

MOCK EXAMINATION 5

BOOKLET A

- 1 (3) 2 (2) 3 (4) 4 (1) 5 (2)
 6 (1) 7 (1) 8 (2) 9 (2) 10 (1)
 11 (2) 12 (1) 13 (4) 14 (2) 15 (3)
 16 (1) 17 (4) 18 (2) 19 (4) 20 (3)
 21 (4) 22 (1) 23 (4) 24 (4) 25 (1)
 26 (4) 27 (1) 28 (3)

BOOKLET B

- 1 (a) X: Seed leaves
 Y: True leaf
 (b) The seed leaves (part X) provide food to the young plant before its true leaves (part Y) develop. The true leaves trap sunlight to make food for the plant.
 (c) X are the seed leaves which is the storage source of food for the young plant since it does not have leaves to make food at the early stages of 1 to 3. As the young plant uses up the storage of food in the seed leaves, the mass of the seed leaves decreases. Once the true leaves appear, the young plant can make its own food during photosynthesis. By then, the food in the seed leaves would have been used up.
- 2 (a) It was to reduce the amount of light that would be received by the hydrilla.
 (b) Change the light bulb to one that has a higher voltage.
 (c) This experiment should be carried out at a place where there is no other light source except the electric light bulb that is hung above the set-up.
- 3 (a) There was an increase in the population of organism Z in the first 4 months.
 (b) A disease may have killed organism Z. Lack of food or water may have caused a decrease in the population size of organism Z.
- 4 (a) When animal Y feeds on the fruit of plant X, it will disperse its seeds further away from the parent plant so overcrowding will not occur.
 (b) Fruit B. The fruit has hooks which enable it to hook/cling onto the fur of animal Y. When animal Y moves to other areas, the fruit will fall off from its fur and if conditions are suitable, the seed will grow into a young plant.
- 5 (a) He had covered the whole pot of plant including the soil which had been watered. Thus, the wet paper bag could be the result of evaporation of water from the soil which had condensed on the paper bag.
 (b) A plastic bag could be placed over the plant and tied at its stem. Hence, only the upper part of the plant above the soil would be enclosed in the plastic bag. This would prove that any water condensed on the inner side of the plastic bag came from the plant itself.
- 6 (a) Frictional force and gravitational force
 (b) Melissa and her father are going down the slide at the same time. Since she is sitting on her father's lap, there is an increase in mass. This increased the amount of frictional force as they slide down the pool chute. Thus, the speed is slower.
 (c) By lying down flat on the pool chute, Melissa's streamlined body shape will encounter less air resistance. Hence, her speed down the pool chute will be faster.
- 7 (a) Set-up A: Put the bottle into a basin of hot water. The bottle gains heat and expands first. The heat from the bottle is transferred to the air in the bottle. The air in the bottle gains heat and expands. Hot air rises and causes the air in the balloon to inflate.
 Set-up B: Puncture a hole in the bottle near its bottom so that air in the bottle can escape. When air can escape from the bottle, the balloon can easily become inflated as air is blown into it, allowing it to occupy space.

- (b) Set-up A. To ensure that the Kongming lantern is able to float up in the sky, a candle is lighted up inside it. The lighted candle heats up the air inside the lantern. The air inside the lantern expands. Since hot air is lighter, it pushes the lantern upwards.
- 8 (a) The X-shaped ice cube had a greater exposed surface area as compared to the heart-shaped ice cube. Hence, it would gain more heat from the water and melt faster, cooling the water faster in the process.
 (b) The aim is to find out if the exposed surface area of a container affects the rate of evaporation.
 (c) Container B. It has the largest exposed surface area among the three containers. Therefore, it will be able to be exposed to heat the most and the rate of evaporation will be the highest.
- 9 (a) Producer : C
 Decomposer: B
 (b) They break down the dead matter into simpler substances that are absorbed as nutrients by plants.
- 10 (a) Bulb C did not light up. When switch S2 was not closed, this left the circuit open. Hence, the current cannot flow through it. Bulb C cannot be lighted up as there is no electric current flowing through it.
 (b) Bulbs C and D would still light up.

- 11 (a)

Time the shadow was cast	Pole	Reason for choice of pole
Morning	R	The sun rises in the East, hence the shadow cast by the rod should be long and in the West.
At noon	Q	As the Sun rises until midday, the shadow cast has the shortest length in the afternoon.
Evening	P	The sun sets in the West, hence the shadow cast by the rod should be long and in the East.

- (b) When a path of light is blocked by an opaque or translucent object, a shadow is formed.
- 12 (a) The water was being boiled, so it gained heat over time. The hot water evaporated to form steam which condensed to form water droplets when it came into contact with the cool surface of the metal rod.
 (b) In the original set-up, the metal rod was bent at an angle such that the water droplets that condensed on it could flow down on either ends. The metal rod should be straight instead so that the water droplets which condensed on it would flow down on its tilted side and into the cylinder below.
 (c) The ice cubes should be placed on the metal rod in order to continue to keep it cool. By keeping the metal rod cool, more condensation of water would take place as the hot water vapour rises and comes into contact with a cooler surface.
- 13 (a) He can shift the fan so that the wind can be blown between the spaces of the fixed blocks. In this way, the windmill will receive the most wind and can spin faster.
 (b) This will not be suitable as the buildings block the path of the wind, slowing its speed. Hence, the windmill does not receive the full energy of the wind to convert to electricity.
 (c) When the number of blocks increases, the number of turns made by the windmill decreases.