**BIOLOGY PRACTICAL**

**MARKING SCHEME**

**231/3**

1 a) i) Thin /membranoZus/ papery;

 Scaly / dry/ dehydrated;

 Pigmented / coloured / purple brown;

 ii) Fleshy / succulent / swollen /thick;

 Cream / white /purple;

 b) i) protection against transpiration / drying/evaporation/ water loss/ infection /mechanical damage;

 ii) Storage of manufactured food /water;

 c) Asexual /vegetative propagation;

 d) i) Firm/ turgid /hard /stiff;

 ii) Flabby/ tender/soft/flabby

 e) Solution Q is hypertonic to the cell sap; cells lost water by osmosis; hence the cells became soft / flabby;

 f) Hypotonic / less concentrated /dilute;

 g) Strips remained firm/ turgid after being placed in solution P;

 h) Serve as a control experiment;

2 a) i) Germination;

 ii)

X Y

Epicotyl elongates faster than hypocotyl Hypocotyl elongates faster than epicotyl;

Cotyledons remain underground Cotyledons are brought above the ground;

b) i) Protects delicate cotyledons and plumule against mechanical damage of soil as they are pulled out;

 pulls cotyledons out of the soil enabling germination;

ii) Water;

 Optimum temperature;

 Oxygen;

c) Cotyledon;

 Store food for respiration to give energy for germination;

 Stores enzymes involved in germination;

d)

Specimen Class Reasons

X Monocotyledonae; Has one cotyledon in each seed;

Has endosperm;

Parallel leaf venation;

Y Dicotyledonae; Has two cotyledons in each seed;

Lack endosperm;

Network leaf venation;

3. a) Heterostyly;

b) Stamens are shorter than the pistil; pollen grains from the stamens cannot reach the stigma hence no self-fertilization;

c) B- Apocarpous;

 Reason: - the carpels are free from each other;

 C – syncarpous;

 Reason: carpels are fused together;

d) i) Bryophyta;

 Has capsule; has seta and rhizoids;

 ii) Autotrophic nutrition;

 iii) It contains chlorophyll thus photosynthetic;

 iv) Supports the capsule.