**MAGS JOINT EXAMINATION**

**BIOLOGY PAPER 3**

**231/3 MARCH/APRIL 2020**

**MARKING SCHEME**

1 (a) Liver (1mark)

(b) Bubbles produced /effervescence occurs (1mark)

 Relights a glowing splint (1mark)

(c) Hydrogen peroxide is broken down by catalase in specimen A to water and oxygen which is released as gas. (3marks)

(d) Detoxification/break down harmful hydrogen peroxide to harmless products (water and oxygen) (1mark)

(e) Hydrogen peroxide water + oxygen (1mark)

(f)(i) No bubbles /very low production of bubbles (1mark)

(ii) High temperature denature catalase enzyme hence hydrogen peroxide not broken down

(2marks)

(g) pH, specificity, Enzyme inhibitors, Co-enzyme and Co- factors .mark the first two

(2marks)

2 (a) Dicotyledonae reject Dicotyledon (1mark)

 (ii Two cotyledons /Tap root system .reject tap root alone (1mark)

 (iii) Monocotyledonae .reject Monocotyledon (1mark)

(iv) One cotyledon/fibrous root system (1mark)

(b) (i) Hypocotyl reject wrong spellings (1mark)

(ii) Protects plumule /shoot tip / first foliage leaves

 Open space through the soil for cotyledons to pass /pull cotyledons out of the soil (1mark)

(c) Coleoptile /plumule sheath (1mark)

(d) (i) M1 and M2/M1/M2 Reject bean seedling (1mark)

(ii) Nodules /root nodules

(iii) Rhizobium bacteria/Rhizobium/Nitrogen fixing bacteria reject bacteria alone but mark reason (1mark)

(iv) Symbiotic. Bacterial will get protection and food /nutrients/carbohydrates from the plants while the plants get nitrogen or protein in form of nitrates (1mark)

 (e) (i) Hypogeal (1mark)

 (ii) Cotyledons remain under the ground .Remains of fruit/grain/endosperm remains under the ground.

(f) Fibrous root system

3. (i) Class Pisces (1mark)

(ii) Presence of fins (1mark)

 Body covered with scales

(b) (i) Diagram of gill of fish (3marks)



1. The gill filament spread out in water. This increases the surface area for efficiency of gaseous exchange (1mark)

(c) The mouth opens and the floor of the mouth is lowered increasing the volume hence creating a low pressure in the mouth, water is sucked into the mouth cavity. The operculum bulges outwards with the opercular valve closed; increasing the volume of the opercular cavity hence lowering pressure; water is sucked into the cavity from the mouth cavity. The oral valve closes; floor of mouth is raised, pushing the remaining water into opercular cavity. The opercular valve opens and the operculum curves inwards; pushing water out through the opercular valve (3marks)

(d) Myotomes (1mark)

(e) Fresh water/Aquatic (1mark)

 Lateral line

 Presence of fins for locomotion