

Question 19 (continued)

The answers marked incorrect on page 19 are those processes which can reduce the concentration that may be found in water extracted from the lake.

Label (10%) of the four processes and explain how this process reduces the risk of infection from pathogens.

*Transpiration pulls water up from the roots, and as water moves up the xylem, pathogens that cause waterborne diseases, following the upward flow of water, are also pulled up. This is a long distance, and the supply of water is limited. As a result, the concentration of pathogens is reduced. In contrast, the concentration of pathogens is not reduced in the soil, and the supply of water is not limited. As a result, the concentration of pathogens is still high in the soil, and the risk of infection from pathogens is high.*

Question 20 (4 marks)

Outline how mitosis and cell differentiation assist in the maintenance of health.

4

*Mitosis occurs in germinal skin cells, in the bone marrow and in the lining of the stomach producing new cells to replace old ones which have been damaged by old age or that have died. This provides a repair system so that body systems remain working and coordinated in the maintenance of health of an individual. Cell differentiation causes stem cells to change into a fixed type of cell. <sup>It assists in the</sup> ~~that can no longer~~ maintenance of health by producing body cells <sup>with different functions</sup> ~~each of different~~ <sup>such as</sup> ~~again~~ nerve cells or muscle cells which each play a specific role in the maintenance of a coordinated body system. Also, once nerve cells differentiate they no longer undergo mitosis reducing the risk of ~~mutations~~ harmful mutations occurring.*