Code	Assessment Statement	Command Term	Obj	Notes	Aim
1.1.1	Distinguish anatomically between the axial and appendicular skeleton	Distinguish	2	Axial Skeleton: Limit to skull, ribs, sternum and vertebral column consisting of: 7-cervical, 12-thoracic, 5-lumbar, 5-sacral (fused), 4-coccyx (fused). Appendicular skeleton: Limit to the pectoral girdle (scapulae and calvicle), humerus, radius, ulna, carpals, metacarpals, phalanges, pelvic girdle (ilium, ischium and pubis), femur, patella, tibia, fibula, tarsals, metatasrals and phalanges.	
1.1.2	Distinguish between the axial and appendicular skeleton in terms of function	Distinguish	2	Consider the anatomical functions attachments, protection, movement and support	
1.1.3	State the four types of bone	State	1	Liit to long, short, flat and irregular	
1.1.4	Draw and annotate the structure of a long bone.	Draw	2	Limit to epiphysis, spngy bone, articular cartilage, diaphysis, compact bone, bone marrow, marrow cavity, blood vessel (nutrient artery) and periosteum	
1.1.5	Apply anatomical terminology to the location of bones.	Apply	2	Limit to inferior, superior, proximal, distal, medial, lateral, posterior, and anterior. Limit to the bones listed in the axial and appendigular skeletons in 1.1.1. Assume anatomical position.	
1.1.6	Outline the functions of connective tissue.	Outline	2	Limit to carilage, liagament and tendon	
1.1.7	Define the term JOINT	Define	1	A joint occurs where two or more bones articulate	
1.1.8	Distinguish between the different types of joint in relation to the movement permitted.	Distinguish	2	Limit to firbous, cartilaginous and synovial	
1.1.9	Outline the features of a synovial joint.	Outline	2	Limit to articular cartilage, synovial membrane, synovial fluid, bursae, meniscus, ligaments and articular capsule	
1.1.10	List the different types of synovial joints.	List	1	Consider hinge, ball and socket, condyloid, pivot, gliding and saddle	
1.2.1	Outline the general characteristics common to muscle tissue	Outline	2	Limit to contractilitym extensibility, elasticty, atrophy, hypertrophy, controlled by nerve stimuli and fed by capillaries	
1.2.2	Distinguish between the different types of muscle	Distinguish	2	Incluse smooth, cardiac and skeletal	
1.2.3	Annotate the structure of skeletal muscle	Annotate	1	Limit to epimysium, perimysium, endomysyium, muscle fiber, myofibril, sarcomere, actin and myosin	
1.2.4	Define the terms ORIGIN and INSERTION of muscles	Define	1	Oriigin: Teha ttachment of a muscle tendon to a stationary bone. Insertion: The attachment of a muscle tendon to a moveable bone	
1.2.5	Identify the location of skeletal muscles in various regions of the body	Identify	2	Anterior muscles: Deltoid, pectoralis, iliopsoas, sartorius, quadriceps femoris (rectus femoris, vastus lateralis, vastus medialis, vastus intermedialis), tibialis anterior, adbominus rectus, external obliques, biceps brachii.The posterior muscles: Trapezius, triceps brachii, latissimus dorsi, gluteus maximus, hamstrngs (biceps femoris, semitendinosus, semimembranosus,) gastrocnemius, soleus, erector spinae.	
2.1.1	List the principal structures of the ventilator system	List	1	Nose, mouth, pharynx, larynx, trachea, bronchi, bronchioles, lungs and alveoli	7

Code	Assessment Statement	Command Term	Obj	Notes	Aim
2.1.2	Outline the functions of the conducting pathways	Outline	2	Limit to low resistance pathway for airflow, defense against chemicals, and other harmful substances that are inhaled, warming and moistening of the air	7
2.1.3	Define the terms PULMONARY VENTILATION, TOTAL LUNG CAPACITY, TIDAL VOLUME, EXPIRATORY RESERVE VOLUME, INSPIRATORY RESERVE VOLUME and RESIDUAL VOLUME.	Define	1	PV: inflow and outflow of air between the atmosphere and the lungs (also called breathing). TLC: volume of air in the lungs after a maximum inhalation. VC: Maximum volume of air that can be exhaled after a maximum inhalation. TV: Volume of air breathed in and out in any one breath. ERV: Volume of air in excess of tidal volume that can be exhaled forcibly. IRV: Additional inspired air over and above tidal volume. RV: Volume of air still contained in the lungs after a maximal exhalation.	7
2.1.4	Explain the mechanics of ventilation in the human lung.	Explain	3	Include the actions of the diaphragm and the intercostal muscles, and the relationship between voluem and pressure. students should be aware that accessory muscles are also important during strenuous exercise	7
2.1.5	Describe the nervous and chemical control of ventilation during exercise.	Describe	2	Limit to ventilation increases as a direct resuls of increases in blood acitiy levels (low pH) due to increased carbon dioxide content of the blood detected by the respiratory xcenter. This results in an increase in the rate and depth of venitlation. Neural control of ventilation includes lung stretch receptors, muscle proprioceptors and chemoreceptors. The role of H+ ions and reference to partial pressure of oxygen are not required	7
2.1.6	Outline the role of hemoglobin in oxygen transportation.	Outline	2	Most (98.5%) of oxygen in the blood is transported by hemoglobin as oxyhemoglobin within red blood cells.	7
2.1.7	Explain the process of gaseous exchange at the alveoli.	Explain	3		7
2.2.1	State the composition of blood	State	1	Blood is composed of cells (erythrocytes, leucocytes and platelets) and plasma. Blood is also the transport vehicle for electrolytes, proteins, gases, nutrients, waste products and hormones.	7
2.2.2	Distinguish between the functions of erythrocytes, leukocytes, and platelets.	Distinguish	2		7
2.2.3	Describe the anatomy of the heart with reference to the heart chambers, valves and major blood vessels.	Describe	2	The names of the four chambers, four valves (bicuspid, tricuspid, aortic and pulmonary valve) and the four major blood vessels (vena cava, pulmonary vein, the aorta and pulmonary artery) of the pulmonary and systemic circulation are required. The heart has its own blood supply via the coronary arteries, however the names of the coronary arteries are not required.	7

Code	Assessment Statement	Command Term	Obj	Notes	Aim
2.2.4	Describe the intrinsic and extrinsic regulation of heart rate and the sequence of excitation of the heart muscle.	Describe	2	The heart has its own pacemaker, but heart rate is also influenced by the sympathetic and parasympathetic branches of the autonomic nervous system and by adrenaline. (It should be recognized that adrenaline has wider metabolic actions, ie increasing glycogen and lipid breakdown.) The electrical impulse is generated at the sinoatrial node (SA node) and travels across the atria to the atrioventricular node (AV node) to the ventricles.	7
2.2.5	Outline the relationship between the pulmonary and systemic circulation.	Outline	2		7
2.2.6	Describe the relationship between heart rate, cardiac output and stroke volume at rest and during exercise.	Describe	2	Cardiac output = stroke volume × heart rate. Stroke volume expands and heart rate increases during exercise.	7
2.2.7	Analyze cardiac output, stroke volume, and heart rata data for different populations at rest and during exercise.	Analyze	3	Limit to males, females, trained, untrained, young and old. Recall of quantitative data is not expected.	7
2.2.8	Explain cardiovascular drift	Explain	3	An increase of body temperature results in a lower venous return to the heart, a small decrease in blood volume from sweating. A reduction in stroke volume causes the heart rate to increase to maintain cardiac output. Include reference to blood viscocity	7
2.2.9	Define the terms SYSTOLIC and DIASTOLIC blood pressure.	Define	1	Systolic: the force exerted by blood on arterial walls during ventricular contraction. Diastolic: the force exerted by blood on arterial walls during ventricular relaxation.	7
2.2.10	Analyze systolic and diastolic blood pressure respond to dynamic and static exercise.	Analyze	3	Recall of quantitative data is not expected.	7
2.2.11	Discuss how systolic and diastolic blood pressures respond to dynamic and static exercise.	Discuss	3		7
2.2.12	Compare the distribution of blood at rest and the redistribution of blood during exercise.	Compare	3	Movement of blood in favour of muscles.	7
2.2.13	Describe the cardiovascular adaptations resulting from endurance exercise training.	Describe	2	Limit to increased left ventricular volume resulting in an increased stroke volume and a lower resting and exercising heart rate. Consider also increased capillarization and increased arterio-venous oxygen difference.	7
2.2.14	Explain maximal oxygen consumption.	Explain	3	Maximal oxygen consumption (VO2max) represents the functional capacity of the oxygen transport system and is sometimes referred to as maximal aerobic power or aerobic capacity	7
2.2.15	Discuss the variability of maximal oxygen consumption in selected groups.	Discuss	3	Consider trained versus untrained, males versus females, young versus old, athlete versus non-athlete.	7

Code	Assessment Statement	Command Term	Obj	Notes	Aim
2.2.16	Discuss the variability of maximal oxygen consumption with different modes of exercise.	Discuss	3	Consider cycling versus running versus arm ergometry.	7
3.1.1	List the macro and micronutrients.	List	1	Macro–lipid (fat), carbohydrate, water and protein. Micro–vitamins, minerals and fibre.	
3.1.2	Outline the functions of macronutrients and	Outline	2	Specific knowledge of individual vitamins and minerals is not required.	
3.1.3	State the chemical composition of a glucose molecule	State	1	C, H and O (1:2:1 ratio)	
3.1.4	Identify a diagram representing the basic structure of a glucose molecule	Identify	2	Be able to draw chemical structure	
3.1.5	Explain how glucose molecules can combine to form disaccharides and polysaccharides	Explain	3	Condensation reaction—the linking of a monosaccharide to another monosaccharide, disaccharide or polysaccharide by the removal of a water molecule.	
3.1.6	State the composition of a molecule of triglycerol	State	1	Limit to glycerol and three fatty acids.	
3.1.7	Distinguish between a saturated and unsaturated fatty acid	Distinguish	2	Saturated fatty acids have no double bonds between the individual carbon atoms of the fatty acid chain. Saturated fats originate from animal sources, for example meat, poultry, full-fat dairy products and tropical oils, such as palm and coconut oils. Unsaturated fatty acids contain one or more double bonds between carbon atoms within the fatty acid chain. Unsaturated fats originate from plant-based foods for example olive oil, olives, avocado, peanuts, cashew nuts, canola oil and seeds, sunflower oil and rapeseed.	
3.1.8	State the chemical composition of a protein molecule	State	1	Limit to C, H, O and N.	
3.1.9	Distinguish between an essential and non-essential amino acid	Distinguish	2	Essential amino acids cannot be synthesized by the human body and must be obtained from diet. Non-essential amino acids can be synthesized by the human body.	
3.1.10	Describe current recommendations for a healthy balanced diet	Describe	2	Consider recommendations for carbohydrates, proteins, lipids, fibre, water and salt for adults in the general population. The relative contribution of carbohydrate, protein and lipid (including monounsaturated, polyunsaturated and saturated) should be given.	8; 9
3.1.11	State the approximate energy per 100g of carbohydrate, lipid, and protein	State	1	Students should know that the energy content values per 100 g are: carbohydrate 1760 kJ, lipid 4000 kJ and protein 1720 kJ.	
3.1.12	Discuss how the recommended energy distribution of the dietary macronutrients differs between endurance athletes and non-athletes.	Discuss	3	Limit to the important difference in carbohydrate intake and how therefore this also affects fat and protein intake. For example, carbohydrate intake is higher, protein and fats intake is slightly higher for a marathon runner than a non-athlete, and vice versa.	8; 9

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3.2.1	Outline metabolism, anabolism, aerobic catabolism, and anaerobic catabolism	Outline	2	Metabolism: All the biochemical reactions that occur within an organism, including anabolic and catabolic reactions. Anabolism: Energy requiring reactions whereby small molecules are built up into larger ones. Catabolism: Chemical reactions that break down complex organic compounds into simpler ones, with the net release of energy.	
3.2.2	State what glycogen is and its major storage sites	State	1		
3.2.3	State the major sites of triglyceride storage	State	1	Adipose tissue and skeletal muscle.	
3.2.4	Explain the role of insulin in the formation of glycogen and the accumulation of body fat	Explain	3		
3.2.5	Outline glycogenesis and lipolysis	Outline	2		
3.2.6	Outline functions of glucagon and adrenaline during fasting and exercise	Outline	2		
3.2.7	Explain the role of insulin and muscle contraction on glucose uptake during exercise.	Explain	3	Emphasize that both insulin and muscle contraction stimulate glucose uptake from the blood into skeletal muscle.	
3.3.1	Annotate a diagram of the ultrastructure of a generalized animal cell	Annotate	2	The diagram should show ribosomes, rough endoplasmic reticulum, lysosomes, Golgi apparatus, mitochondrion and nucleus.	
3.3.2	Annotate a diagram of the ultrastructure of a mitochondrion	Annotate	2	Cristae, inner matrix and outer smooth membrane.	
3.3.3	Define the term Cell Respiration	Define	1	Cell respiration is the controlled release of energy in the form of ATP from organic compounds in cells.	
3.3.4	Explain how adenosine can gain and lose a phosphate molecule	Explain	3		
3.3.5	Explain the role of ATP in muscle contraction	Explain	3	Limit to the breakdown of ATP to ADP releasing a phosphate molecule, which provides energy for muscle contraction. Cross reference with 4.1.3.	
3.3.6	Describe the re-synthesis of ATP by the ATP-CP system	Describe	2	Creatine phosphate (a high energy molecule) is broken down to provide a phosphate molecule for the re-synthesis of ATP that has been utilized during the initial stages of exercise	
3.3.7	Describe the production of ATP by the lactic acid system	Describe	2	Also known as anaerobic glycolysis—the breakdown of glucose to pyruvate without the use of oxygen. Pyruvate is then converted into lactic acid, which limits the amount of ATP produced (2 ATP molecules).	
3.3.8	Explain the phenomena of oxygen deficit and oxygen debt	Explain	3	Oxygen debt is now known as excess post-exercise oxygen consumption (EPOC).	

Code	Assessment Statement	Command Term	Obj	Notes	Aim
3.3.9	Describe the production of ATP from glucose and fatty acids by the aerobic system	Describe	2	Limit to: in the presence of oxygen pyruvate is processed by the Krebs cycle which liberates electrons that are passed through the electron transport chain producing energy (ATP). Fats are also broken down by beta oxidation that liberates a greater number of electrons thus more ATP. In the presence of oxygen and in extreme cases protein is also utilized.	
3.3.10	Discuss the characteristics of the three energy systems and their relative contributions during exercise	Discuss	3	Limit to fuel sources, duration, intensity, amount of ATP production and by-products.	
3.3.11	Evaluate the relative contributions of the three energy systems during different types of exercise	Evaluate	3	Energy continuum. Different types of exercise (endurance athlete, games player, sprinter) should be considered.	
4.1.1.	Label a diagram of a motor unit	Label	1	Limit to dendrite, cell body, nucleus, axon, motor end plate, synapse and muscle.	
4.1.2	Explain the role of neurotransmitters in stimulating skeletal muscle contraction.	Explain	3	Limit to acetylcholine and cholinesterase.	
4.1.3	Explain how skeletal muscle contracts by the sliding filament theory.	Explain	3	Include the terms myofibril, myofilament, sarcomere, actin and myosin, H zone, A band, Z line, tropomyosin, troponin, sarcoplasmic reticulum, calcium ions and ATP.	7
4.1.4.	Explain how slow and fast twitch fiber types differ in structure and function.	Explain	3	Limit fibre types to slow twitch (type I) and fast twitch (type IIa and type IIb). Type IIa and IIb are high in glycogen content depending on training status.	8; 9
4.2.1	Outline the types of movement of synovial joints.	Outline	2	Consider flexion, extension, abduction, adduction, pronation, supination, elevation, depression, rotation, circumduction, dorsi flexion, plantar flexion, eversion and inversion.	
4.2.2	Outline the types of muscle contraction.	Outline	2	Consider isotonic, isometric, isokinetic, concentric and eccentric.	
4.2.3	Explain the concept of reciprocal inhibition.	Explain	3	Consider agonist and antagonist.	
4.2.4	Analyze movements in relation to joint action and muscle contraction.	Analyze	3	For example, during the upward motion of a bicep curl the joint action is flexion. The bicep contracts concentrically while the tricep relaxes eccentrically.	
4.2.5	Explain delayed onset muscle soreness (DOMS) in relation to eccentric and concentric muscle contractions.	Explain	3	DOMS results primarily from eccentric muscle action and is associated with structural muscle damage, inflammatory reactions in the muscle, overstretching and overtraining. DOMS is prevented/minimized by reducing the eccentric component of muscle actions during early training, starting training at a low intensity and gradually increasing the intensity, and warming up before exercise, cooling down after exercise.	

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4.3.1	Define the terms force, speed, velocity, displacement, acceleration, momentum, and impulse.	Define	1	Encourage the use of vectors and scalars.	
4.3.2	Analyze velocity-time, distance-time, and force-time graphs of sporting actions.	Analyze	3		
4.3.3	Define the term centre of mass.	Define	1		
4.3.4	Explain that a change in body position during sporting activities can change the position of the centre of mass.	Explain	3	Consider one example of an activity where the centre of mass remains within the body throughout the movement and one activity where the centre of mass temporarily lies outside the body. Students should understand the changes in body position and centre of mass pathway.	
4.3.5	Distinguish between first, second and third class levers.	Distinguish	2		
4.3.6	Label anatomical representations of levers.	Label	1	Limit to the triceps–elbow joint, calf–ankle joint and biceps–elbow joint. Students will be expected to indicate effort, load, fulcrum and the muscles and bones involved.	
4.3.7	Define Newton's three laws of motion.	Define	1		
4.3.8	Explain how Newton's three laws of motion apply to sporting activities.	Explain	3	For example, consider how Newton's second and third laws enable an athlete to accelerate out of starting blocks. Impulse momentum relationship. The law of conservation of momentum should also be considered.	
4.3.9	State the relationship between angular momentum, moment of inertia and angular velocity.	State	1		
4.3.10	Explain the concept of angular momentum in relation to sporting activities.	Explain	3	Include consideration of moments of inertia, major axes of rotation and an appreciation of the law of conservation of angular momentum.	
4.3.11	Explain the factors that affect projectile motion at take-off or release.	Explain	3	Include speed of release, height of release and angle of release.	

Code	Assessment Statement	Command Term	Obj	Notes	Aim
4.3.12	Outline the Bernoulli Principle with respect to projectile motion in sporting activities.	Outline	2	The relationship between air flow velocity and air pressure is an inverse one, and is expressed in Bernoulli's principle. The pressure difference causes the spinning golf ball to experience a force directed from the region of high air pressure to the region of low air pressure. A golf ball with backspin will experience higher air pressure on the bottom of the ball and lower air pressure on the top of the ball, causing a lift force (from high air pressure to low air pressure). Consider how airflow affects the golf ball and one other example. When an object is moving through the air it is important to consider the relative air flow on different sides of the object. The airflow difference between opposite sides (eg bottom and top of a spinning golf ball) of the object moving through the air causes a pressure difference between the two sides. The lift force is perpendicular to the direction of the air flow.	7
5.1.1	Define the term Skill	Define	1	Skill is the consistent production of goal-oriented movements, which are learned and specific to the task (McMorris 2004).	
5.1.2	Describe the different types of skill.	Describe	2	Skill is the consistent production of goal-oriented movements, which are learned and specific to the task (McMorris 2004).	
5.1.3	Outline the different approaches to classifying motor skills.	Outline	2	Limit to (i) gross–fine (ii) open–closed (iii) discrete–serial–continuous (iv) external–internal paced skills (v) interaction continuum (individual–coactive–interactive).	
5.1.4	Compare skill profiles for contrasting sports.	Compare	3	Using the continua in 5.1.3, compare contrasting sports.	
5.1.5	Outline Ability	Outline	2	Ability refers to a general trait or capacity of the individual that is related to the performance and performance potential of a variety of skills or tasks.	
5.1.6	Distinguish between Fleishman's physical proficiency abilities (physical factors) and perceptual motor abilities (psychomotor factors)	Distinguish	2	Fleishman (1972) distinguishes between physical proficiency and perceptual motor ability. Recall of the individual abilities is not required.	
5.1.7	Define the term Technique.	Define	1	Technique in general terms is a "way of doing". In the performance of a specific sports skill it is defined as the "way in which that sports skill is performed".	
5.1.8	State the relationship between ability, skill, and technique.	State	1	Skill = ability + selection of an appropriate technique.	
5.1.9	Discuss the differences between a skilled and novice performer.	Discuss	3	Limit to consistency, accuracy, control, learned, efficiency, goal-directed and fluency.	

Code	Assessment Statement	Command Term	Obj	Notes	Aim
5.2.1	Describe a simple model of information processing	Describe	2	Information processing is the system by which we take information from our surrounding environment, use it to make a decision and then produce a response: input–decision-making–output. All the approaches are only models. Input and output are assessable/observable, but the decision-making process can only be speculation.	
5.2.2	Describe Welford's model of information processing	Describe	2	Welford's model (1968) includes: (i) sense organs (ii) perception (iii) short-term memory (iv) long-term memory (v) decision making (vi) effector control (vii) feedback.	
5.2.3	Outline the components associated with sensory input.	Outline	3	Consider exteroceptors, proprioceptors and interoceptors.	
5.2.4	Explain the signal-detection process.	Explain	3	Often referred to as the detection–comparison–recognition process (DCR). Limit to background noise, intensity of the stimulus, efficiency of the sense organs, early signal detection and improving signal detection.	
5.2.5	Distinguish between the characteristics of short-term sensory store, short-term memory and long-term memory.	Distinguish	2	Limit to capacity, duration and retrieval.	
5.2.6	Discuss the relationship between selective attention and memory.	Discuss	3	Selective attention (SA) operates in the short-term sensory store (STSS). Only the relevant information is passed to the short-term memory (STM) where it is held for several seconds. SA ensures that information overload does not occur and prevents confusion as the brain would not be able to cope with streams of information. A filtering mechanism operates, which separates the relevant information from the irrelevant (noise) information so that athletes concentrate on one cue or stimulus (for example, the ball, position of player in a game of tennis) to the exclusion of others. SA is very important when accuracy or fast responses are required and can be improved by learning through past experience and interaction with long-term memory.	
5.2.7	Compare different methods of memory improvement.	Compare	3	Limit to rehearsal, coding, brevity, clarity, chunking, organization, association and practice.	
5.2.8	Define the term Response Time	Define	1	Response time = reaction time + movement time.	7
5.2.9	Outline factors that determine response time.	Outline	2	Response time is an ability, having individual and group variance (for example, gender and age). Reaction time includes stimulus transmission, detection, recognition, decision to respond, nerve transmission time and initiation of action. Include consideration of Hick's Law.	

Code	Assessment Statement	Command Term	Obj	Notes	Aim
5.2.10	Evaluate the concept of the psychological refractory period. (PRP)	Evaluate	3	Include the single channel mechanism and how PRP helps to explain deception in sport.	
5.2.11	Describe a motor programme.	Describe	2	Defined as a set of movements stored as a whole in the memory regardless of whether feedback is used in their execution. Limit to: (i) a whole plan (executive programme/motor programme) and subroutines (ii) coordination of subroutines (iii) relegating executive programmes to subroutines.	
5.2.12	Compare motor programmes from both open and closed loop perspectives.	Compare	3	Include Adams' concepts of memory trace and perceptual trace.	
5.2.13	Outline the role of feedback in information processing models.	Outline	2	Limit to: (i) intrinsic, extrinsic (ii) knowledge of results, knowledge of performance (iii) positive, negative (iv) concurrent, terminal.	
5.2.14	Outline the role of feedback with the learning process.	Outline	2	Limit to reinforcement of learning, motivation, adaptation of performance and punishment.	
5.3.1	Distinguish between learning and performance	Distinguish	2	Learning is a relatively permanent change in performance brought about by experience, excluding changes due to maturation and degeneration. Performance is a temporary occurrence, fluctuating over time. A change in performance over time is often used to infer learning.	
5.3.2	Describe the phases (stages) of learning.	Describe	2	Cognitive/verbal (early phase), associative/motor (intermediate phase), and autonomous (final phase).	
5.3.3	Outline the different types of learning curves.	Outline	2	Limit to: (i) positive acceleration (ii) negative acceleration (iii) linear (iv) plateau.	
5.3.4	Discus the factors that contribute to the different rates of learning.	Discuss	3	Limit to physical maturation, physical fitness, individual differences of coaches, age, difficulty of task, teaching environment and motivation.	
5.3.5	Define the concept of Transfer	Define	1		
5.3.6	Outline the types of transfer	Outline	2	Limit to positive and negative, as they apply to: skill to skill practice to performance abilities to skills bilateral stage to stage principles to skills. Refer to an example in each case.	
5.3.7	Outline the different types of practice	Outline	2	Limit to distributed, massed, fixed (drill), variable and mental	
5.3.8	Explain the different types of presentation.	Explain	3	Limit to whole, whole–part–whole, progressive part, part. Refer to an example in each case.	
5.3.9	Outline the spectrum of teaching styles.	Outline	2	Limit to command, reciprocal and problem solving.	

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6.1.1	Outline that error bars are a graphical representation of the variability of data.	Outline	2	Only standard deviation needs to be considered.	
6.1.2	Calculate the mean and standard deviation of a set of values	Calculate	2	Students should specify the sample standard deviation, not the population standard deviation. Students will not be expected to know the formulas for calculating these statistics. They will be expected to use the statistics function of a graphic display or scientific calculator.	7
6.1.3	State the statistical standard deviation is used to summarize he spread of values around the mean, and that within a normal distribution approximately 68% and 95% of the values fall within plus or minus one or two standard deviations respectively.	State	1	For normally distributed data, about 68% of all values lie within ±1 standard deviation of the mean. This rises to about 95% for ±2 standard deviations	
6.1.4	Explain how the standard deviation is useful for comparing the means and the spread of data between two or more samples.	Explain	3	A small standard deviation indicates that the data is clustered closely around the mean value. Conversely, a large standard deviation indicates a wider spread around the mean.	
6.1.5	Outline the meaning of coefficient of variation	Outline	2	Coefficient of variation is the ratio of the standard deviation to the mean expressed as a percentage.	
6.1.6	Deduce the significance of the difference between two sets of data using calculated values for t and the appropriate tables.	Deduce	3	For the t-test to be applied, ideally the data should have a normal distribution and a sample size of at least 10. The t-test can be used to compare two sets of data and measure the amount of overlap. Students will not be expected to calculate values of t. Only two-tailed, paired and unpaired t-tests are expected.	7
6.1.7	Explain that the existence of a correlation does not establish that there is a causal relationship between two variables.	Explain	3		7
6.2.1	Outline the importance of specificity, accuracy, reliability and validity with regard to fitness testing.	Outline	2		
6.2.2	Discuss the importance of study design in the context of the sport and exercise sciences.	Discuss	3	This should include a demonstration of causality in experimental results by the inclusion of control groups, randomization, placebos, blinding and double-blinding, statistical analysis.	
6.2.3	Outline the importance of the Physical Activity Readiness Questionare (PARQ)	Outline	2		
6.2.4	Evaluate field, laboratory, submaximal and maximal tests of human performance.	Evaluate	3		

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6.3.1	Distinguish between the concepts of Health related fitness and performance related (skill related) performance	Distinguish	2	Health-related fitness includes body composition, cardio-respiratory fitness (aerobic capacity), flexibility, muscular endurance, strength. Performance-related (skill-related) fitness includes agility, balance, coordination, power, reaction time and speed. Some components of performance-related fitness (agility, balance, coordination) could become health-related for certain groups such as the elderly and those suffering from hypokinetic diseases.	
6.3.2	Outline the major components of fitness identifies in 6.3.1	Outline	2		
6.3.3	Outline and evaluate a variety of fitness tests	Outline	3	Consider validity, reliability and limitations of the following tests: Aerobic capacity—multistage fitness test/bleep test (Leger Test), Cooper's 12 Minute Run, Harvard Step Test Flexibility—sit and reach Muscle endurance—maximum sit-ups, maximum push-ups, flexed arm hang Agility—Illinois Agility Test Strength—hand grip dynamometer Speed—40 metre sprint Body composition—body mass index, anthropometry and underwater weighing Balance—stork stand Coordination—hand ball toss Reaction time—drop test, computer simulation Power—vertical jump, standing broad jump	7; 9
6.4.1	Describe the essential elements of a general training programme.	Describe	2	This should include warm-up and stretching activities, endurance training, cool down and stretching activities, flexibility training, resistance training and the incorporation of recreational activities and sports into the schedule	
6.4.2	Discuss the key principles of training programme design	Discuss	3	Limit to progression, overload (frequency, intensity and duration), specificity, reversibility, variety and periodization.	
6.4.3	Outline ways in which exercise intensity can be monitored	Outline	3	Limit to: use of heart rate based upon its relationship with oxygen uptake, ie target heart rate that coincides with a given percentage of maximal oxygen uptake the Karvonen method the training heart rate range/zone ratings of perceived exertion (Borg/OMNI/CERT scale).	

Code	Assessment Statement	Command Term	Obj	Notes	Aim
A.1.1	Distinguish between training, overtraining, and overreaching	Distinguish	2	Training is performing exercise in an organized manner on a regular basis with a specific goal in mind (cross reference with 6.2). Overtraining is when an athlete attempts to do more training than he or she is able to physically and/or mentally tolerate. Overtraining results in a number of symptoms that are highly individualized. Overreaching is transient over-training.	
A.1.2	Describe various methods of training	Describe	2	Limit to: flexibility training strength and resistance training circuit training interval training plyometrics continuous training fartlek training/speed play cross-training.	
A.1.3	Discuss possible indicators of overtraining.	Discuss	3	Limit to changes to resting heart rate, chronic muscle soreness, reduced immune function and frequent upper-respiratory tract infections (coughs and colds), sleep disturbance, fatigue, decreased appetite, sudden and unexplained decrease in performance	
A.1.4	Discuss how periodization should be organized to optimize performance and avoid overtraining and injury	Discuss	3	Periodization—transition (post-season), preparation (pre-season), competition. Knowledge of macrocycle, mesocycle and microcycle is required.	
A.2.1	Explain the relationship between cellular metabolism and the production of heat in the human body.	Explain	3	Include consideration of the meaning of efficiency with regard to energy liberation, ATP re-synthesis and heat production.	
A.2.2	State the normal physiological range for core body temperature.	State	1		
A.2.3	Outline how the body thermoregulates in hot and cold environments.	Outline	2	Include the principles of conduction, convection, radiation and evaporation.	Int
A.2.4	Discuss the significance of humidity and wind in relation to body heat loss.	Discuss	3		
A.2.5	Describe the formation of sweat and the sweat response.	Describe	2	Consideration of the role of the sympathetic nervous system and the hypothalamus is not required.	

Code	Assessment Statement	Command Term	Obj	Notes	Aim
A.2.6	Discuss the physiological responses that occur during prolonged exercise in the heat.	Discuss	3	Limit this to cardiovascular response (cross reference with 2.2.8), energy metabolism* and sweating. * The reduced muscle blood flow in high temperatures results in increased glycogen breakdown in the muscle and higher levels of muscle and blood lactate in comparison to the same exercise performed in a cooler environment.	
A.2.7	Discuss the health risks associated with exercising in the heat.	Discuss	3	Heat-related disorders include heat cramps, heat exhaustion and heat stroke. Because of their relatively large body surface area and immature sweat response, infants, children and young adolescents are more susceptible to complications associated with exercise performed in the heat and the cold.	
A.2.8	Outline what steps should be taken to prevent and subsequently treat heat-related disorders	Outline	2		
A.2.9	Describe how an athlete should acclimatize to heat stress	Describe	2	Performing training sessions in similar environmental conditions (heat and humidity) for 5 to 10 days results in almost total heat acclimatization. Initially, the intensity of training should be reduced to avoid heat-related problems in these conditions. National representative teams/sportspeople choosing to acclimatize to the conditions of a host country during a major international sporting competition could be considered.	8
A.2.10	Discuss the physiological and metabolic adaptations that occur with acclimatization	Discuss	3	Include increased plasma volume, increased sweat response and reduced rate of muscle glycogen utilization.	
A.2.11	Outline the principal means by which the body maintains core temperature in cold environments.	Outline	2	Consider shivering, non-shivering thermogenesis and peripheral vasoconstriction.	
A.2.12	Explain why the body surface area-to-body ratio is important for heat preservation.	Explain	3	For example, tall, heavy individuals have a small body surface area-to-body mass ratio which makes them less susceptible to hypothermia. Small children tend to have a large body surface area-to-body mass ratio compared to adults. This makes it more difficult for them to maintain normal body temperature in the cold.	
A.2.13	Outline the importance of wind chill in relation to body heat loss.	Outline	2	A chill factor created by the increase in the rate of heat loss via convection and conduction caused by wind.	

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A.2.14	Explain why swimming in cold water presents a particular challenge to the body's capability to thermoregulate	Explain	3	Consider the thermal conductivity of water and air. During cold-water immersion, humans generally lose body heat and become hypothermic at a rate proportional to the thermal gradient and the duration of exposure. During swimming, the effect of cold water on body heat loss is increased because of greater convective heat loss. However, at high swimming speeds, the metabolic rate of the swimmer may compensate for the increased heat loss.	
A.2.15	Discuss the physiological responses to exercise in the cold.	Discuss	3	Limit this to muscle function and metabolic responses.	
A.2.16	Describe the health risks of exercising in the cold, including cold water.	Describe	2	Limit to frostbite and hypothermia.	
A.2.17	Discuss the precautions that should be taken when exercising in the cold	Discuss	3	The principal barrier is clothing, the amount of insulation offered by which is measured in a unit called a clo (1 clo = 0.155 m2 K W-1). Consider the insulating effect of clothing. Consideration of exercising in water is not required.	
A.3.1	Define the term ergogenic aid	Define	1	An ergogenic aid is any substance or phenomenon that improves an athlete's performance.	8
A.3.2	Describe with reference to an appropriate example, the placebo effect.	Describe	2		8
A.3.3	List five classes on non-nutritional ergogenic aids that are currently banned by the international Olympic committee and the World Anti-Doping Agency	List	1	Specific names of banned substances need not be given. Limit to: anabolic steroids hormones and related substances diuretics and masking agents beta blockers stimulants.	8
A.3.4	Discuss why pharmacological substances appear on the list of banned substances.	Discuss	3	The discussion should focus on the moral obligation of athletes to compete fairly and on the safety issue around the use of these substances.	8
A.3.5	Discuss the proposed and actual benefits that some athletes would hope to gain by using anabolic steroids, erythropoietin, beta blockers, caffeine and diuretics.	Discuss	3	The combined effects of taking two or more of the above need not be considered.	8
A.3.6	Outline the possible harmful effects of long term use of anabolic steroids, EPO, beta blockers, caffeine and diuretics.	Outline	2		8

Code	Assessment Statement	Command Term	Obj	Notes	Aim
B.1.1	Define the term personality	Define	1	There are many definitions of personality; for the purpose of this course the following definition will be used. “Those relatively stable and enduring aspects of individuals which distinguish them from other people, making them unique but at the same time permit a comparison between individuals”. (Gross, 1992)	
B.1.2	Discuss social learning theory and personality	Discuss	3	Limit to Bandura’s (1977) social learning theory.	
B.1.3	Discuss the interactionist approach to personality	Discuss	3		
B.1.4	Outline issues associated with the measurement of personality	Outline	2	Limit to: data collection (interviews, questionnaires, observing behaviour) validity and reliability issues ethical issues: confidentiality, use of results, predicting performance.	
B.1.5	Evaluate the issues in personality research and sports performance	Evaluate	3	Consider athletes versus non-athletes, personality and sport type, predicting performance. Refer to the positions adopted by the sceptical and credulous groups of psychologists.	
B.2.1	Define the term motivation	Define	1	Motivation is “the internal mechanisms and external stimuli which arouse and direct our behaviour” (Sage, 1974).	
B.2.2	Outline the types of motivation	Outline	2	Limit to intrinsic and extrinsic motivation theory.	
B.2.3	Discuss the issues associated with the use of intrinsic and extrinsic motivators in sports and exercise.	Discuss	3	Limit to how extrinsic rewards influence intrinsic motivation. Extrinsic rewards seen as controlling of behaviour. Extrinsic rewards providing information about their level of performance. Extrinsic rewards will enhance intrinsic motivation when the reward provides positive information with regard to the performer’s level of competence.	
B.2.4	Describe Atkinsons’s model of Achievement Motivation	Describe	2		
B.2.5	Outline Goal Orientation theory	Outline	2	Limit to: reasons for participation (achievement goals) differing meanings that success or failure has for the performer (task versus outcome orientation).	

Code	Assessment Statement	Command Term	Obj	Notes	Aim
B.2.6	Describe Attribution Theory and its application to sport and exercise	Describe	2	Limit to Weiner's classification for causal attributions. Locus of stability Locus of causality Locus of control Self-serving bias Learned helplessness	
B.3.1	Define the term arousal	Define	1		
B.3.2	Describe the theoretical approaches to arousal	Describe	2	Limit to: drive reduction theory inverted-U hypothesis catastrophe theory.	
B.3.3	Draw and label a graphical representation of the arousal performance relationship	Draw	1	Refer to the theories of arousal in B.3.2.	
B.3.4	Discuss the emotions that may influence an athlete's performance or experience in a physical activity	Discuss	3		
B.3.5	Define the term anxiety	Define	1	Participation in sport and exercise influences a range of participant emotions such as depression, anxiety, and pleasure. Limit to a discussion of the emotions that may be prevalent in physical activity. This may include: positive emotions such as excitement, relief, pride negative emotions such as anger, guilt, shame, anxiety, boredom specific emotions that have a discrete effect on performance (eg a negative mood is more likely to prime us to remember negative memories of past failures, and thus reduce our feelings of confidence to perform; eg a positive mood is more likely to prime us to remember positive previous outcomes, and increase our confidence to perform).	
B.3.6	Distinguish between cognitive and somatic anxiety	Distinguish	2		
B.3.7	Distinguish between train and state anxiety	Distinguish	2		
B.3.8	Evaluate how anxiety is measured	Evaluate	3	Limit to: trait anxiety: Sport Competition Anxiety Test (SCAT) state anxiety: Competitive State Anxiety Inventory-2 (CSAI-2R).	

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B.3.9	Describe the stress process in sport.	Describe	2	Defined as a substantial imbalance between the demand (physical and/or psychological) and response capability, under conditions where failure to meet that demand has important consequences. Include: (i) causes of stress (environmental demand), (ii) stress response (person's reactions), (iii) stress experience (psychological interpretation), (iv) actual behaviour (outcome).	
B.4.1	Discuss psychological skills training	Discuss	3	Refers to the systematic and consistent practice of mental or psychological skills. Include the following issues. PST: (i) is not just for elite athletes (ii) is not just for problem athletes (iii) does not provide quick fix solutions. Consider the three phases of a PST programme: (i) education (ii) acquisition (iii) practice.	
B.4.2	Outline goal setting	Outline	2	Include: associated with enhancing self-confidence and motivation SMARTER (specific, measurable, achievable, realistic, time, evaluate, review) goals types of goals (outcome, performance, process).	
B.4.3	Evaluate mental imagery	Evaluate	3	Associated with concentration enhancement, self-confidence, skill acquisition, emotional control, practice strategy and coping with pain and injury. Include: external and internal imagery protocol for imagery interventions.	
B.4.4	Outline relaxation techniques	Outline	2	Associated with arousal regulation, reducing somatic and cognitive anxiety. Include: (i) progressive muscular relaxation (PMR) (ii) breathing techniques (iii) biofeedback.	
B.4.5	Outline self-talk techniques	Outline	2	Associated with concentration, attention, cognitive regulation and motivation enhancement. Include: positive and negative self-talk thought stopping.	

Code	Assessment Statement	Command Term	Obj	Notes	Aim
C.1.1	Distinguish between the terms habitual physical activity, exercise, sport and physical fitness	Distinguish	2		
C.1.2	Define the term hypokinetic disease	Define	1	Hypokinetic disease: disease associated with physical inactivity.	
C.1.3	Outline the following hypokinetic diseases; coronary heart disease, stroke, hypertension, obesity, type 2 diabetes and osteoporosis	Outline	2		
C.1.4	Discuss how studies of different populations provide evidence of the link between physical activity and hypokinetic disease	Discuss	3		Int
C.1.5	Discuss the relationship between major societal changes and hypokinetic disease	Discuss	3	Examples of changes include the proliferation of the motor vehicle, changes in employment and working patterns, and changes in diet such as the rise of fast food.	
C.2.1	Outline the coronary circulation	Outline	2	Left and right coronary arteries, circumflex artery and left anterior descending artery should be identified.	
C.2.2	Outline what is meant by the term atherosclerosis	Outline	2	A detailed explanation of the processes leading to atherosclerosis is not required. The general idea that an artery becomes damaged and blocked with cholesterol and other material (the formation of atherosclerotic plaque) is sufficient.	
C.2.3	List the major risk factors for cardiovascular disease	List	1	Limit to cigarette smoking, high blood pressure (hypertension), high cholesterol and LDL-cholesterol, low HDL-cholesterol, diabetes, obesity, physical inactivity, age, gender, ethnicity and family history.	
C.2.4	Explain the concept of risk factors in cardiovascular disease	Explain	3	Consider the individual and accumulative effects (ie the effects of having one risk factor versus a cluster) of the major risk factors for cardiovascular disease.	7; 8
C.2.5	Discuss how a lifestyle of physical inactivity increases the risk of cardiovascular disease	Discuss	3	Discussion of the physiological mechanisms is not required (for example, why inactivity “causes” high blood pressure). Emphasis should be on the concept that people who are physically inactive are more likely to have risk factors for cardiovascular disease. High blood pressure, obesity, type 2 diabetes and low HDL-cholesterol should be considered.	
C.3.1	Describe how obesity is determined	Describe	2	Obesity is by definition an excess of body fat, but in reality obesity is determined using indirect measurements of body fat, for example, body mass index (BMI) and waist girth. The description should be restricted to these two techniques. The BMI values that define normal weight, overweight and obesity are widely accepted. Waist girth values that define abdominal obesity are gender and ethnicity specific and reflect different levels of disease risk in obesity.	7; 8

Code	Assessment Statement	Command Term	Obj	Notes	Aim
C.3.2	Outline the major health consequences of obesity	Outline	2	Limit to: cardiovascular disease and hypertension, type 2 diabetes, osteoarthritis, respiratory problems, some cancers such as bowel cancer. Consideration of the effects of age, gender and ethnicity is not required.	
C.3.3	Discuss the concept of energy balance	Discuss	3	Energy balance is affected mainly by food intake, resting metabolic rate and physical activity. Consider the effects of positive and negative energy balance on body weight and composition.	
C.3.4	Outline how chemical signals arise from the gut and from the adipose tissue affect appetite regulation	Outline	2	Only a simple account is expected. Hormones are produced by the stomach and small intestine after eating and by adipose tissue (leptin). These pass to an appetite control centre in the brain that regulates feelings of hunger and satiety.	
C.4.1	Compare type 1 and type 2 diabetes	Compare	2	Type 1 diabetes is an autoimmune disorder resulting in the destruction of the insulin-producing cells of the pancreas. It usually manifests in young people. Type 2 diabetes is a disease of insulin resistance, particularly in skeletal muscle and is highly related to obesity and older age. Past terms for these disorders include insulin-dependent and non-insulin-dependent diabetes (IDDM and NIDDM), which are no longer used. Consider also the way in which diabetes is treated: type 1 with insulin; type 2 with diet and exercise, oral medication and/or insulin. Other less common forms of diabetes do not need to be discussed. Cross reference 3.2.4.	
C.4.2	Discuss the major risk factors for type 2 diabetes	Discuss	3	Limit to obesity, physical inactivity, a diet high in saturated fat and family history.	8
C.4.3	Outline the health risks of diabetes	Outline	2	Limit to blindness, kidney disease, nerve damage and cardiovascular disease.	
C.5.1	Outline how bone density changes from birth to old age	Outline	2	Bone density increases from birth through to around 35–45 years of age. Typically females achieve a lower peak bone density than males. From this age onwards bone density decreases.	
C.5.2	Describe the risk of osteoporosis in males and females	Describe	2		
C.5.3	Outline the longer-term consequences of osteoporotic fractures	Outline	2	Limit to loss of independence, development of secondary complications as a result of long-term hospitalization and pneumonia.	
C.5.4	Discuss the major risk factors for osteoporosis	Discuss	3	Limit to lack of dietary calcium, cigarette smoking, slim build (ectomorphy), lack of estrogen associated with early menopause and female triad (athletic amenorrhea) and physical inactivity.	

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C.5.5	Discuss the relationship between physical activity and bone health	Discuss	3	Weight-bearing physical activity is essential for bone health, but in some cases, intense training in weight-conscious athletes gives rise to low body weight/body fat and eating disorders, leading to menstrual dysfunction and bone demineralization (osteoporosis). Changes in bone density are site-specific and resistance training results in greater changes than endurance training. Consideration of the importance of weight-bearing exercise in children should be given.	
C.6.1	Outline physical activity guidelines for the promotion of good health	Outline	2		Int
C.6.2	Describe the aims of exercise in individuals with a hypokinetic disease	Describe	2	Limit to: to make the most of limited functional capacities to alleviate or provide relief from symptoms to reduce the need for medication to reduce the risk of disease reoccurrence (secondary prevention) to help overcome social problems and psychological distress.	
C.6.3	Discuss the potential barriers to the physical activity	Discuss	3	Limit to: uncontrolled disease state (unstable angina, poorly controlled diabetes, uncontrolled hypertension) hazards of exercise (for example, cycle and swimming accidents) musculoskeletal injuries triggering of other health issues (for example, heart attack, respiratory tract infections).	
C.7.1	Define the term Mood	Define	1	A state of emotional or affective arousal of varying, and not permanent, duration. Feelings of elation or happiness lasting several hours or even a few days are examples of mood.	
C.7.2	Outline the effects of exercise on changing mood states	Outline	2		8
C.7.3	Outline how exercise enhances psychological well-being	Outline	2	No single theory explains the process fully. It is likely that an interaction between both physiological and psychological factors underpin the process. Limit to: physiological—increases in cerebral blood flow, changes in brain neurotransmitters (norepinephrine, endorphins, serotonin), increase in maximal oxygen consumption and delivery of oxygen to cerebral tissues, reductions in muscular tension, structural changes in the brain psychological—distraction from daily hassles and routine, enhanced feeling of control, feeling of competency, positive social interactions, improved self-concept and self-esteem.	

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C.7.4	Explain the role of exercise on reducing the effects of anxiety and depression	Explain	3	Limit to: anxiety reduction—acute effects of exercise on state anxiety, compounding effect of intensity and duration of exercise, chronic effects of exercise on trait anxiety depression reduction—note this is a clinical condition treated by medication. Exercise has been seen to play a significant role in alleviating depression although it is a correlational relationship; no causal link has been established. Include the nature of the exercise programme (enjoyable, aerobic or rhythmic, absence of interpersonal competition, closed and predictable environment, moderate intensity, 20–30 minutes, several times a week).	
C.7.5	Discuss potential personal and environmental barriers to physical activity	Discuss	3	Discussion should be based on exercise adherence, limited to: personal factors—(i) demographic variables (ii) cognitive variables (iii) past behaviours environmental factors—(i) social environment (ii) physical environment (iii) time (iv) characteristics of physical activity offered (v) leader qualities (vi) social and cultural norms within various ethnic groups.	
C.7.6	Describe strategies for enhancing adherence to exercise	Describe	2		8
C.7.7	Outline the possible negative aspects of exercise adherence	Outline	2		8
D.1.1	Outline the features of the principal components of the digestive system	Outline	2	Limit to: mouth—mechanical digestion and chemical digestion esophagus—peristalsis action stomach—rugae, lumen, mucous coating small intestine—villi and microvilli increase area for absorption large intestine—water balance, vitamin absorption pancreas—production of enzymes liver—production of bile gall bladder—storage of bile.	
D.1.2	State the typical pH values found throughout the digestive system	State	1	Mouth: 5.5 to 7.5 Stomach: 1.0 to less than 4.0 Small intestine: 6.0 to 8.0	
D.1.3	Describe the function of enzymes in the context of macronutrient digestion.	Describe	2	Limit to their role as a catalyst, that they are proteins themselves (thus activity is highest under optimum conditions of temperature and pH), and that each reaction requires a specific enzyme.	

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D.1.4	Explain the need for enzymes in digestion	Explain	3	Refer to the need for increasing the rate of digestion at body temperature.	
D.1.5	List the enzymes that are responsible for the digestion of carbohydrates, fats and proteins from the mouth to the small intestine	List	2	Carbohydrates: salivary amylase, pancreatic amylase Fats: pancreatic lipase, Bile is produced by the liver and is involved in the digestion of fats. Proteins: pepsin, trypsin	
D.1.6	Describe the absorption of glucose, amino acids and fatty acids from the intestinal lumen to the capillary network	Describe	2	Glucose, fatty acids and amino acids cross the brush-border membrane, pass through the cytosol of the absorptive cell and cross the basolateral membrane before entering the capillary network (glucose and amino acids) or the lymphatic system (fats). Consideration of more complex processes such as the re-esterification of fatty acids, consideration of fatty acid binding proteins, apolipoproteins and chylomicrons is not required. Consideration of specific amino acid transporters, glucose transporters and the sodium–glucose co-transporter are also not required at this level.	
D.2.1	State the reasons why humans cannot live without water for a prolonged period of time	State	1	Water: is the basic substance for all metabolic processes in the body regulates body temperature enables transport of substances essential for growth allows for the exchange of nutrients and metabolic end products.	
D.2.2	State where extracellular fluid can be located throughout the body	State	3	Extracellular fluid includes the blood plasma and lymph, saliva, fluid in the eyes, fluid secreted by glands and the digestive tract, fluid surrounding the nerves and spinal cord and fluid secreted from the skin and kidneys.	
D.2.3	Compare water distribution in trained and untrained individuals	Compare	3		
D.2.4	Explain that homeostasis involved monitoring levels of variables and correcting changes in levels by negative feedback mechanisms	Explain	3		
D.2.5	Explain the roles of the loop of Henle, medulla, collecting duct and ADH in maintaining the water balance of the blood	Explain	3	When body fluid levels are low receptors in the hypothalamus are stimulated. The hypothalamus stimulates the pituitary gland to release ADH. ADH acts on kidneys, increasing water permeability of the renal tubules and collecting ducts, leading to increased re-absorption of water.	
D.2.6	Describe how the hydration status of athletes can be monitored	Describe	2	Consider how athletes monitor urine colour, urine osmolarity and variation in body mass loss.	

Code	Assessment Statement	Command Term	Obj	Notes	Aim
D.2.7	Explain why endurance athletes require a greater water intake	Explain	3		
D.2.8	Discuss the regulation of electrolyte balance during acute and chronic exercise	Discuss	3		
D.3.1	Define the term Basal Metabolic Rate	Define	1		
D.3.2	State the components of daily energy expenditure	State	1	Limit to: basal metabolic rate thermic effect of physical activity thermic effect of feeding.	
D.3.3	Explain the relationship between energy expenditure and intake.	Explain	3		
D.3.4	Discuss the association between body composition and athletic performance	Discuss	3	Consider body composition from two components, fat and fat-free mass. A distinction between fat-free mass and lean body mass should be made. The discussion should include reference to typical levels of body fat and consider the accuracy of body fat measurements (see 6.1.7).	
D.3.5	Discuss dietary practices employed by athletes to manipulate body composition.	Discuss	3		
D.4.1	State the approximate glycogen content of specific skeletal muscle fiber types	State	2	Limit fibre types to: slow twitch (type I)—low-glycogen content fast twitch (type IIa)—medium-glycogen content fast twitch (type IIb)—high-glycogen content. Note: type IIa and type IIb are high in glycogen content depending on training status.	
D.4.2	Describe, with reference to exercise intensity, typical athletic activities requiring high rates of muscle glycogen utilization	Describe	2	Cross reference 3.3.11.	
D.4.3	Discuss the pattern of muscle glycogen use in skeletal muscle fiber types during exercise of various intensities	Discuss	3	Cross reference 4.1.4.	
D.4.4	Define the term glycemic index	Define	1	Glycemic index is the ranking system for carbohydrates based on the immediate effect of the food on blood glucose concentrations, when compared with a reference food such as pure glucose.	
D.4.5	List food with low and high glycemic indexes	List	1	High eg glucose =100. Medium eg brown rice = 50. Low eg green vegetables less than 15.	

Code	Assessment Statement	Command Term	Obj	Notes	Aim
D.4.6	Explain the relevance of glycemic index with regard to carbohydrate consumption by athletes pre- and post-competition	Explain	3	The use of high GI foods post-exercise may assist the body in restoring its glycogen stores more rapidly, aiding re-fuelling prior to future training/competition bouts. There is some evidence that lower GI foods may be beneficial prior to exercise and that our general diet, in terms of good health, should be based on carbohydrate foods with a low to medium GI.	
D.4.7	Discuss the interaction of carbohydrate loading and training programme modification prior to competition	Discuss	3	Include nutritional strategies as well as training strategies, such as tapering prior to an event.	
D.4.8	State the reasons for adding sodium and carbohydrate to water for endurance athletes	State	1		
D.4.9	Discuss the use of nutritional ergogenic aids in sports	Discuss	3	Limit to: sports drinks, bars and gels caffeine creatine bicarbonate.	8
D.4.10	State the daily recommended intake of protein for adult male and female non-athletes	State	1		Int
D.4.11	List sources of protein for vegetarian and non-vegetarian athletes	List	1		
D.4.12	Discuss the significance of strength and endurance training on the recommended protein intake for male and female athletes	Discuss	3		
D.4.13	Outline the possible harmful effects of excessive protein intake	Outline	2		