

UNEB 553/1 MARKING GUIDE 2020

SECTION A 30 MARKS

1 D✓	2 D✓	3 B✓	4 A✓	5 B✓	6 C✓	7 C✓	8 D✓	9 A✓	10 A✓
11 B✓	12 B✓	13 C✓	14 C✓	15 D✓	16 A✓	17 C✓	18 C✓	19 D✓	20 D✓
21 A✓	22 A✓	23 C✓	24 D✓	25 C✓	26 A✓	27 B✓	28 B✓	29 C✓	30 D✓

30 Marks/ 1mark@

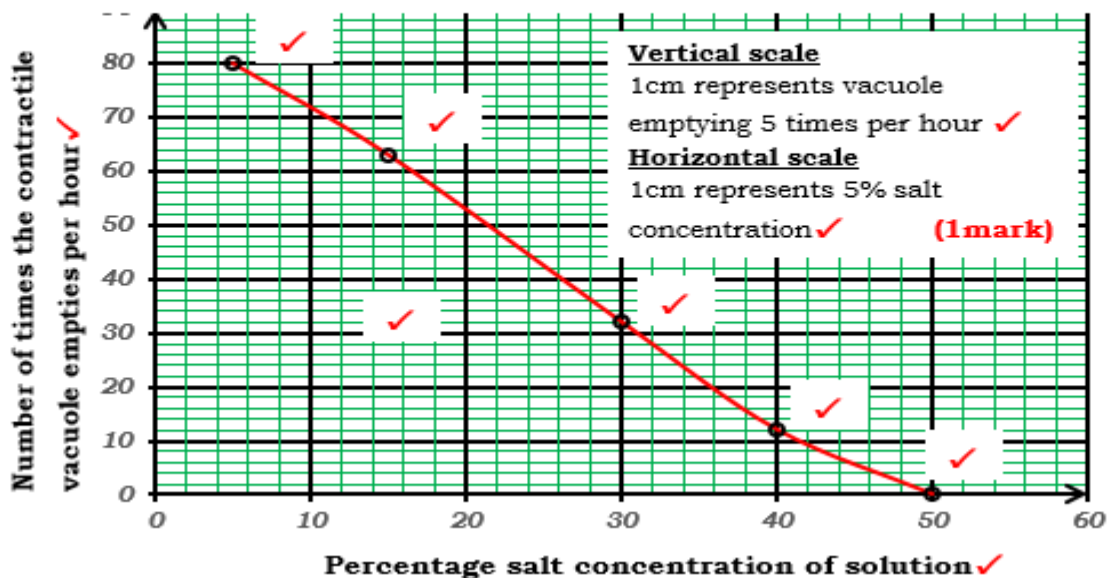
SECTION B 40 MARKS

Question 31.

(a) (i)

Graph showing the number of times the contractile vacuole empties per hour against percentage salt concentration of solution. ✓

(1mark)



TOTAL 6marks

(ii) At 5% concentration/ at lower concentration of salt solution; ✓ the number of times the vacuole empties is high; ✓

Increase in concentration from 5% to 50%; ✓ the number of times the vacuole empties its contents rapidly decreases; ✓

At 50% concentration; ✓ no vacuolar emptying occurs; ✓

max 3marks/ ½mark@

(iii) When the surrounding concentration is less/lower than the fluid inside the amoeba, ✓ water enter amoeba; ✓ filling the vacuole more often; ✓

When the surrounding concentration is higher than the fluids inside the amoeba; ✓ water moves out of the amoeba; ✓ leaving very little water for the vacuole to remove; ✓ **Max 2marks/ ½mark@**

(b) (i) Amoeba would lose more water to the surrounding/ no more vacuoles would form/ amoeba would shrink/ and eventually die; ✓ **because** amoeba fluids would be less concentrated than the surrounding; ✓

2marks

(ii) Amoeba would gain more water from the surrounding/ more vacuoles would form/ fill and empty frequently/ swell; ✓ **because** amoeba fluids will be more concentrated than the surrounding; ✓ **2marks**

(c) (i) when the amoeba surroundings become very dilute, the contractile vacuole fills with water; ✓ which it empties as required; ✓ to ensure the internal concentration of amoeba fluids remains constant; ✓ **3marks**

(ii) Osmoregulation / excretion/ homeostasis; ✓ **1mark**

Question 32.

(a) To show that germinating seeds use oxygen/ respire; ✓ **1mark**

(b) For absorbing carbon dioxide gas; ✓ **1mark**

(c) (i) coloured water in the capillary tube rises; ✓ **1mark**

(ii) The germinating seeds take in oxygen/ respire; ✓ carbon dioxide give off/produced is immediately absorbed by sodalime; ✓ this reduces gas volume/ pressure in the test tube; ✓ **1mark**

(d) (i) the level of the coloured liquid in the capillary tube remains unchanged/ same/ no change in the level of water; ✓ **1mark**

(ii) Because the oxygen in the germinating seeds would be replaced by the carbon dioxide they produce; ✓ making no change in the volume of air and pressure inside the tube; ✓ **2marks**

(e) use boiled/ disinfected seeds; ✓ **1mark**

Question 33.

(a) A-Radius; ✓ B-Ulna; ✓ C-Humerus; ✓ D-Scapular/ shoulder blade; ✓ **½ mark@ 2marks**

(b) P-Tendon; ✓ **Function**- joins muscle to bone; ✓ **2marks**

(c) (i) Y contracts; ✓ Z relaxes; ✓ **pulling** radius and ulna; ✓ up; ✓ A and B/ biceps and triceps; **2marks**

(ii) Y relaxes; ✓ Z contracts; ✓ **pulling** radius and ulna; ✓ down; ✓ A and B; **2marks**

(d) (i) hinge joint ✓ **1mark**

(ii) Synovial fluid; ✓ reduces friction by lubricating the joint; ✓

Cartilage; ✓ reduces friction by being smooth / slippery; to allow sliding of bones at the joint; ✓ **2marks**

SECTION C 30 MARKS

Question 34.

(a) Digestion of proteins begins as food passes in the stomach; ✓ where pepsin enzyme; ✓ breaks down proteins/ coagulated milk/ casein to peptides/polypeptides/ peptons; ✓ in an acidic medium/environment; ✓ created/ provided by hydrochloric acid; ✓

In the duodenum; trypsin enzyme; breaks down proteins to peptides/peptons; ✓ in an alkaline medium ✓ provided by bile/ and pancreatic juice; ✓

In the ileum; peptidase/ erepsin enzyme; ✓ breaks down peptides/ peptons; ✓ to amino acids; ✓ in an alkaline medium ✓ availed by the intestinal juice/ succus entericus; ✓

Accept tabular presentation.

max 5marks/ ½mark@

Site	Substrate	Enzyme	Medium	Products
Stomach	Proteins	Pepsin	Acidic	Peptides/ polypeptides/ peptons
Duodenum	Proteins	Trypsin	Alkaline	Peptides/ peptons
Ileum	Peptides/ peptons	Peptidase/ erepsin	Alkaline	Amino acids

- (b) Glucose; ✓ is oxidised to produced energy; ✓ converted to fats; ✓ converted to glycogen; ✓ formation of cell membrane; ✓ maintenance of osmotic balance; ✓
Amino acids; used for new cell formation; ✓ repair/ replacement; ✓ oxidised to release energy; ✓ synthesis of materials; ✓ **max 5marks**
- (c) Numerous villi; to increase surface area for absorption; ✓
 Thin epithelium; to reduce diffusion distance; ✓
 Dense blood capillary network; to transport food to blood stream; ✓
 Lacteal; to allow larger molecular fats/ lipids molecules to enter connecting to lymphatic system for transport of lipids/ fats; ✓
 Long; to increase surface area for absorption; ✓
 Mitochondria; to provide energy for active uptake of materials; ✓ **max 5marks**

Question 35.

- (a) Shoots are positively phototropic/ grow towards light; ✓ to expose leaves to trap sunlight for photosynthesis; ✓ synthesis of chlorophyll; ✓ expose leaves to air/ gaseous exchange to obtain oxygen for respiration ✓ and carbon dioxide for photosynthesis; ✓
Roots are negatively phototropic/ grow away from light; ✓ into soil for anchorage; ✓ to absorb water and mineral salts; ✓ **max 6marks/ 1mark@**
- (b) High concentration of auxins in shoots promote rapid cell elongation; while low auxin concentration retards growth; ✓
 Low concentration of auxins in roots promote rapid cell elongation; while high concentration in roots retards growth; ✓
 Growing apical buds of the shoot produce auxins that inhibit growth of lateral buds/ cause growth of apical buds; ✓
 Auxins in the growing main root/ tap root suppresses the growth of lateral roots; ✓
 Auxins control tropisms bringing about phototropism/ geotropism/ hydrotropism; ✓
 Lateral buds produce more auxins that cause growth of lateral branches; ✓ **6marks**
- (c) Auxins are sprayed in crop gardens; ✓ since they selectively affect the growth of weeds; ✓ by stopping their growth; ✓ crops then outcompete the weeds in growth; ✓ **max 3marks/ 1mark@**

Question 36.

- (a) This is a process of taking in and out of gases; ✓ across a surface membrane; ✓ **2marks**
- (b) Thin epithelium/ one cell thick; ✓ to provide short distance over which gases diffuse; ✓
 Well ventilated; ✓ to provide fresh air/ maintain a steep concentration gradient; ✓
 Numerous blood capillaries; ✓ to carry gases; ✓
 Moist; to dissolve gases; ✓
 Large surface area; ✓ to ensure large amount of gases exchanged; ✓
 Permeable; ✓ to allow diffusion of gases; ✓ **max 7marks/ ½mark@**
Accept feature and correctly stated function
- (c) Air in the buccal cavity contains more oxygen than in the surrounding blood capillaries; ✓
 so oxygen dissolves; and diffuses; ✓ through the thin epithelium lining of the buccal cavity; ✓
 then through the blood capillaries into blood; ✓
Carbon dioxide is more in the surrounding blood capillaries than in the buccal cavity; ✓ so
 then diffuses through the thin epithelium of buccal cavity; ✓ **max 6marks/ 1mark@**

Question 37.

- (a) Light intensity; ✓ high light intensity, increases the rate of transpiration; because the stomata are wide open; low light intensity reduces transpiration; because the stomata are not wide open;
Humidity; ✓ high humidity lowers the rate of transpiration; because there is no more space for water vapour from the leaf to diffuse into space around the leaf for water vapour to diffuse into;
Temperature; ✓ increased temperature; increases the rate of transpiration; ✓ because rate of evaporation is increased; ✓ low temperature lowers the rate of transpiration; ✓ because it lowers the rate of evaporation; ✓
Air movement; ✓ still air lowers the rate of transpiration; ✓ because air around the leaf is saturated with water vapour; ✓ while air moving air increases it; ✓ because evaporated water is carried away from the area around the leaf; ✓
Atmospheric pressure; ✓ high atmospheric pressure reduces the rate of transpiration; ✓ because it reduces the rate of vapour formation; ✓ low atmospheric pressure increases the rate of transpiration; ✓ because it increases the rate of vapour formation; ✓
Availability of water in soil/ moisture content in soil; ✓ the higher the water content in soil; the higher the rate of transpiration; ✓ because the plant absorbs more water; the lower the water content in soil; the lower the rate of transpiration; ✓ because the plant absorbs less water; ✓
max 7marks/ ½mark@
- (b) Excess water loss from the plant; ✓
Maintains the transpiration stream; ✓
Maintains turgidity of plant cells; ✓
Transport of salts from roots to leaves ✓
Transport of water; ✓
Cools the plant; ✓
Leads to wilting of the plant; ✓
Provides water needed by leaves for photosynthesis; ✓
Leads to leaf shedding; ✓
More water/ salts are absorbed; ✓
max 8marks/ 1mark@

END

WHAT MEN HAVE DONE, MAN CAN DO!