Assessment Schedule – 2008

Biology: Describe plant processes (90167)

Evidence Statement

Q	Achievement	Achievement with Merit	Achievement with Excellence
ONE (a)	Describes function of **both parts**. Eg, the anther makes pollen. The stigma is the place where pollen lands / catches pollen.		
(b)	Describes the difference between the stigmas. The wind-pollinated flower's stigma is feathery / has many parts OR the insect-pollinated stigma has only one part.	Gives a reason for a difference between an insect-pollinated **and** a wind-pollinated flower. Eg: Wind-pollinated flowers have feathery stigmas, while insect-pollinated flowers have one part to their stigma. This is because the wind-pollinated stigma allows for more surface area to catch the pollen in the wind. Insect-pollinated flowers do not require a larger surface area to catch pollen because pollen is 'delivered' by insects.	
(c)	Describes what happens inside the flower after pollination has occurred. Eg: The pollen grain grows a pollen tube down the style to the ovary, carrying the male gamete to the female gamete. (Then fertilisation occurs), OR Pollen fertilizes the female gamete, OR Fertilisation occurs.		

(d)	Describes cross-pollination OR self-pollination. Eg: Cross-pollination occurs when pollen is transferred (from the anther of a flower to the stigma of a flower) to **another plant** (of the same species). Not transfer of pollen from one flower to another flower OR Self-pollination occurs when pollen is transferred (from the anther of a flower to the stigma) to the same flower or the stigma of a flower on the **same plant.**	Gives a reason why cross-pollination OR self-pollination is an advantage to the plant. Eg: Cross-pollination is an advantage to the plant, because it allows for greater genetic variation in the new plants produced. This allows for greater adaptability. OR Self-pollination can be an advantage because it allows for reproduction to occur even when no other plants of the same species are present or nearby.	Gives reasons for why cross-pollination AND self-pollination can be an advantage to the plant. Eg: Cross-pollination is an advantage to the plant because it allows for greater genetic variation in the new plants produced. This allows for greater adaptability. However, self-pollination can be an advantage also because it allows for reproduction to occur even when no other plants of the same species are present or nearby. Therefore the plant is at an advantage if it can self-pollinate and cross-pollinate. NOT self pollinated plants are genetically identical or clones.
(e)	Describes asexual reproduction AND sexual reproduction. Eg: Asexual reproduction occurs when a plant produces another plant without the mixing of gametes / fertilisation occurring / which is genetically identical to the parent. OR Sexual reproduction occurs when the plant mixes gametes to produce a seed / new plant, which is genetically different to the parent.	Gives a reason for the differences between sexual AND asexual reproduction. Eg: There are differences between asexual and sexual reproduction. This is because asexual reproduction results from <u>one plant undergoing mitosis</u> only / <u>no mixing of genetic material</u> to produce a new plant, while sexual reproduction is the result of plants undergoing <u>meiosis</u> / <u>producing gametes,</u> which need to combine to produce a new plant.	
TWO (a)	Describes THREE conditions for seed germination. Eg,: warmth, water, oxygen. Do not accept ‘air’.		
(b)	Describes the role of TWO parts of the seed involved in seed germination. Eg: The plumule becomes the first shoot. The radicle becomes the first root. The cotyledon is the store of energy.	Gives a reason for how TWO or more parts of a seed are involved in seed germination. Eg: The (micropyle is a small hole) in the testa that allows water to enter the seed. Water is required to <u>activate the enzymes</u> that break down the starch in the cotyledon into a form that can be used as energy. This provides the energy required for <u>cell division</u> to occur in the plumule to grow into a shoot, and the radicle to grow into the root.	

THREE (a)	Describes a process that makes the plant grow. Eg: The plant grows at these point(s) by the process of cell division / mitosis Also accept cell elongation / enlargement / differentiation.		
(b)	Describes the process of the tree trunk growing wider. Eg: A tree trunk grows wider by the process of secondary growth / cambium cells dividing to form secondary xylem and phloem.	Gives a reason for how the trunk of a tree grows wider. Eg: A tree trunk grows wider by the process of secondary growth / thickening. This is when cambium cells repeatedly divide to form rings of secondary xylem and phloem. Each year the cambium produces more secondary xylem and phloem. The phloem cells are crushed as growth occurs but the woody xylem cells remain, making the width / girth of the trunk bigger.	
(c)	Describes that a bigger plant needs longer roots to absorb more water OR provide more anchorage.	Gives and explains TWO reasons for why the roots grow longer as the plant increases in size. One for water and one for anchorage. Eg: The roots grow longer as the plant increases in size, so that there is more support that is required because the plant is bigger. / Longer roots also provide increased anchorage for the plant, as it may be more likely to fall over in strong winds. / The bigger size of the plant means that more water is required for an increase in photosynthesis. This can be provided by the increase in the number of root hairs on the longer roots.	

FOUR	Describes the process of photosynthesis OR the role of the parts of the plant in the process of photosynthesis. Eg: The process of photosynthesis is the way in which plants use water, carbon dioxide in the presence of chlorophyll and light energy to make glucose (sugar) and oxygen. OR The main parts of plant involved in photosynthesis are the leaf and the chloroplasts in the plant cells. The leaf captures the light energy, and the chloroplasts contain the chlorophyll and are the place where photosynthesis occurs. The stomata allow carbon dioxide into the leaf, and the root hairs allow water to enter the plant.	Gives a reason for how at least TWO parts of the plant are involved in the process of photosynthesis. Eg: The process of photosynthesis is the way in which plants use water, carbon dioxide in the presence of chlorophyll and light energy to make glucose (sugar) and oxygen. The main parts of plant involved in photosynthesis are the leaf and the chloroplasts in the plant cells. The leaf is broad and flat to capture the light energy. The chloroplasts contain the chlorophyll, and are the place where photosynthesis occurs. There are many chloroplasts in the leaf cells close to the surface of the leaf to allow light energy to be absorbed.	Gives reasons for how the parts of the plant are involved in using water, carbon dioxide, chlorophyll and light to carry out the process of photosynthesis. Description with how materials, parts and process linked. Eg: The process of photosynthesis is the way in which plants use water, carbon dioxide in the presence of chlorophyll and light energy to make glucose (sugar) and oxygen. Plants absorb as much light energy as possible through the leaves that are often broad and flat to allow for this. Once enough light energy has been absorbed into the chlorophyll inside the numerous chloroplasts in the plant cells, carbon dioxide has diffused into the leaf through the numerous stomata on the underside of the leaf, and water is received via the xylem from the root hairs of the plant, the chloroplasts can carry out the complex chemical process of photosynthesis. This results in the production of an energy-rich substance called glucose and oxygen gas.

Judgement Statement

Achievement	Achievement with Merit	Achievement with Excellence
Total of SEVEN opportunities answered at Achievement level or higher. $7 \times A$	Total of at least SEVEN opportunities answered with FOUR at Merit level or higher. $4 \times M + 3 \times A$	Total of at least EIGHT opportunities answered with ONE at Excellence level and FOUR at Merit level. $1 \times E + 4 \times M + 3 \times A$