WAKISSHA JOINT MOCK EXAMINATIONS
MARKING GUIDE
Uganda Advanced Certificate of Education
UACE August 2017
BIOLOGY P530/1

SECTION A: 40 MARKS

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

SECTION B: 60 MARKS

41. (a)
- Cells rest on a basement membrane;
- Cells are physically linked together by intercellular substances;
- Lack blood vessels;
- Exchange of materials occurs by different /osmosis;

Any 3 = 03marks

(b) Single layers of cells; attached to the basement membrane; cells are thin; flattened; smooth; and closely packed; have irregular margins; thick cytoplasm; and centrally planned dis-shaped nuclei; have protoplasmic connections between adjacent cells;

@ $0^1/_2$
03 marks

(c)

Vessel element	Tracheid
- Tubular / cylindrical; - Wider lumen; - has horizontal end walls; - are relatively larger; - occur in only flowering plants;	- Polygonal in shape - Narrow lemon - Has tapering end walls - Are relatively smaller - Occur mainly in gymnosperms but also in angiosperms.

04marks
TT = 10marks

42. (a)

Abscissic acid	Gibberellins
- Had a higher concentration initially; - Between 0 to 40 days the concentration was decreasing; - Between 0 to 13 days it decreased rapidly;	- Was absent - Concentration was increasing - Increased gradually

03 marks

(b) With increased chilling between o to 4 days the concentration of gibberellins increased because at low temperatures the embryo is capable of producing/synthesizing more gibberellins; chilling reduces abscissic acid content of the seed coat but stimulates the synthesis of gibberellins by the embryo;
02 marks

(c) (i)

(i) Hard/impermeable seed out;
- Waxy seed coat; 2marks

(ii) - Breaking bud dormancy; 3marks

(iii) - Vernalization/promotion of flowering by cold treatment;
- Stratification / promotion of germination by cold treatment during imbibition to prevent them from germinating after they ripen;
TT. 10marks

43. (a) (i) The hydrogen atoms are taken up by hydrogen carries making them to be reduced; 01mark

(ii) Lactic acid; 01mark

(iii) If glycolysis is to proceed, the hydrogen accepted by pyruvate to form compound N (lactic acid) in order to regenerate $NADH_2$;
01mark

(b) Pyruvate is hydrogenated; using reduced NAD;
Catalyzed by lactate dehydrogenase; 03marks

(c) Allows much of the energy released to be captured and utilized by the cell;
01mark

(d) For anabolic processes; 03marks

Movement;

Active transport;

Secretion;

Activation of chemicals;

T.T = 10marks

44. (a) (i) At rest, membrane permeability to potassium ions is greater than to sodium ions; because at rest there are many potassium ion channels open in membrane than sodium ion channels;

(ii) Rapid increase in permeability of membrane to sodium ions; because when the influx of sodium ions depolarizes the membrane; the depolarization in turn increases the membranes permeability to sodium ion;

01 mark @

(b) (i) Transduction; receptors receive sensory information; and then convert it into nerve impulse; due to alteration in the permeability of the receptor membrane to the flaw of irons i.e Na^+ - k^+ causing a generator potential which is passed a long a neonate as an impulse.

03 marks

(ii) Na^+ - k^+ pump: pumps 3 Na^+ from inside to outside the axon; while it pumps $2k^+$ in the opposite direction; progressively causing loss of the ions internally; more Na^+ outside and K^+ inside.

@ 1mark = 03marks

45. (a) (i) The regulation of the relative amount of salts (solutes) and water in the body at a steady state; 01mark.

(ii) The highly evaporative environment results in high water loss;
- Drinking water is often scarce;

(b) (i)
- Production of a hypertonic urine to minimize water loss in urine;
- Pass out dry faeces to conserve water;
- No sweating to minimize water loss by evaporation;
- Metabolise carbohydrates / fats to release more metabolic water;

Any 3 = 03marks

(ii)
- Burrowing underground;
- Being nocturnal/feeding at night; Any 1 = 01mark

(c) They live in an environment which is hypertonic to their body fluids so tend to lose water over gills;
While fresh water fish take up water by osmosis over the gills; since their body fluids are hypotonic to their environment;

46. (a) Similarities

Both increase to a maximum, then became constant; in both the rate increases rapidly before leveling off;

Any 1 x1 = 01mark

Differences

The rate levels off at a higher value in Q than in P; 01 mark

(b) (i) - Temperature;
- Carbon dioxide concentration; 02marks

(ii) Temperature; Carbondioxide concentration; 02 marks

(c) (ii) The law of limiting factors; when a process is influenced by several factors the rate at which it occurs is determined by that factor that is in shortest supply; 02marks

(d) – The rate of oxygen production is influenced by temperature;
- The amount of product formed is higher if a plant is given intermittent light than continuous light;
- Use of radioactive tracers will show that carbon dioxide reduction occurs in the dark;

TT. 10 marks

END