wings

D---- Caterpillar (freshly procured)

E---- Grasshopper

F---- Carrot with leaves attached (freshly procured)

G---- Irish potato

H----Adult mosquito

J---- Adult cockroach

Q---- Housefly

R---- Earthworm (dead, freshly procured in a petri dish containing water)

S---- Cross section of unripe mango fruit

T---- Cross section of tomato fruit

QUESTIONS AND ANSWER

- Name the phylum to which specimens C and E belong
  - Specimen C (Adult butterfly) and E (Grasshopper) belong to the phylum Arthropoda

- State two reasons for the answer to the question above; name the phylum to which specimens C and E belong…
  - Jointed appendages
  - Presence of chitinous

- State three observable structural differences between the following specimens;

I. C and D
II. C and E

	Specimen C(Adult butterfly)	Specimen D (caterpillar)
•	Presence wing	No wing
•	Presence of antennae	Absence of antennae
•	Legs are longer	Legs are shorter

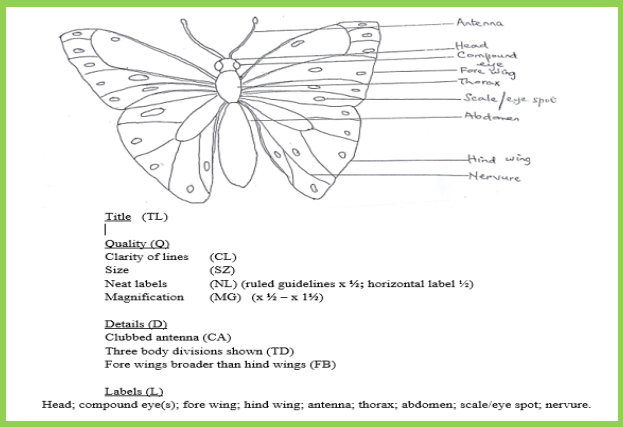
	Specimen C(Adult butterfly)	Specimen E (Grasshopper)
•	Presence of proboscis	Presence of mandibles
•	Wings are pigmented	Wings have uniform colour
•	Abdomen is hairy	Abdomen is not hairy

❖ What is the relationship between specimens C and D
Specimen C (Adult butterfly) is the adult stage of specimen D (caterpillar)
Specimen D (caterpillar) is the larva stage of specimen C (Adult butterfly)

❖ Name the habitat of specimen D (caterpillar)
They can be found in vegetables, citrus leaves, fruits.

❖ State two ways in which specimen D (caterpillar) is adapted to its habitat
Mandibles for chewing
Presence of spiracles for gaseous exchange

❖ Make a drawing, 8cm-10cm long of the dorsal view of specimen C(Adult butterfly) and label.



Title (TL)

Quality (Q)
Clarity of lines (CL)
Size (SZ)
Neat labels (NL) (ruled guidelines x ½; horizontal label ½)
Magnification (MG) (x ½ – x 1½)

Details (D)
Clubbed antenna (CA)
Three body divisions shown (TD)
Fore wings broader than hind wings (FB)

Labels (L)
Head; compound eye(s); fore wing; hind wing; antenna; thorax; abdomen; scale/eye spot; nervure.

- State three observable features of biological importance in;
  i. Specimen F
  ii. Specimen G

  Observable features of biological importance in specimen F (carrot with leaves)
  1. Presence of lateral roots
  2. Presence of foliage leaves
  3. Presence of short stem

  Observable features of biological importance in specimen G (Irish potato)
  1. Presence of lenticels
  2. Presence of buds
  3. Swollen stem

- Classify specimens F and G as either stem tuber or root tuber and give two reasons each for each answer.
  Specimen F (carrot with leaves) is Root tuber
  Two reasons for answer;
  1. Swollen tap root
  2. Presence of lateral roots

  Specimen G (Irish potato) is stem tuber.

  Two reasons for answer;

  1. Presence of buds
  2. Presence of lenticles.

- Classify specimens H (Adult mosquito) and J (Adult cockroach) into the class to which they both belong.
  They belong to the class; Insecta.

- State four observable differences between specimens H and J

	Specimen H (Adult mosquito)	Specimen J (Adult cockroach)
•	Body is cylindrical	Body is dorsal-ventrally flattened
•	Presence of proboscis	Presence of mandibles
•	They have thin legs	Presence of thick/large legs
•	Absence of spines on legs	Presence of spines on legs

- State four observable similarities between specimens H (Adult mosquito) and specimen J (Adult cockroach)
    1. Presences of jointed appendages.
    2. Presences of pair of antennae
    3. Presence of pair of compound eyes
    4. Both body is divided into head, thorax and abdomen

- State the feeding habit of each of the specimens H and J
  Feeding habit of specimen H (Adult Mosquito) is piercing and sucking
  Feeding habit of specimen J (Adult cockroach) is biting and chewing

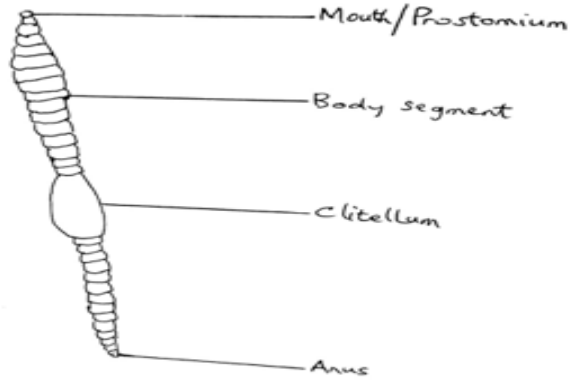
- Name two observable features used for feeding specimen J (Adult cockroach)
    1. Mandible
    2. Labium

- Name the phylum of specimen R (Earthworm) and state two reason for the answer
  Annelida
  Two reason for the answer
    1. They are bilaterally symmetrical
    2. Presence cheatae

- State the habitat of specimen R (Earthworm)
    1. Under decaying leaves
    2. Wet and moist soil.

- State two structural features that adapt specimen R (Earthworm) to its habitat
    1. Moist skin for gaseous exchange
    2. Slimy body that reduces friction during movement

- State three ways in which specimen R (Earthworm) is of economic importance.
    1. It enriches and improves soil fertility
    2. It is used as bait for fishing
    3. It aerates the soil
- Make a drawing, 8cm-10cm long of the dorsal view of specimen R and label fully.



Title (TL)

Details (D)

Clarity of lines	(CL)
Size	(SZ) (8cm – 10cm long)
Neatness of labels	(NL)
Magnification	(MG) (x1 – x2)

Quality (Q)
Segments shown (SS)
Presence of clitellum (PC)
Tapering/pointed ends (TE)

Label (L)
Mouth/prostomium; clitellum; body segment(s); anus.

- What type of fruit are specimens S (Cross section of unripe mango fruit)
  And T (Cross section of tomato fruit)
  Specimen S----Drupe
  Specimen T---- Berry

- State four observable differences between specimens S and T

	Specimen S	Specimen T

•	The seed is large	The seed is small
•	Basal placentation	Axile placentation
•	Hard endocarp	Soft endocarp
•	Fibrous mesocarp	Succulent mesocarp

❖ State four observable similarities between specimens S and T

1. They are both fruits
2. They both have placenta
3. They both seeds
4. They both fleshy mesocarp