231/3 BIOLOGY PAPER 3 PRACTICAL
MARKING SCHEME

1. a) Berry ; (1mrk) reject wrong spelling

   b) Man/animal ; (1mrk)

   Reason; Brightly coloured;

   Succulent/fleshy;rej flesh (1mk)

   c)

Food substance	Procedure	Observation	Conclusion
Starch ;	Add one drop of Iodine to specimen X soln and shake;	Blue black colour;	Starch present
Reducing sugar;	Add 1cm3 of Benedict solution to specimen X and boil/heat strongly/warm in water bath;	No colour change;	Reducing sugars absent

   d) – Blue –black/dark blue black;

   - Colour changes from blue green to yellow then orange

   Reject brick red

   Acc. Two colours (2mrks)

   e) In (C) only starch is present; the enzymes in the fruit breakdown starch into sugars; hence colour turned to yellow/orange; (4mks)

   f) – Enzymes in the fruit are important in ripening of fruit;

   - Complex foods (starch) in the food are broken down into simple sugar during ripening; 2mks)

2. a) To determine whether the jar provided conditions necessary in a self sustaining ecosystem.(1mk)

   b) Plants and animals would continue to survive in the jar. (1mk)

   c) Plants photosynthesis in the presence of light; producing oxygen which is used up by animals in respiration; The animals produce carbon (IV) oxide which is used up by plants to produce/manufacture food; the plants and a animals in the jar use water to support metabolic reactions, the also get mineral salts from the sea water; dead material in the jar are decomposed by saprophytic bacteria reducing the accumulation of wastes. The water plants provide food for small crustaceans, the carnivorous fish reduce the population of crustaceans; feed on algae and water plants; reducing competition for resources; (6mks)

   d) X – Water plants (2mks)

   Y – Fish

e) (i) There would be less supply of oxygen in the system; this would suffocate the animals(causing death). There would be accumulation of CO_2 in the jar; changing pH in the water.(2mks)

ii) There would be no supply of the light energy hence limited photosynthesis; plants would then yellow up produce less food for animals; which would cause starvation. There would also be less production of oxygen; suffocating the animals to death.(2mks)

3. i) a) A) Scapula;
C) Triceps ;
E) Ulna;
F) Radius; (4 x ½)

b) Hinge joint;(1mk)

c) Movement through 360^0 (All directions) (1mrk)

d) When muscle C contracts, the arm straightens/ when muscle C contracts, B will relax and the arm straightens; (1mrk)

ii) a) Organic evolution; (1mrk)

b) Identify: humerus ½
Ulna/radius ½
Carpals ½
Metacarpals ½
Phalanges ½
(Indicate in all diagrams) (2mrks)

c) Homologous ; (1mrk)

d) All the structures have a pentadactyl (5digit) plants pointing to one origin but evolved to perform different functions due to demands of different environments in which they live (diversity) (3mrks)