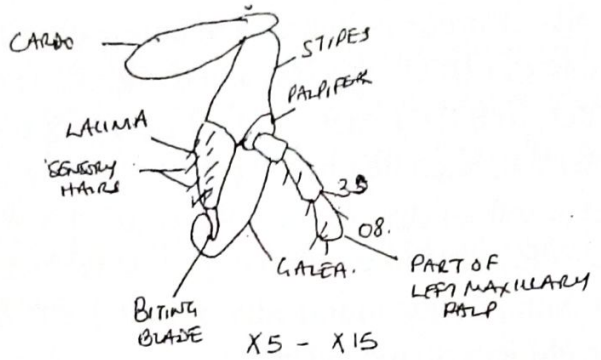
WAKISSHA JOINT MOCK EXAMINATIONS
MARKING GUIDE
Uganda Advanced Certificate of Education
UACE August 2019
BIOLOGY P530/3

1. (a) i) Order: Dictyoptera
   - A pair of anal cerci.
   - Dorso – ventrally flattened abdomen

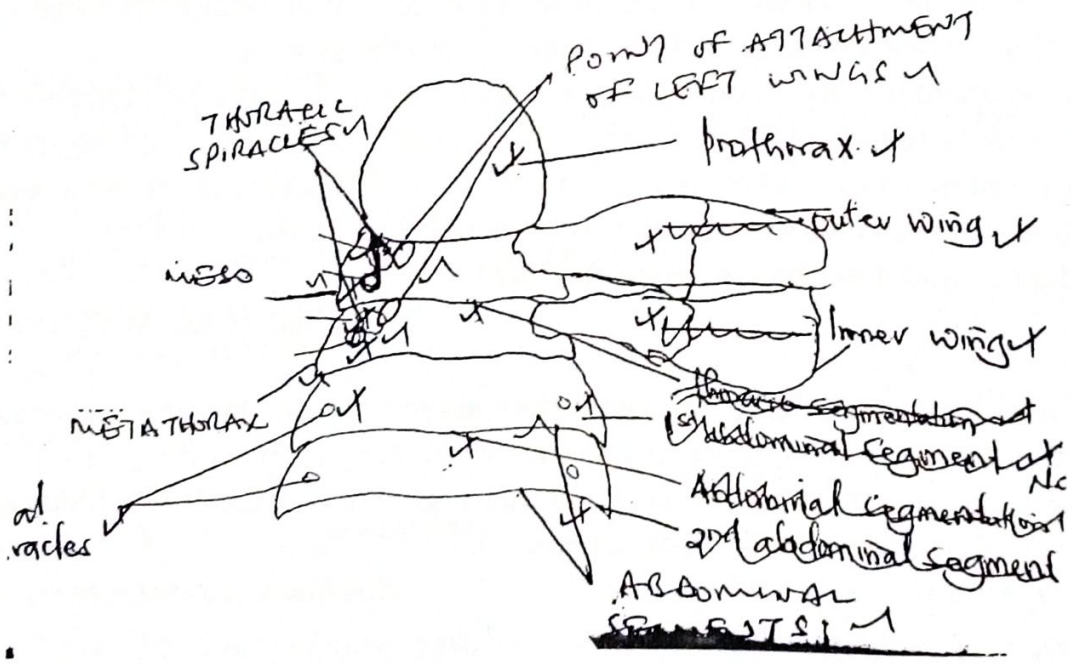
(01½ marks)

ii) Drawing showing the anterior view of whole mouth part associated with three left maxillary palp segments observed under low power.



T – 0½
D/L – 5 MAX
M - 0½
N - 0½
L - 0½
S - 0½
08 MARKS

(b) Drawing showing structure on the thorax of specimen O including two Abdominal segments.

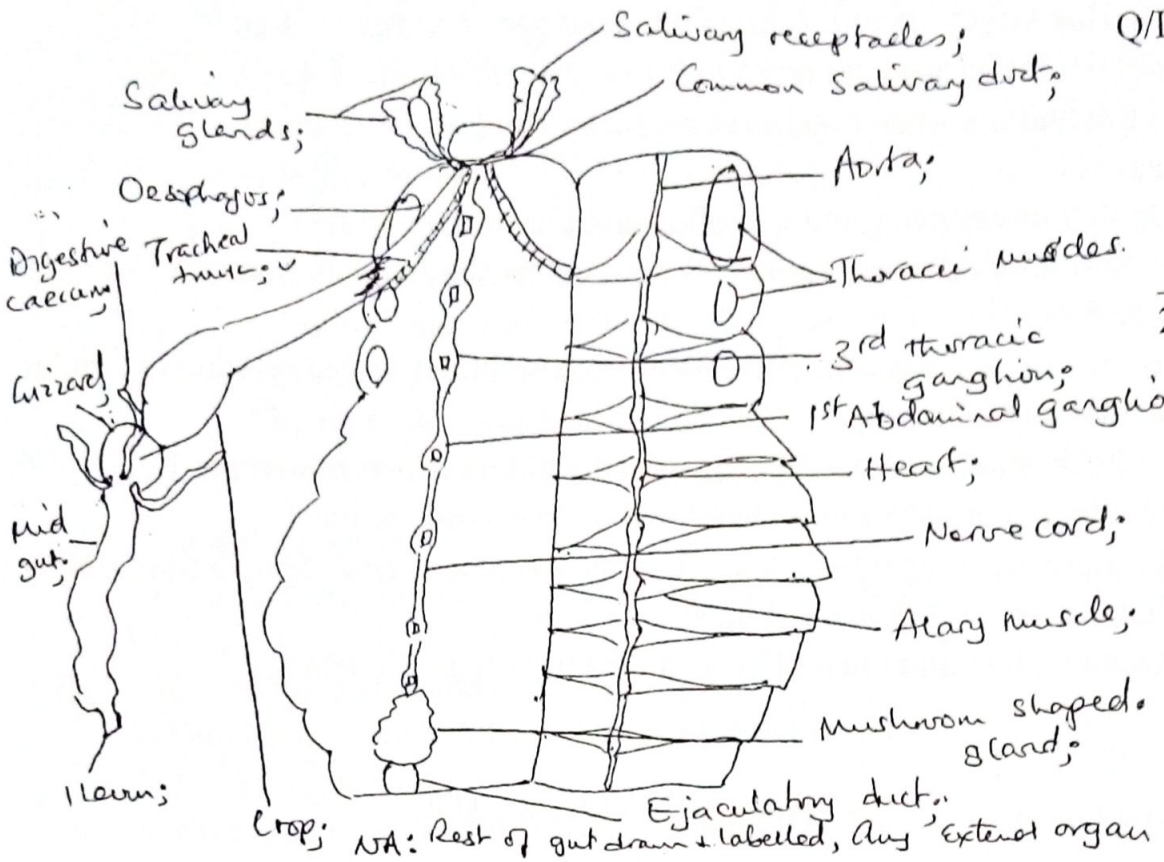


T - 0½
D/C – 7 MAX
M - 0½
N - 0½
O - 0½
S - 0½
No head - 0½
2AS - 0½
10½ MARKS

x2 range x1 – x3

(c) Drawing of internal structures of specimen O with part of Gut not involved in Digestion removed.

T - 01
Q/L – 16MAX
M - 01
N - 01
O- 01
D/C - 01
A/C - 01
22 MARKS



(a) TABLE 1 RESULTS

	TIME	0	2	4	6	8	10
FLASK							
	A	60 °C	58 °C	56 °C	52 °C	48 °C	45 °C
	B	60 °C	56 °C	54 °C	50 °C	44 °C	40 °C
	C	60 °C	52 °C	50 °C	48 °C	40 °C	38 °C

(Award trend of drop) ***(06 marks)***

2 (a)(i) Photocopy graph on graph paper and insert.

2 (a)(ii) **Similarities**

In A_{11}, temperatures begin at 60^0C.

In all the gradual decrease in temperature with flone.

Differences

- C recorded lowest temperature followed by B and lastly A.
- C temperature decreased rapidly, B moderately white A temperature decrease was gradual.

2 (a)(iii) Explaining the temperature differences in experiment 1: and relating to similar occurrence.

- Tube A; in animals occupying varied habitats which is covered fully; looses less heat/ conserves more heat; and occupy cold habitats;
- Partially covered tube B lost moderate amount of heat/ temperature; likely to inhabit warm/ tropical habitats;
- Open C; lost more heat; likely to inhabit hot/ arid habitats;

(b) TABLE 2 – INITIAL READING

Tubes	A_1	B_1	C_1
Temperature immediately after boiling	30 °C	40 °C	50°C
Temperature recorded after 2 minutes	28 °C	38 °C	48 °C

(03 marks)

NOTE: To maintain time interval, Heat/ boil and wait for 2 minutes to take the final temperature recording.

(i) Comparing the results: in table 1 and 2 for each tube

Similarity: Both show loss in heat /temperature.

Difference 1: More heat is, lost in the tubes in table 2 in a short time while in experiment 1, less is lost.

Difference 2: Fully plugged tube shows that less heat is lost compared to the open tube.

(ii) Heating for 2 minutes in tube A; less heat is acquired by water; leading to a low temperature;

Heating for longer time (4 minutes); leads to more heat; leading to moderate temperature/ heat gained.

Heating for longest time (6 minutes); leads to highest temperature

(c) Relationship between results of this experiment and physiological processes in biotic/ living systems.

(i) More insulated body surfaces as in Flask A experiment 1; loose less heat to surrounding; example animals in cold regions.

(ii) Flask C shows that when left open; more heat is lost; comparable to animals whose body surfaces have less insulation; those whose surface area to volume ratio is large (baby).

(iii) In table 2; it shows that the source of temperature in living systems is from heat obtained from surrounding by conduction; convection; radiation; and from within the body via metabolic reactions and the more /longer the exposure, the more heat gain.
The more the heat gained; the larger/ higher the internal body temperature; which has to be regulated homeostatically.

3. (a) An infloresence;
Possess many florets/ flowers on the same peduncle/ main stalk/ axis

(b) K – Peduncle expanded apex;
- Numerous florets of two types; (ray and tubular)
- Florets crowded
- Arranged in a circular patterns with tubular florets enclosed by ray florets
- Florets sessile
- Large involunre of bracts
- Tubular florets at a higher level than ray ones
- Florets closely packed

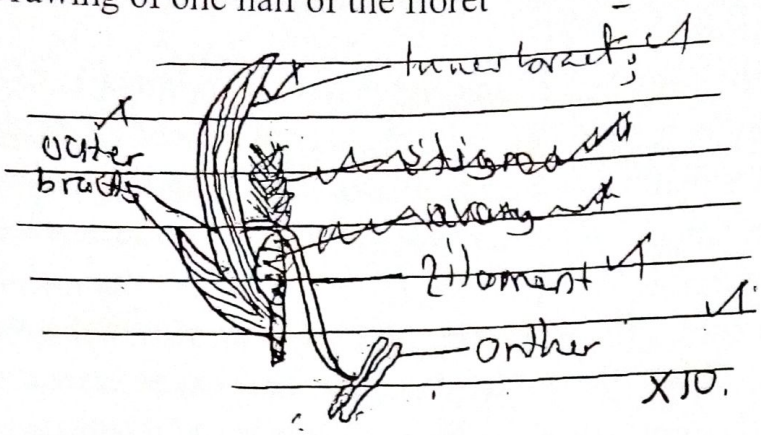
M – Numerous spikelets/ florets;
- Peduncle has branches some ultimately arranged others whorl arrangement;
- Branches shorten to the apex of the florescence
- Each branch has a sessile and florets
- Spikelets attached along the stalked main axis
- Some florets/ spikelets are bisexual others unisexual;

(c)

Floret	K	L
Petals	- Brightly coloured - Fused anthers	Lacks petals
Androecum	- Many anthers - Low filaments	Bilobed anthers; slender filaments; lo filaments; hairy outside; bilobed anthers; elongated anthers; enlarged anthers
Gynoecuem	- Inferior ovary - Forked stigma - Long style	Lack gynoecurm

Max 6 marks

ii. Drawing of one half of the floret



T - $0\frac{1}{2}$
D – 02
L - 02
M - $0\frac{1}{2}$
N - $0\frac{1}{2}$
L - 01

$06\frac{1}{2}$ MARKS

(d)

1 (a) Specimen posses pistil 2
(b) Specimen lacks pistil L

2 (a) Specimen posses superior ovary 3
(b) Specimen posses inferior ovary K

3 (a) Specimen posses long filament M
(b) Specimen posses short filament N

Identification = 04 marks

Dichotomy = $0\frac{1}{2}$

Order (L-N) = $0\frac{1}{2}$

05 marks

END