OCR
Oxford Cambridge and RSA

GCE

Health and Social Care

Unit **F921:** Anatomy and Physiology in Practice

Advanced GCE

Mark Scheme for June 2015

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All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the report on the examination.

OCR will not enter into any discussion or correspondence in connection with this mark scheme.

Annotations

Annotation	Meaning
	Positive
	Negative
	Benefit of doubt
	Cross
	Level 1
	Level 2
	Level 3
	Level 4
	Repeat
	Noted but no credit given
	Too vague
	Tick
	Development of point
	Omission mark

Question			Answer	Marks	Guidance	
					Content	**Levels of response**
1	a		**Describe the roles during inspiration of the parts of the respiratory system listed:** • **Pleural membranes** • **Diaphragm** • **Intercostal muscles** **Pleural membranes** • Double-layered membrane that covers the lungs and that are also attached to rib cage and diaphragm. • They produce lubricating fluid that causes them to stick closely to one another. • When rib cage raised and diaphragm flattened membranes cause lungs to also move up, out and downwards so increasing volume of lungs (or volume of thorax so decreasing internal pressure) and so drawing air into lungs. • Cushions lungs, reduces friction **Diaphragm** • Diaphragm is a domed muscular sheath below lungs and attached to them by the pleural membranes. • During inspiration flattens/contracts and due to attachment of pleural membranes pulls down on lungs helping them to expand and inflate.	6	Level 2 Fully developed description. References to all three structures need to be included for top of Level 2. Includes accurate terminology. High QWC. Level 1 Simple description. Limited appropriate terminology	Level 2 [4-6 marks] Candidates will provide a fully developed description that includes accurate terminology. References to all three structures need to be included for top of Level 2. Sentences and paragraphs are generally relevant but may have minor inaccuracies or lack clarity and depth of understanding. There may be some errors of grammar, punctuation and spelling. Level 1 [1-3 marks] Candidates' will describe the roles played by the structures in a limited manner or may simply describe the structures and their location. Their use of appropriate terminology will be limited. Sentences and paragraphs are not always relevant, with the material presented in a way that does not always address the question. There may be noticeable errors of grammar, punctuation and spelling and answers may be list like. 0 – response not worthy of credit.

Question			Answer	Marks	Guidance	
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			Intercostal muscles • Two sets of muscles between the ribs attached on one side to the rib on the top and on the other to the rib just below it. • During inspiration one set –external intercostal muscles- contract to lift ribs and increase the volume of rib cage. • Attachment of pleural membranes means lungs pulled up and out so increasing lung volume resulting in drawing air into the lungs.			
	b	**i**	**Explain how a named respiratory dysfunction affects the functions of the bronchii.** Asthma – • muscles within bronchii contract resulting • in constriction of the bronchii. • Reduce/narrows/ • inflamed lumen • results in 'tightness' of the chest and reduced airflow. CF – • goblet cells of bronchii produce very sticky abnormal mucus • that clogs the tubes • and reduces airflow. • Inflammation usually follows resulting in further blockage.	4 X 1		

Question			Answer	Marks	Guidance	
					Content	**Levels of response**
			Bronchitis • bacteria produce mucus • so congesting bronchii. • Lungs produce further mucus to eliminate bacteria. • Reduces air flow Cancer – • tumours • can grow in walls of bronchii • causing blockages/restrictions • so reducing airflow within a section of the lung.			
	b	**ii**	**Explain how this effect on the bronchii may be detected using a named diagnostic test and then be treated.** **Peak flow** (asthma, CF, bronchitis) • Measures forced expiration and measures how fast and how forceful expiration is. • Constricted bronchii result in low readings • Congested bronchii result in low readings **Spirometry** (asthma, CF, bronchitis) • The spirometer takes two measurements: the volume of air	6	Level 2 Developed explanation. Includes accurate terminology. Both test and treatment will be generally accurate. Equal quality to attain top marks. Mid-QWC. Level 1 Simple explanation. Limited appropriate terminology. Test and treatment may be limited or may be one or other. Low QWC. Answers on tests that do not relate to the bronchii will not be accepted.	Level 2 [4-6 marks] Candidates will provide a fully developed explanation which may include accurate terminology and follows a logical sequence. Candidates need to **name** the test, explain what it measures, link this to the effect on the bronchii and provide a form of treatment to gain full marks. Answer is supported by use of accurate explanation of the technique. Sentences and paragraphs are relevant with accurate use of appropriate terminology. There may be occasional errors of grammar, punctuation and spelling.

Question			Answer	Marks	Guidance	
					Content	**Levels of response**
			breathed out in one second • the total amount of air breathed out called the forced vital capacity • Congested bronchii result in low readings **A chest x-ray / CAT scan / MRI (**cancer, bronchitis) • is a photograph-like image of the heart and lungs that uses a small dose of radiation / (magnetic field for MRI) to create a picture. • Chest x-rays are done to look for abnormalities of the heart, lungs, bones, or blood vessels in the chest. • Chest X-rays can reveal abnormalities in the bronchii, • bronchitis • cancer **Clinical diagnosis** (all conditions) • by asking questions about any symptoms • take the SU's temperature and listen to the back and front of the chest with a stethoscope, to check for any crackling or rattling sounds. • sputum test, where you cough up some phlegm (mucus) into a container so that it can be tested in a laboratory			Level 1 [1-3 marks] Candidates will provide an explanation that includes accurate terminology. The explanation of the technique and treatment will be generally accurate. Sentences and paragraphs are generally relevant but may have minor inaccuracies or lack clarity and depth of understanding. There may some errors of grammar, punctuation and spelling. 0 – response not worthy of credit.

Question			Answer	Marks	Guidance	
					Content	**Levels of response**
			Treatment • inhalers preventers/relievers (asthma, CF, bronchitis) • nebulisers (asthma, CF, bronchitis) • inhalers with drug that relaxes muscles and dilates bronchii • drugs that break up/thin mucus (CF) • physiotherapy to loosen and remove mucus (CF) • steroids to reduce inflammation and mucus production (CF, asthma, bronchitis) • surgery, chemotherapy, radiotherapy (cancer) • Antibiotics (bronchitis, CF)		Accept gene therapy for CF even though currently not offered	
	c		**Describe how the alveoli of the lungs are adapted to their function**. • Millions of alveoli providing large surface area for gaseous exchange • One cell thick walls –thin squamous epithelia- allows rapid diffusion of gases • Surrounded by water layer on inner surface to allow oxygen to dissolve • Elasticated to allow expansion • Intimate association with blood capillaries to facilitate gaseous exchange	4 X 1	The question asks for a 'description', therefore, a phrase or a complete sentence is required. One word responses are not acceptable and are not awarded a mark.	

Question			Answer	Marks	Guidance	
					Content	**Levels of response**
2	a		**Describe what happens to a source of protein in the digestive system.** **Mouth** • Protein source broken up by teeth during chewing **– mechanical digestion** • Mixed with saliva to lubricate and aid swallowing **Oesophagus** • Muscle action (peristalsis) pushes food down to stomach **Stomach** • Food reduced to very small particles by stomach churning (**mechanical digestion)** and thoroughly mixed with gastric acid and pepsin to break down protein to polypeptides (**chemical digestion**). • Hydrochloric acid provides an optimum pH for the reaction of the enzyme pepsin **Duodenum** • From the stomach, food is passed to the small intestine via the pyloric sphincter. • Mixed with bile to neutralise the acidity and produce alkaline pH. • Enzymes produced by pancreas and wall of intestine digest proteins and polypeptides into amino acids	8	Level 3 Fully developed description. Accurate terminology. Accurate, well-developed identification and diagnosis. High QWC. Level 2 Sound description. Accurate terminology. Accurate identification and diagnosis. Mid-QWC. Level 1 Basic description. Limited use of terminology. Limited identification and diagnosis. Low-QWC. .	Level 3 [7 – 8 marks] Candidates will provide a fully developed description that includes accurate terminology and follows a logical sequence. Reference must be made to mechanical and chemical digestion as well as absorption to gain full marks. Sentences and paragraphs are relevant with accurate use of appropriate terminology. There may be occasional errors of grammar, punctuation and spelling. Level 2 (4 - 6 marks] Candidates will provide a sound description that includes accurate terminology. Sentences and paragraphs are generally relevant but may have minor inaccuracies or lack clarity and depth of understanding. There may be some errors of grammar, punctuation and spelling. Level 1 [1 - 3 marks] Candidates' will describe the events in a limited manner. Their use of appropriate terminology will be limited. Sentences and paragraphs are not always relevant, with the material presented in a way that does not always address the question.

Question			Answer	Marks	Guidance	
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			(**chemical digestion**). • Amino acids **absorbed** into the blood by villi and microvilli • Amino acids taken by blood to liver for processing			There may be noticeable errors of grammar, punctuation and spelling and answers may be list like. 0 – response not worthy of credit.
2	b		**Explain possible causes of a named digestive dysfunction** **Coeliac Disease** • Coeliac disease is caused by an abnormal reaction of the immune system to the protein gluten, found in foods such as bread, pasta, cereals and biscuits. • Antibodies cause the surface of the intestine to become inflamed • This flattens the gut villi, which reduces their ability to help with absorption • Coeliac disease often runs in families • coeliac disease is strongly associated with a number of genetic mutations that affect the immune system • environmental factors, including an infection of the digestive system during early childhood • introducing gluten into a baby's diet before they are three months old may increase their risk of developing coeliac disease	6	Level 2 Developed explanation. Includes accurate terminology. High QWC. Level 1 Simple assessment. Limited appropriate terminology.. Low QWC. One mark may be awarded for naming dysfunction.	Level 2 [4-6 marks] Candidates will provide a developed explanation that includes accurate terminology and follows a logical sequence. Candidates need to **name** a condition to gain full marks. Sentences and paragraphs are relevant with accurate use of appropriate terminology. There may be occasional errors of grammar, punctuation and spelling. . Level 1 [1-3 marks] Candidates' will describe the causes in a limited manner. Their use of appropriate terminology will be limited. Sentences and paragraphs are not always relevant, with the material presented in a way that does not always address the question. There may be noticeable errors of grammar, punctuation and spelling and answers may be list like.

Question			Answer	Marks	Guidance	
					Content	Levels of response

			• Other health conditions, eg diabetes and ulcerative colitis, can increase the risk of developing the disease.
			
			Gallstones
			• It is thought that gallstones develop because of an imbalance in the chemical make-up of bile inside the gallbladder, for example, unusually high levels of cholesterol or unusually high levels of bilirubin
			• Gallstones are more common in the following groups:
			  • women, particularly those who have had children
			  • overweight or obese people – people who are overweight with a body mass index (BMI) of 25 or above
			  • people aged 40 years or older
			  • people with cirrhosis/fatty liver
			  • people with the digestive disorders Crohn's disease and irritable bowel syndrome (IBS)
			  • Women who are taking the combined oral contraceptive pill or undergoing high-dose oestrogen therapy
			
			IBS
			• The exact cause of irritable bowel syndrome (IBS) is unknown, but most experts agree it is related to an
						0 – response not worthy of credit.

Question			Answer	Marks	Guidance	
					Content	Levels of response
			increased sensitivity of the entire gut. This can be caused by: • a change in the body's ability to move food through the digestive system either too quickly or too slowly • becoming more sensitive to pain from the gut • psychological factors - many people with IBS have experienced a traumatic event, usually during their childhood, such as abuse, neglect, a serious childhood illness or bereavement. • an episode of food poisoning • dietary triggers e.g. caffeine, spicy foods • psychological triggers e.g. anxiety, stress **Ulcers** • Helicobacter pylori (H. pylori) bacteria, which can irritate the stomach or upper intestine lining, causing an ulcer to form • non-steroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen or aspirin, which can have a similar effect • High levels of acid secretion • Contributing factors e.g. smoking, alcohol, stress		No mention of H.bacter restricts marks to level 1.	

Question			Answer	Marks	Guidance	
					Content	Levels of response
2	c		**Discuss lifestyle/dietary changes involved in the treatment of a digestive dysfunction** **Coeliac disease** • Avoid foods that contain barley, rye or wheat, including farina, graham flour, semolina, durum, cous cous and spelt, for example, bread, pasta, cereals, biscuits or crackers, cakes and pastries, pies and gravies and sauces • Use gluten-free alternatives • check food labels • Avoid cross-contamination during food preparation • If spleen affected ensure vaccinations for flu, Hib/MenC and pneumococcal infections • take vitamin and mineral supplements **Gallstones** • avoid eating too many fatty foods with a high cholesterol content • eat plenty of fresh fruit and vegetables and whole grains. • regularly eat nuts, such as peanuts or cashews • Drinking small amounts of alcohol • control weight by eating a healthy diet and taking plenty of regular exercise. • avoid low-calorie, rapid-weight-loss diets.	6	Level 2 Developed discussion. Includes accurate terminology. High QWC. Level 1 Simple description. Limited appropriate terminology.. Low QWC.	Level 2 [4-6 marks] Candidates will provide a developed discussion that includes accurate terminology and follows a logical sequence. Sentences and paragraphs are relevant with accurate use of appropriate terminology. There may be occasional errors of grammar, punctuation and spelling. . Level 1 [1-3 marks] Candidates' will describe changes in a limited manner. Their use of appropriate terminology will be limited. Sentences and paragraphs are not always relevant, with the material presented in a way that does not always address the question. There may be noticeable errors of grammar, punctuation and spelling and answers may be list like. 0 – response not worthy of credit

Question			Answer	Marks	Guidance	
					Content	Levels of response

			IBS
			• Keep a food diary and record whether certain foods make symptoms better or worse.
			  • People with diarrhoea may find it helps to cut down on insoluble fibre, for example, wholegrain bread, bran, cereals, nuts and seeds. It may also help to avoid the skin, pith and pips from fruit and vegetables.
			  • People with constipation may try , increasing the amount of soluble fibre in their diet, for example, oats, barley, rye, fruit, such as bananas and apples, root vegetables, such as carrots and potatoes and the amount of water they drink.
			  • have regular meals and take time when eating
			  • avoid missing meals or leaving long gaps between eating
			  • drink at least eight cups of fluid a day, particularly water and other non-caffeinated drinks such as herbal tea
			  • restrict tea and coffee
			  • lower the amount of alcohol and fizzy drinks drunk
			  • reduce your intake of resistant starch found in processed or re-cooked foods
			  • limit fresh			

Question			Answer	Marks	Guidance	
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			• if have diarrhoea, avoid sorbitol • if have wind and bloating stop all cereals for six weeks • Exercise, for example, brisk walking • Taking Probiotics • Reducing stress, for example; • relaxation techniques, such as meditation or breathing exercises • physical activities, such as yoga, pilates or tai chi • regular exercise, such as walking, running or swimming • stress counselling or cognitive behavioural therapy (CBT). **Ulcers** • Diet and stress are not thought to be directly responsible for stomach ulcers but they may make the symptoms of ulcers worse. • Lifestyle changes could include: • Cut down on the amount of coffee and tea drunk. Try herbal teas instead. • Drink milk and eat milk-based foods, such as yoghurt and cheese. • Lose weight. • Eat little and often. • Limit intake of alcohol. • Avoid spicy or excessively rich foods. • Quit smoking. • Reduce stress			

Question			Answer	Marks	Guidance	
					Content	**Levels of response**
3	a		**Explain how the heart carries out its function of pumping blood to the lungs and around the body.** • Blood flows into the right and left atria. • The sinoatrial (SA) node, which starts cardiac conduction, contracts causing atrial contraction. • Atria contract pumping blood into ventricles • The valves located between the atria and ventricles are open allowing blood to flow through to the ventricles. • Impulses from the atrio-ventricular node cause contractions in the ventricles • Ventricles contract pumping blood into the arteries. The right ventricle sends blood to the lungs via the pulmonary artery. The left ventricle pumps blood to the aorta. • Atrio-ventricular valves close and semilunar valves open. • Blood flows to either the pulmonary artery or aorta. • Semilunar valves close preventing back flow into the ventricles Candidates may use a more basic flow approach.	12	Level 3 Fully developed explanation. Accurate terminology. Accurate, well-developed identification and diagnosis. High QWC. Level 2 Sound explanation. Accurate terminology. Accurate identification and diagnosis. Mid-QWC. Level 1 Basic explanation Limited use of terminology. Limited identification and diagnosis. Low-QWC. One mark for each correct answer. Minor errors in spelling are acceptable	Level 3 [9 - 12 marks] Candidates will provide a fully developed explanation that includes accurate terminology and follows a logical sequence. Details of electrical control are not necessary to obtain full marks. Answer is supported by use of accurate explanation of the process. Sentences and paragraphs are relevant with accurate use of appropriate terminology. There may be occasional errors of grammar, punctuation and spelling. Level 2 (5 - 8 marks] Candidates will provide some explanation that includes accurate terminology. The explanation of the treatment will be accurate. Sentences and paragraphs are generally relevant but may have minor inaccuracies or lack clarity and depth of understanding. There may be some errors of grammar, punctuation and spelling. Level 1 [1 – 4 marks] Candidates' will explain function in a limited manner. Their use of appropriate terminology will be limited. Sentences and paragraphs are not always relevant, with the

Question			Answer	Marks	Guidance	
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			Flow and valves if mentioned as part of the answer • Vena cava • Right atrium • Tricuspid valve • Right ventricle • Pulmonary semilunar valve • Pulmonary artery (to lungs) • Pulmonary vein into left atrium • Bicuspid valve / Mitral • Left ventricle • Aortic semilunar valve • Aorta Any other valid response			material presented in a way that does not always address the question. There may be noticeable errors of grammar, punctuation and spelling and answers may be list like. 0 – response not worthy of credit.
3	b		**Explain what information blood pressure monitoring and use of ECG may provide.** Blood pressure is measured in millimetres of mercury (mmHg) and it is recorded as two figures: • **systolic pressure –** the pressure of the blood on the artery walls when the heart pushes blood out (higher figure) • **diastolic pressure –** the pressure of the blood when the heart rests in between beats, which reflects how strongly the arteries are resisting blood flow (lower figure) • Ideally a blood pressure reading should be below 120/80mmHg.	8	Level 3 Fully developed explanation of both tests. Includes accurate terminology. . High QWC. Level 2 Developed explanation. One test may be covered in more depth than other. Includes accurate terminology. Mid-QWC. Sub-max of 4 if only one test done well. Level 1 Simple description. Limited appropriate terminology.	Level 3 [7 - 8 marks] Candidates will provide a fully developed explanation of the test results and use that includes accurate terminology and follows a logical sequence. Sentences and paragraphs are relevant with accurate use of appropriate terminology. There may be occasional errors of grammar, punctuation and spelling. Level 2 [4 - 6marks] Candidates will provide an explanation of the tests and use that includes accurate terminology. Sentences and paragraphs are generally relevant but may have

Question			Answer	Marks	Guidance	
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			However, anything under 130/80mmHg is generally considered normal. • A diagnosis of high blood pressure is made if readings on separate occasions consistently show blood pressure to be 140/90mmHg or higher. • Low blood pressure is sometimes referred to as hypotension and typically describes blood pressures of 90/60mmHg, or below • Inference of diagnosis e.g. CAD, arteriosclerosis ECG • A normal ECG indicates electrical events during one heartbeat. These waveforms are labelled P, Q, R, S and T. • P wave is the first short upward movement of the ECG tracing. It indicates that the atria are contracting, pumping blood into the ventricles. • The QRS complex, normally beginning with a downward deflection, Q; a larger upwards deflection, a peak (R); and then a downwards S wave. The QRS complex represents ventricular depolarization and contraction. • T wave represents repolarisation/relaxation of the		Low QWC. The question asks for a 'explanation', therefore, a phrase or a complete sentence is required that shows reasoning.	minor inaccuracies or lack clarity and depth of understanding. There may be some errors of grammar, punctuation and spelling. Level 1 [1- 3 marks] Candidates' will explain the tests/uses in a limited manner. Their use of appropriate terminology will be limited. Sentences and paragraphs are not always relevant, with the material presented in a way that does not always address the question. There may be noticeable errors of grammar, punctuation and spelling and answers may be list like. 0 – response not worthy of credit.

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			ventricles • The PR interval indicates the transit time for the electrical signal to travel from the sinus node to the ventricles • Trace represents cardiac cycle and therefore indicates rate of heartbeat. • ECG recordings used to show a heartbeat that's too fast (tachycardia), too slow (bradycardia), or irregular (arrhythmia) • Current or historic heart attacks • Lack of blood flow to the heart muscle (coronary heart disease) • A heart that doesn't pump forcefully enough (heart failure) • Heart muscle that's too thick or parts of the heart that are too big (cardiomyopathy) • Birth defects in the heart (congenital heart defects) • Problems with the heart valves (heart valve disease) • Inflammation of the sac that surrounds the heart (pericarditis)			
4	a		**Explain how the kidney carries out its functions.** **Function 1: Excretion** • blood enters a ball of capillaries, called the glomerulus at the beginning of a kidney nephron • The blood is under high pressure, so all small substances and blood	8	Level 3 Fully developed explanation. Accurate terminology. High QWC. Level 2 Sound explanation. Accurate terminology.	Level 3 [7 - 8 marks] Candidates will provide a fully developed explanation of two (or more) functions that includes accurate terminology and follows a logical sequence. Sentences and paragraphs are relevant with accurate use of appropriate terminology. There may be

Question			Answer	Marks	Guidance	
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			proteins are forced out of the holes in the capillary walls – ultrafiltration. • A sieve like basement membrane prevents blood proteins from entering the Bowman's capsule, which wraps around the glomerulus. • The small substances (glucose, minerals, urea, water etc) move into the Bowman's capsule. • The capsule leads into the proximal tubule which re-absorbs all glucose, most of the water and much of the salts and other small substances. • The remaining fluid (containing excess water, excess minerals and urea) – urine - passes into the loop of Henle, through the distal tubule to the collecting duct • The collecting ducts from other nephrons join and form the ureter, which leads to the bladder • Peristaltic actions carry urine down the ureter • Urine then enters the bladder where it is stored **Function 2: Osmoregulation** • Blood water levels are sensed by the hypothalamus in the brain. • When water levels are too low, the hypothalamus gets the pituitary gland to release the hormone Anti-Diuretic Hormone (ADH) into the		Mid-QWC. Level 1 Basic description. Limited use of terminology. Low-QWC. Functions 3 and 4 are not on the specification but some candidates may refer to them as a result of parallel studies. Credit should be given to accurate responses.	occasional errors of grammar, punctuation and spelling. Level 2 (4 – 6 marks] Candidates will provide a sound explanation that includes accurate terminology. One function may be done better than the other. Sentences and paragraphs are generally relevant but may have minor inaccuracies or lack clarity and depth of understanding. There may be some errors of grammar, punctuation and spelling. Sub-max of 4 for one function only done well. Level 1 [1 - 3 marks] Candidates' will describe the function(s) in a limited manner. Their use of appropriate terminology will be limited. Sentences and paragraphs are not always relevant, with the material presented in a way that does not always address the question. There may be noticeable errors of grammar, punctuation and spelling and answers may be list like. 0 – response not worthy of credit.

Question			Answer	Marks	Guidance	
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			bloodstream • Cells in the collecting duct of the nephrons of the kidney have receptors for ADH • ADH makes the collecting duct becomes more permeable to water • Water is drawn out of the collecting duct and the Loop of Henlé, which re-absorbs the water by osmosis back into the blood • Water levels return to normal • When water levels are too high the pituitary releases less ADH **Function 3: Salt regulation** • Sodium levels are regulated by the kidney and adrenal gland. • The adrenal gland produces a hormone called aldosterone that tells the kidneys how much sodium to retain. • When either sodium or potassium becomes unbalanced, the kidney may expend the other electrolyte to maintain a balance. • This regulation occurs in the distal tubule **Function 4: pH regulation** • The collecting duct secretes hydrogen ions into urine if blood is too acidic. • Therefore, acidic urine with low pH is excreted.			

Question			Answer	Marks	Guidance	
					Content	**Levels of response**
			• If blood too alkaline, then the collecting duct can secrete bicarbonate ions into urine • Urine now alkaline.			
		4b	**Analyse the effects of dialysis and transplant surgery on an individual with renal failure**. Haemodialysis • Most people require three sessions a week, each lasting four hours. • Affects working and social life • May have to travel some distance to a renal unit • Can be carried out at home but requires confidence and trust • Possible dietary restrictions • Closely monitored fluid intake • Keeps individuals alive until kidney heals or transplant is available • Fatigue due to the loss of normal kidney function, the effects that dialysis can have on the body, the dietary restrictions associated with dialysis and the overall stress and anxiety that many people with kidney failure experience • Low blood pressure. It can be caused by the drop in fluid levels during dialysis. Low blood pressure can cause nausea and dizziness. • Invasive staphylococcal infections which can cause a more serious infection that can spread through the	12	Level 3 Fully developed analysis. Two effects, two treatments. The effects may refer to aspect of (P)IES. **Both types of dialysis do not need to be covered.** Accurate terminology. High QWC. Level 2 Sound analysis. Two effects, two treatments Both types of dialysis do not need to be covered. Accurate terminology. Mid-QWC. Level 1 Basic analysis. Limited use of terminology. Low-QWC.	Level 3 [9- 12 marks] Candidates will provide a fully developed analysis that covers at least two effects for each treatment and includes accurate terminology and follows a logical sequence. Both forms of treatment must be covered. Sentences and paragraphs are relevant with accurate use of appropriate terminology. There may be occasional errors of grammar, punctuation and spelling. Level 2 (5 - 8 marks] Candidates will provide an analysis that includes accurate terminology. Both forms of treatment should be covered but there may be an imbalance. Sentences and paragraphs are generally relevant but may have minor inaccuracies or lack clarity and depth of understanding. There may be some errors of grammar, punctuation and spelling. Sub-max of 6 if only one treatment covered.

Question			Answer	Marks	Guidance	
					Content	Levels of response
			blood, leading to multiple organ failure. • Muscle cramps • Itchy skin • difficulties falling or staying asleep • bone and joint pain • loss of libido • dry mouth • anxiety Peritoneal dialysis • The process of peritoneal dialysis lasts about 30-40 minutes and is usually repeated four times a day. Alternatively, you can run it overnight. • Less invasive of lifestyle • Keeps individuals alive until kidney heals or transplant is available • Peritonitis • Hernia • Weight gain Transplants • shortage of donors • anxiety • depression • short notice if organ becomes available –small window of opportunity • surgical risks eg. Blood clots, infection			Level 1 [1 - 4 marks] Candidates' will analyse the effects in a limited manner. Their use of appropriate terminology will be limited. Sentences and paragraphs are not always relevant, with the material presented in a way that does not always address the question. There may be noticeable errors of grammar, punctuation and spelling and answers may be list like. 0 – response not worthy of credit.

Question			Answer	Marks	Guidance	
					Content	Levels of response
			• have to take anti –rejection drugs (immuno-suppressants) • at risk of infections and cancers • more likely to develop diabetes • initially reduced social contact and travel • need to have vaccinations, eg, flu • stop smoking • eat healthily • avoid too much sun • monitor health and temperature closely • allows individual to live normally and extends life expectancy **Accept any appropriate reference to (P)IES.**			

Question			Answer	Marks	Guidance	
					Content	Levels of response
5			**Evaluate the possible impact of exercise on body systems.** **Cardio-vascular** Positive • Reduced likelihood of CHD • Lower blood pressure • Reduced likelihood of strokes • Stronger heart muscle • More efficient supply of oxygen to heart muscle • Lower pulse rate • Improved blood flow to any other body system improving its efficiency Negative • Intense exercise can cause a stroke • Exacerbates existing cardio-vascular conditions **General benefits** • Weight loss • Balance between energy intake and use • Regulation of sugar, cholesterol etc **Respiratory** Positive • Increases lung volume • Increases efficiency of breathing (accept makes lungs stronger as a level 1 response) • Increases efficiency of gaseous exchange	20	Level 4 In-depth evaluation. **Positives and negatives must be present in overall answer but are not necessarily expected for each system.** Accurate terminology. High QWC. Level 3 Sound evaluation. Positives and negatives must be present in overall answer but are not necessarily expected for each system. Accurate terminology. High/mid-QWC. Level 2 Attempt at evaluation. Positives and negatives must be present in overall answer but are not necessarily expected for each system. Some terminology. Mid/low-QWC. Level 1 Basic evaluation. Limited terminology. Low QWC. Bullet points will indicate identification unless they are fully formed descriptions/explanations. This may only	Level 4 [16-20] Candidates will evaluate in depth the impact of exercise on at least two body systems. Both positive and negative aspects need to be included but may be imbalanced. They will demonstrate the ability to present their answer in a well-planned and logical manner, with a clearly defined structure. They will use appropriate physiological terminology confidently and accurately. Sentences and paragraphs will directly address the question in a consistent, relevant and well-structured way. There will be few, if any, errors in the use of grammar, punctuation and spelling. Level 3 [11-15] Candidates will evaluate soundly the impact of exercise on at least two body systems. Both positive and negative aspects need to be included but may be imbalanced. They will demonstrate the ability to present their answer in a planned and logical sequence using some appropriate and accurate physiological terminology. Sentences and paragraphs are for the most part relevant and material will be presented in a balanced, logical and coherent manner that

Question			Answer	Marks	Guidance	
					Content	Levels of response
			• Improves breathing in individuals with CF Negative • Can trigger asthma attack **Digestive** Positive • Improves digestive ability • Reduces effects of IBS • Reduces likelihood of diabetes • Reduces likelihood of gallstones • Reduces effects of ulcers Negative • Nausea • Diarrhoea **Renal** Positive • Lowers high blood pressure –less physical damage to kidneys. Negative • Diversion of blood to muscles can severely reduce flow to kidneys resulting in cellular death **Musculo-Skeletal/Neural** Positive • Strengthens bone • Reduces likelihood of osteoporosis • Helps deal with arthritis • Increases muscle mass		take them as far as the second mark band	addresses the question. There may be occasional errors in the use of grammar, punctuation and spelling. Sub max of 10 if only positive OR negative points made. Sub max of 10 if only one system evaluated. Level 2 [6-10] Candidates will attempt to evaluate the impact of exercise on at least two body systems. Answers may refer mainly to (P) **IES.** They will demonstrate limited ability to organise their answer. Sentences and paragraphs will not always be relevant and material will be presented in a way that does not always address the question. There may be some errors of grammar, punctuation and spelling. Level 1 [1-5] Candidates are likely to attempt to evaluate the effects of exercise and dwell on aspects of **PIES** or provide vague non-physiological statements. Sentences and paragraphs have limited coherence and structure, with little relevance

Question			Answer	Marks	Guidance	
					Content	Levels of response
			• Helps treat MS • Produces endorphins • Effects on the brain e.g. self-esteem, well-being, confidence etc. • Reduces likelihood of strokes • Helps depression • Reduces stress • Improves social health Negative • Over use of joints can lead to arthritis • Can result in bone, tendon and muscle damage • Can become obsessive **Reproductive** Positive • Can improve fertility Negative • Can decrease fertility and stop menstrual cycle **Accept any other suitable response**			to the main focus of the question. Errors in the use of grammar, punctuation and spelling may be noticeable and obtrusive. 0 – response not worthy of credit.

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