

**BIOLOGY (PRACTICALS)**  
**PAPER 3**  
**231/3**  
**MARKING SCHEME**

1. (a) (i) A - Renal vein  
 B - Ureter  
 C - Pelvis  
 D - Cortex (4mks)
- ii) V - Glomerulus;  
 W - Proximal convoluted tubule;  
 X - Distal convoluted tubule;  
 Y - Blood capillaries (4mks)
- (b) - Coiled to increase S.A for reabsorption of substance (ii) The tubule is supplied with blood capillaries to transport reabsorbed substances;
- (c) (i) Loop of Henle  
 (ii) Collecting duct/ Distal convoluted tubule;
- (d) Kidney tubule becomes less permeable to water; less water reabsorbed into blood stream; production of large amounts of dilute urine (thus diuresis)
2. (a) Blue black/black dark blue colour is formed  
 (b) No colour change/colour of Benedict's solution remains;  
 Rej: No change /no reaction/ no observation /nothing happens  
 (c) Set-up A- colour changes from blue to green to yellow to orange/brown;  
 Set-up B: No colour change/ colour of Benedict's solution remains;  
 Rj- No change/no reaction/no observation/nothing happens  
 Set-up C- No colour change/colour of Benedict's solution remains;  
 Rj- No change no reaction/ no observation/ nothing happens  
 (d) Set-up A — Enzyme amylase/diastase/invertase (in Q); digests /hydrolysis/breaks down/ converts starch (in liquid X); to reducing sugar/maltose;  
 Set-up B: boiling denatures/destroys enzymes amylase/diastase/invertase; hence starch is not converted to reducing sugar/maltose;  
 Set up C:- Hydrochloric acid provides unfavourable PH for enzyme amulase diastase/invertase; hence starch is not converted to reducing sugar/maltose;  
 (e) Enzyme amylase/diastase/invertase;  
 (f) To provide optimum temperature for reaction of enzyme amylase/diastase;
3. (a) C -Hypocotyl  
 Importance —protects the plumule /shoot tip/first foliage leaves /opens path through the soil for the cotyledon to pass/pulls the cotyledon out of the soil.  
 D Cotyledons/seed leaves  
Importance: Photosynthesis  
 Food storage /food reserves  
 Provide food for germinating seedlings /young plants.  
 E Coleoptile/plumule sheath Rej: cover/coat  
 Importance-protects the delicate tip/first leaves/foliage leaves  
 (b) (i) nodules/root nodules  
 (ii) Rhizobium/Rhizobia/Rhizobium bacteria rej. Bacteria alone.

- (iii) Symbiotic relationship in which bacteria gets protection and nutrients while the plant gets nitrogen in form of nitrates fixed by bacteria.
- (c) (i) Epigeal  
(ii) Cotyledons are brought out of the ground.
- (d) Water  
Oxygen  
Optimum temperature

