

Assessment Schedule – 2008**Human Biology: Describe maintenance of normal body functioning (90177)****Evidence Statement**

Q	Evidence contributing to Achievement	Evidence Contributing to Achievement with Merit	Evidence Contributing to Achievement with Excellence
ONE (a)	<p><i>Describes TWO of</i></p> <ul style="list-style-type: none"> • Produces hormones • controls the other hormone / endocrine glands. <p>OR</p> <p>Describes named hormones produced/made by the pituitary gland.</p> <ul style="list-style-type: none"> ○ Produces FSH (to start ovulation.) ○ Growth hormone GH (to control bone growth). ○ TSH (to control body metabolism.) ○ ADH (to control water balance in the kidney) ○ LH (controls the secretion of sex hormones) ○ Oxytocin (begins birth). 		
(b)	<p><i>Describes TWO of:</i></p> <ul style="list-style-type: none"> • Thyroxine controls/increases BMR / metabolic rate. • ADH controls/increases body water / fluid balance / level. • Insulin controls/increases body glucose storage as glycogen / sugar balance / level. 		
(c)	<p><i>Describes ONE of:</i></p> <ul style="list-style-type: none"> • Increases pulse rate / heart rate / heartbeat. /respiration rate / increases energy. • Increases breathing rate / depth of breathing. • Capillaries dilate. • Diverts blood from skin / digestive system to muscles / brain. • Stimulates glycogen to glucose. 	<p><i>linked to</i> need to increase oxygen / energy supply to muscles to allow rapid reaction.</p>	

<p>TWO (a)</p>	<p><i>Describes any TWO effect on the functions of the body:</i></p> <ul style="list-style-type: none"> • cilia lining air passages paralysed • mucus surface of air passages irritated • coughing • pulse / heart beat raised • capillaries constrict / narrow • breathlessness • increase mucus production in air passages. • reduces anxiety • feeling of relaxation • increases blood pressure. 		
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<p>(b)</p> <p><i>Describes TWO of:</i></p> <ul style="list-style-type: none"> • Cilia and mucus surface of air passages destroyed / no longer function. • Elasticity of alveoli destroyed / emphysema. • Increased risk of lung cancer [and throat; oesophageal cancer]. • Increased risk of coronary heart disease / heart attack. • Development of smoker's cough. • Reduced level of fitness. • Gastritis/ulcers • Taste buds damaged <ul style="list-style-type: none"> • Nicotine • Carbon monoxide 		<p><i>, linked to: Functions of the body</i></p> <ul style="list-style-type: none"> → Lungs no longer able to be cleaned so development of smoker's cough to clean them. • SA for gas exchange reduced resulting in breathlessness [and reduced fitness] / lack of oxygen to cells / lack of energy. • Alveolar walls burst to form fewer larger sacs. Decreased lung capacity due to damage. • Tar fills up the alveoli causing reduction in the surface area for absorption of oxygen. → Tar [plus other substances] in tobacco is a carcinogen so increases risk of developing cancers, especially of the lungs [and air passages] which are directly exposed to nicotine causing impaired functioning / death. Tumours cause blockage of tubes = less oxygen/less energy. → Constriction of blood vessels raises blood pressure / causes hypertension damaging the heart giving increased risk CHD / heart attack and death. • Arteries blocked by plaque/cholesterol causing high blood pressure/coronary heart attack. → Mucus gathers in the alveoli/cilia paralysed /surface area for absorption reduced; → Less oxygen getting to the tissues so less oxygen for exercise → Increased irritation of the stomach lining causes erosion → Taste changes resulting in lack of appetite and malnutrition → Slows heart rate initially but long term increases heart rate and narrows blood vessels causing an increase in blood pressure. It reduces urine output, reduces fatigue and increases awareness. → (Binds to haemoglobin to reduce oxygen absorption. Short term) Long-term hardens the arteries to restrict flow. May cause clots to form <p><i>Note: Merit grade allocated to each answer</i></p>	
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<p>THREE (a)</p>	<p><i>Any TWO of:</i></p> <ul style="list-style-type: none"> • reflexes / responses/nervous system slower/depressed • judgement impaired • depression / depressed state of mind • slurred speech • memory loss • loss of consciousness • vomiting • dehydration • uncoordinated movement • urinate more • poor concentration • slow reactions/decisions • less inhibitions • headache • loss of appetite • delirium • reduces anxiety • feelings of mental relaxation/well being • violence. <p>[NOT addiction]</p>		
<p>(b)</p>	<p><i>Describes TWO of:</i></p> <ul style="list-style-type: none"> • Impaired liver functioning / cirrhosis of liver / increased risk of liver cancer. ⇒ • Impaired functioning of brain. ⇒ • Impaired functioning of nervous system. ⇒ • Gastric erosions/ulcers ⇒ • Loss of appetite ⇒ • Foetal alcohol syndrome / drinking excess alcohol during pregnancy ⇒ • Heart and circulation disorders ⇒ <p>[NOT addiction]</p>	<p><i>Explains TWO functions of the body, linked to</i></p> <ul style="list-style-type: none"> • Ability of liver to carry out its vital [metabolic] functions (such as removal of toxins / produce urea / store glycogen) reduced, (which can lead to death). • Damage to brain causing permanent memory loss and reduced powers of reasoning / decision-making. • Damage to nervous system causing permanent slowing of reflexes and movements / movement not able to be controlled / shakes / tremors / loss of precision control. • Inflammation of stomach lining due to irritation. • Leads to an unbalanced diet/cirrhosis of the liver. • Stunted growth, mental retardation. • Can cause heart failure/reduced pumping efficiency/fluid retention/CHD/hypertension/ stroke. <p><i>Note: Merit grade allocated to each answer</i></p>	

<p>FOUR</p>	<p><i>Describes TWO out of four eg:</i></p> <ul style="list-style-type: none"> • Sweat produced by [sweat] glands in skin. • Dilation of blood capillaries of skin / surface. • Blood directed away from internal organs to muscles / skin. • Pituitary gland releases less TSH to help body BMR to be lowered. • Hairs on the skin stay flat. • Increased breathing. <p>[NOT a behavioural response, eg drinking, removal of clothing.]</p>	<p><i>Explains THREE of: eg Achievement linked to</i></p> <ul style="list-style-type: none"> • Sweat absorbs heat from the skin / body to evaporate so lowers the body temperature. • Capillaries dilate, moving closer to skin surface and transfer more heat from body / to air so lowers body temperature. • Directing blood away from internal organs increases flow to skin / surface allowing for greater / more rapid heat loss / transfer from body / to air. • More skin exposed for evaporation of sweat to occur. • Heat released in exhaled air. 	<p>Discussion involving the linking of THREE of the explanations in Merit into a comprehensive account of</p> <ul style="list-style-type: none"> • heat loss from the body and • subsequent lowering of body temperature. <p>Must include reference to Thyroxine/TSH production.</p> <p>Hypothalamus triggers pituitary gland to release less TSH, which in turn reduces the body BMR so less body heat is produced. Less thyroxine produced therefore less heat produced.</p>
<p>FIVE</p>	<p><i>Describes THREE short term effects At least ONE from EACH of caffeine and sugar, eg:</i></p> <p>Caffeine</p> <ul style="list-style-type: none"> • get the ‘jitters’ / shakes • hyperactive (stimulation)/increased BMR • inability to sleep • increased need to urinate (diuretic) • increased thirst • dehydration • increased pulse / heart rate • reduced production of ADH • headaches <p>Increase in BMR</p> <p>Sugar</p> <ul style="list-style-type: none"> • hyperactive • increased thirst • dehydration • increased blood glucose • increased production of insulin. <p><i>Note: If glucagon is used instead of glycogen but the idea of conversion of glucose to storage is correct, then an achieved grade is allowed.</i></p>	<p><i>Achievement with explanation of return to normal functioning through hormonal action for EITHER caffeine OR sugar, eg:</i></p> <ul style="list-style-type: none"> • Caffeine [a diuretic] reduces production of ADH [by pituitary] so more urine is produced and water lost from body. Reduction in caffeine levels [through break down by liver] will see increase in ADH and so reduced urine production / more water reabsorbed / retained in body. Water levels / balance restored. • Less TSH/Thyroxin produced to lower BMR • Rise in blood sugar / glucose promotes insulin production [by pancreas]. Glucose is converted to glycogen [by liver] for storage so reducing blood glucose levels. <p><i>Note: Students can gain Merit with out describing a short term effect from both caffeine and sugar if the explanation is correct (but not excellence)</i></p>	<p><i>Discussion links explanations for restoring of normal functioning. Must include:</i></p> <ul style="list-style-type: none"> • caffeine AND glucose. • Named relevant hormones AND organs. • Restoration of water balance from state of dehydration. • When normal levels are restored, ADH secretion stops • Less energy/heat produced. Production of Thyroxin stops. • Decrease in blood glucose stops insulin production and levels of glucose will return to normal / restore balance.

Judgement Statement

Achievement	Achievement with Merit	Achievement with Excellence
<p>Total of SIX opportunities answered at Achievement level or higher.</p> <p>$6 \times A$</p>	<p>Total of at least SEVEN opportunities answered with FOUR at Merit level or higher.</p> <p>$4 \times M + 3 \times A$</p>	<p>Total of at least SEVEN opportunities answered with ONE at Excellence level and THREE at Merit level.</p> <p>$1 \times E + 3 \times M + 3 \times A$</p>