WAKISSHA
MARKING GUIDE
Uganda Advanced Certificate of Education
BIOLOGY P530/1

SECTION A (40 MARKS)

1.	C	11.	D	21.	C	31.	C
2.	D	12.	B	22.	A	32.	A
3.	C	13.	B	23.	D	33.	B
4.	B	14.	C	24.	C	34.	B
5.	A	15.	C	25.	A	35.	A
6.	C	16.	D	26.	A	36.	B
7.	D	17.	C	27.	B	37.	C
8.	A	18.	B	28.	D	38.	D
9.	A	19.	B	29.	B	39.	B
10.	B	20.	D	30.	D	40.	D

SECTION B

41. (a) Is the maintenance of a constant osmotic pressure of an organism; irrespective of changes in the external environment; **(2 marks)**

(b) - Maintenance of constant body fluid composition for metabolic activities;
- Increases environmental independence;
- Regulation of salt and H_2O concentration for proper functioning of cells.
(3 marks)

(c) (i) Aldosterone is released through the conversion of angiotensinogen to antigiotensin; and
- causes more reabsorption of Na^+ in the; increasing blood pressure;
(3 marks)

(ii) ADH is released when concentration of salts is high /low water; and increases permeability of the collecting duct to water; **(2 marks)**

42. (a) (i) provides a space in which organs can be suspended; and allows body wall and gut to move independently;
- serves as a hydrostatic skeleton in soft bodied organism; **(3 marks)**

(ii) Provide opportunity for different segments to specialize for different functions;
- Allows for an effective means of locomotion e.g. in fish; **(2 marks)**

(b) (i) Aquatic animals use gills; which need to be suspended in water; (WTTE) but collapse on land;
(3 marks)

(ii) Eggs and sperms can be shed in water which is absent on land; thus sperm must be deposited inside female; internal fertilization. **(2 marks)**

43. (a) (i) Na^+ ion channels in resting state, K^+ ion channels closed; **(2 marks)**

(ii) Na^+ ions chennels open, K^+ion channels still closed; **(2 marks)**

(iii) K^+ ion channels open; Na^+ channels closed; **(2 marks)**

(b)

Myelinated	**Non-myelinated**
- presence of myelin sheath	- Absence of myelin sheath;
- Nodes of ranvier	- Absent;
- Bigger diameter	- Smaller diameter of fibra;
- Impulses travel faster	- Impulses travel at a slower speed;

(4 marks)

44. (a) (i) Carbohydrate reserves were used up by the third day of starvation; as carbohydrates are the first reserve to be used; but they supply energy for a short time in the absence of food; **(3 marks)**

(ii) Fats are utilized when carbohydrates are used up; and supply energy for a longer time; Fats are broken down in the liver to produce fatty acids; which are used instead of glucose for respiration; quantity remains constant as stores are exhausted; **(4 marks)**

(iii) In the first week of starvation muscle protein is used as a source of energy; its use ceases until fats run out; it reduces in the final phase of starvation as a respiratory substrate before death; **(4 marks)**

45. (a) (i) is the amount of $C0_2$ produced over the amount of O_2 consumed; in a given time. **(1 mark)**

(ii)

1.0	carbohydrate	total darkness;
0.7	protein	prolonged darkness;
0.5	oil	germination of lipid rich seeds;

(3 marks)

(b) (i) Respiration and pHs are enzyme controlled reactions, lower temperature lowers enzyme activity; and rate of gaseous exchange reduces; **(3 marks)**

(ii) One rate of respiration would increase; to increase metabolic rate; to maintain a constant body temperature; **(3marks)**

46. (a) (i) Insight leaving (1 mark)

(ii) - involves higher centers of the brain;
- perfected by repetition / training;
- uses past experience; **(3 marks)**

(b) (i) Hen – makes several attempts to reach food but fails; so hen has less developed brain; to learn from past experience; WTTE **(3marks)**

(ii) Dog – makes few attempts and finally finds food; Dog has well developed brain; capable of reasoning; **(3 marks)**

END