Assessment Schedule – 2008

Biology: Describe biological ideas relating to how humans use and are affected by micro-organisms (90168)

Evidence Statement

Question	Achievement	Achievement with Merit	Achievement with Excellence
ONE (a)(i)	Description of the meaning of parasitic, eg: • **Feeds** on / eats / gains nutrients from **living** material / living things / living cells / living tissues / organisms.		
(ii)	Describes how fungi feed OR Describes how the fungi's feeding affects the plant, Eg: • (Fungi feed) by extra-cellular digestion. • Fungi secrete / release enzymes and break down / digest food / nutrients. OR • The plants have less nutrients. • The leaf tissue is destroyed.	Gives a reason how the effect of feeding of the fungi slows the growth of Old Man's Beard, Eg: • The fungi consumes / feeds on / absorbs nutrients so the plant has less nutrients for its own growth. • The feeding of fungi / spreading of the hyphae / enzymes released by the fungi destroy leaf tissue, which reduces the plant's ability to carry out photosynthesis, resulting in slower growth. • As the fungi feeds,, it grows across the surface of the leaf. This blocks the sunlight, which is necessary for the plant to carry out photosynthesis, resulting in slower growth.	
(b)	Describes decomposers OR describes concept of nutrient cycling, eg: • Decomposers break down dead matter / feed on dead matter. OR • Fungi convert the nutrient into a simpler / another form, which can be reused by another organism.	Explain how decomposing **leads to cycling** (reusing) of nutrients by changing nutrients into a useable form. (need to **name one nutrient or one nutrient cycle**). • Fungi break down dead organic matter / wastes containing nitrogen / carbon into simpler compounds / other forms, which can be used / eaten / absorbed by other organisms as food / nutrients. • Fungi break down dead matter and produce / release / excrete carbon dioxide which, can be absorbed by plants. • Fungi break down dead organic matter and convert it into ammonia / help to convert it to nitrates, which can be used by other plants / animals.	**Establishes one nutrient cycle** (eg carbon or nitrogen) AND explains how fungi convert an unusable form of the carbon / nitrogen into one named usable form, eg: • Fungi break down / feed on dead organic matter containing carbon / amino acids / proteins. When they respire / excrete they release **carbon** dioxide into the atmosphere. The CO_2 can be absorbed by plants (to do photosynthesis). • Fungi break down / feed on dead organic matter / wastes containing **nitrogen** / proteins / amino acids. They then help to convert them into ammonia / nitrates. These can then be absorbed by plants from the soil (as nutrients).

TWO (a)	States that bacteria produce toxins / poisons.	States that toxins / poisons are produced and explains how this leads to symptoms (eg. vomiting, diarrhoea). OR Describes how large numbers of bacteria are produced in the food, leading to large amounts of toxins (**prior to ingestion**) and are then ingested. eg. • Bacteria excrete toxins / poisonous chemicals. When someone eats the food, the toxins go into the stomach. The body reacts by trying to get rid of the poison by vomiting / getting sick. OR • Bacteria in a food supply (such as chicken) reproduce forming a large number of bacteria which excrete large amounts of toxins. This is then eaten by people who become ill.	
(b)(i)	States that: • antibiotics kill / destroy other micro-organisms (*not* viruses or just "pathogens"). OR • antibiotics slow down / inhibit the reproduction / metabolism / chemical processes / growth of other micro-organisms (*not* viruses or just "pathogens").		
(b)	Describes a cause of resistance, eg: • the bacteria have mutated OR • the genetic code has changed (as the result of bacterial reproduction) OR • antibiotics kill all bacteria except those that are resistant OR • some of the bacteria have (resistant) plasmids	Explains *how* the resistant bacteria *survive* the antibiotic treatment to *reproduce* larger numbers of resistant bacteria, eg: • Bacteria have mutated so they are resistant. They then reproduce more bacteria with the same mutation / ability to survive the antibiotic. • Some of the bacteria may be naturally resistant to the antibody. Only these bacteria will survive the antibiotic treatment. They will then reproduce more of the resistant form of bacteria. • Some bacteria have (resistant) plasmids. The plasmids contain genes which make the bacteria resistant / not harmed by the antibiotic / survive the antibiotic. These plasmids are passed on to other bacteria through contact / horizontal gene transfer / conjugation.	

THREE (a)	One description for EACH of viruses AND bacteria in terms of living/non-living. OR One life process for EACH of bacteria AND fungi related to culturing on agar, eg: • Viruses are not living / do not feed / do not reproduce / require a *living* host to reproduce or replicate. AND • bacteria are living / require nutrients / feed / can reproduce.	Gives reason for why bacteria can AND viruses cannot be cultured on agar plates, eg: • Viruses need a living host to reproduce and agar is not living / does not contain living material. AND • Bacteria can reproduce on agar since it has nutrients which they need to reproduce.	
(b)	Describes a food made with fungi AND a food made with bacteria, eg: • Fungi/yeast and bread (yeast), wine, beer, alcohol, ginger beer, *blue* cheese, camembert cheese, brie cheese. AND • Bacteria + cheese, yoghurt.	Describes a food made with fungi and a food made with bacteria AND Gives a reason for how the *life processes* of ONE of bacteria OR fungi help make the food. Eg: As for achieved, plus • Fungi (yeast) are involved in making bread. The carbon dioxide released from the process of *respiration / fermentation* of the yeast helps the bread *to rise*. OR • Bacteria help to make yoghurt. As the bacteria *respires/ferments*, it releases *lactic acid* which causes the milk to solidify / adds flavour to the yoghurt. OR • Fungi (yeast) are involved in making wine. The alcohol released from the process of *respiration / fermentation* of the yeast adds to the flavour/leads to the intoxicating/depressant effect. OR Gives detailed explanations for BOTH fungi and bacteria (as per Excellence) but <u>fails</u> to name the life processes for both.	Discuss fully how the life processes of bacteria AND fungi help make the two foods. **Fungi**, eg • Fungi (yeast) are involved in making bread. The *carbon dioxide* released from the process of *respiration / fermentation* of the yeast helps the bread *to rise*. OR • Fungi (yeast) are involved in making wine. The *alcohol* released from the process of *respiration / fermentation* of the yeast *adds to the flavour/leads to the intoxicating/depressant effect.* AND Bacteria, eg • Bacteria help to make yoghurt. As the bacteria *respires/ferments*, it releases *lactic acid* which causes the *milk to solidify/adds flavour* to the yoghurt.

Judgement Statement

Achievement	Achievement with Merit	Achievement with Excellence
FOUR questions answered correctly. 4 × A	SIX questions answered correctly, including at least THREE at Merit level. 3 × M + 3 × A	SEVEN questions answered correctly, including at least ONE at Excellence level and at least TWO at Merit level. 1 × E + 2 × M + 4 × A