

K.C.S.E JOINT EVALUATION 2017

BIOLOGY PRACTICAL 231/3

MARKING SCHEME.

1. a) (i) X-Firm/hard
Y-Flabby/Spongy/Soft
- (ii) X- Hypotonic solution compared to cell sap of the petiole cells; The cells gain water by osmosis; hence become turgid.
Y- Is hypertonic compared to cell sap of petiole cells; The cells loose water by osmosis becoming plasmolysed/flaccid;
- b) (I)X- The slit widens/The two pieces open up/The 2 pieces separate at the top.
Y- The strips remain close together.
(II) X Inner cells (cortex cells) gained water by osmosis; (to become turgid) and increased in length; Epidermal cells did not gain water due to the water proof cuticle;
Y Inner cells lost water by osmosis; to become flaccid. Epidermal cells did not loose water due to water proof cuticle.
- c) – Support in herbaceous plants. (Rej support in trees or shrubs.
- Absorption of water
 - Opening and closing of stomata.
 - Movement of water from cell to cell.
 - Feeding in insectivorous plants.
 - Folding of leaves.
 - Closing of flowers.
 - Support leaves of seedlings. (any 2 correct responses)

2.

Food substance	Procedure	Observation	Conclusion
Starch	-Put 2ml of L in a tt -Add 3 drops of iodine	-Colour changes to blue black	Starch present
Reducing sugar	-Put 2ml of L in a tt -Add equal amount of Benedict's solution -Heat to boil	Colour change from blue to green-yellow-brown. (accept final colour but not green)	Reducing sugar present.
Protein	-Put 2ml of L in a tt -Add 2ml of NaOH -Add CuSO ₄ drop by drop with shaking	Blue colour of CuSO ₄ persists	Proteins absent.
Ascorbic acid (Vit-C)	-Put 2ml of D.C.P.I.P in a tt -Add L drop by drop.	Blue colour of D.C.P.I.P persists.	Vit C absent

NB: - Benedict's solution should have capital B and apostrophe (If any is missing deny one mark)

- If wrong procedure, no mark for observation and conclusion.

Total marks = 14 maximum 12mks

b) Kwashiorkor

- Reason-Lack of protein in the diet.

Scurvy

- Reason- Lack of vitamin C in the diet. (NB: Both the disease and the reason must be correct for one to score)

3. a) M-Aorta Q-Renal vein P-Renal artery

b) Blood in vessel P/Renal artery

-Most urea entering the kidney through renal artery is removed through ultrafiltration.

c) R-Ureter

- Function- Drains urine from kidney pelvis to the urinary bladder.

d) T- Medulla

V- Pelvis

e) Bowmans capsule

Glomerulus

Distal convoluted tubule

Proximal convoluted tubule (Mark the first 2)