

# **Health and Social Care**

Advanced GCE

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

## **Mark Scheme for June 2013**

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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.

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## Annotations

Annotation	Meaning
	Positive
	Negative
	Benefit of doubt
	Cross
	Level 1
	Level 2
	Level 3
	Level 4
	Repeat
	Too vague
	Tick
	Development of point
	Omission mark (also use for indicating 'seen')

Question		Answer	Marks	Guidance
1	(a)	<p><b>One</b> mark for each structure identified, <b>Seven</b> required from:</p> <ol style="list-style-type: none"> <li>1 oral cavity / mouth / buccal cavity</li> <li>2 oesophagus</li> <li>3 liver</li> <li>4 gall bladder</li> </ol>	4	Minor errors in spelling are acceptable
1	(b)	<p><b>Stomach</b></p> <ul style="list-style-type: none"> <li>• muscular sac that churns to mix food and digestive chemicals / enzymes / mechanical digestion</li> <li>• transfers food into small bowel by peristaltic waves / contractions / squeezing movements</li> <li>• creates a mixture called chime / chyme</li> <li>• contracts violently during vomiting</li> <li>• absorbs / sugars / water / alcohol</li> <li>• produces/ releases HCl to aid digestion</li> <li>• digestion by digestive enzymes</li> <li>• secretes pepsin</li> <li>• chemical digestion of protein</li> </ul> <p><b>Pancreas</b> – production of</p> <ul style="list-style-type: none"> <li>• pancreatic / digestive juices / enzymes</li> <li>• produces alkaline fluid / water / salts</li> <li>• produces insulin</li> <li>• enzymes</li> <li>• glucagon</li> <li>• somatostatin</li> <li>• pancreatic protease</li> <li>• trypsinogen</li> <li>• pancreatic lipase</li> <li>• carbohydrate digesting enzymes</li> </ul> <p style="text-align: right;"><b>PTO</b></p>	4x2 8	<p>Candidate will describe TWO functions of the listed structures. <b>One</b> mark for each correct function. TWO functions required for each structure.</p> <p>The question asks for a 'description', therefore, a minimum short phrase or a short sentence is required.</p> <p>Accept other acceptable functional responses.</p>

Question	Answer	Marks	Guidance
	<p><b>Small Intestine</b></p> <ul style="list-style-type: none"> <li>• digests and absorbs fats and lipids</li> <li>• absorbs vitamins</li> <li>• villi form major surface of the bowel</li> <li>• absorbs water</li> <li>• digests / absorbs carbohydrates / proteins</li> <li>• absorbs monosaccharide / electrolytes</li> <li>• secretes enzymes – allow 2 marks for 2 different enzymes</li> <li>• contains bowel flora that aid digestion</li> <li>• peristalsis</li> <li>• action of bile</li> <li>• majority of digestion occurs here</li> </ul> <p><b>Rectum</b></p> <ul style="list-style-type: none"> <li>• moves contents by muscular waves</li> <li>• forms / compacts faeces</li> <li>• secretes mucus</li> <li>• stores faeces</li> <li>• elimination / peristalsis</li> </ul>		

Question		Answer	Marks	Guidance	
				Content	Levels of response
1	(c)	<p><b>Coeliac disease</b></p> <ul style="list-style-type: none"> <li>• changes to diet</li> <li>• avoiding gluten containing foods</li> <li>• pain control where necessary</li> <li>• vaccinations to support spleen</li> <li>• vitamin and mineral supplements</li> <li>• complementary therapies e.g. acupuncture</li> <li>• difficulty in obtaining gluten-free foods</li> </ul> <p><b>IBS</b></p> <ul style="list-style-type: none"> <li>• cutting out dairy or gluten</li> <li>• change diet if it affects the condition</li> <li>• anti-spasmodic drugs</li> <li>• Imodium for diarrhoea</li> <li>• laxatives for constipation</li> <li>• anti-depressants for gastrointestinal effects</li> <li>• calcium supplements used to have a constipating effect</li> <li>• hypnotherapy is established for IBS</li> <li>• complementary medicine, including acupuncture and reflexology, accept any valid response</li> <li>• surgery is rare unless the colon has become dysfunctional or spastic</li> <li>• avoiding stress</li> </ul> <p><b>Gall Stones</b></p> <ul style="list-style-type: none"> <li>• not troublesome the doctor may want to adopt and watch and see policy</li> <li>• people may have no symptoms, or just one mild attack of pain and no further trouble, while others have continuing problems</li> </ul>	8	<p><b>Levels checklist</b></p> <p><b>Level 3</b> Detailed and accurate description At least two treatments Accurate use of terminology</p> <p><b>Level 2</b> Sound description of at least two treatment. (Sub max of 4 for one treatment described well) sound terminology used</p> <p><b>Level 1</b> Limited description with poor terminology used Treatments may be interchangeable</p> <p>Diabetes is not a digestive disorder. Answers given for diabetes will be accepted for this paper, but will not be accepted in future series.</p>	<p><b>Level 3 (7–8 marks)</b> Candidates will provide a fully developed description of at least two treatments and includes accurate terminology and follows a logical sequence. Answer is supported by use of accurate description of the dysfunction of the digestive system. Sentences and paragraphs are relevant with accurate use of appropriate terminology. There will be few, if any, errors of grammar, punctuation and spelling.</p> <p><b>Level 2 (4–6 marks)</b> Candidates will provide a description of at least two treatments and includes accurate terminology. The description 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 occasional errors of grammar, punctuation and spelling.</p>

PTO

Question			Answer	Marks	Guidance	
					Content	Levels of response
			<p><b>Ulcers (Gastric &amp; Duodenal)</b></p> <ul style="list-style-type: none"> <li>gastric ulcers treated by partial gastrectomy</li> <li>duodenal ulcers, vagotomy, involves cutting the vagus nerve</li> <li>antacids to neutralise existing acid in the stomach.</li> <li>acid suppressants like histamine<sub>2</sub>-receptor antagonists (blockers)</li> <li>proton pump inhibitors also work to reduce the production of acid</li> <li>combination of antibiotics for Helicobacter pylori infection</li> <li>coffee stimulates acid secretion</li> <li>alcohol causes inflammation of the stomach lining (gastritis)</li> <li>moderation in alcohol and coffee</li> </ul> <p><b>Removal of the gallbladder</b></p> <ul style="list-style-type: none"> <li>the gallbladder is removed by keyhole surgery</li> <li>operation is called a laparoscopic cholecystectomy</li> <li>a general anaesthetic</li> <li>very small incisions in the abdomen</li> <li>enable the surgeon to pass through fine instruments</li> <li>a fibre optic with a camera attached</li> <li>instruments are controlled by the doctor watching a TV screen</li> <li>gallbladder is removed through a cut in the navel</li> <li>allowed home the following day</li> </ul> <p><b>Other types of operations</b></p> <ul style="list-style-type: none"> <li>operation called a mini-laparotomy</li> <li>cholecystectomy</li> <li>uses special instruments</li> <li>requires only a small cut</li> </ul> <p style="text-align: right;"><i>PTO</i></p>			<p><b>Level 1 (1–3 marks)</b> Candidates' will describe the treatment of the digestive system 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 and intrusive errors of grammar, punctuation and spelling and answers may be list like and muddled.</p> <p><b>0</b> – response not worthy of credit.</p>

Question			Answer	Marks	Guidance	
					Content	Levels of response
			<p><b>Via ERCP examination:</b></p> <ul style="list-style-type: none"> <li>• stones, which have passed into the bile duct can be removed during an ERCP examination</li> <li>• done by widening the opening to the bile duct</li> <li>• with an electrically heated wire (diathermy)</li> <li>• stones are removed or left to pass into your intestine</li> <li>• a stent is left in the bile duct to help bile drain out</li> <li>• stent may remain in place permanently or be removed at a later date</li> </ul> <p><b>Other treatments:</b></p> <ul style="list-style-type: none"> <li>• dissolving them with drugs</li> <li>• breaking them up with shock wave treatment (lithotripsy)</li> <li>• modification of diet to exclude fatty foods to reduce symptoms</li> </ul>			



Question		Answer	Marks	Guidance
2	(a)	<p><b>One</b> mark for each function outlined, <b>FOUR</b> required</p> <p><b>Pituitary gland – coordination of hormones</b></p> <ul style="list-style-type: none"> <li>• produces hormones to control other bodily functions</li> <li>• manufactures eight different types of hormones</li> <li>• thyroid stimulating hormone (TSH), luteinising hormone (LH)</li> <li>• follicle stimulating hormone (FSH), prolactin</li> <li>• growth hormone, adrenocorticotrophic hormone (ACTH)</li> <li>• antidiuretic hormone (ADH), and oxytocin</li> <li>• controls growth and physical maturation</li> </ul> <p><b>Sensory nerve – coordination / balance / protection</b></p> <ul style="list-style-type: none"> <li>• detects pain/ touch / sound / light / heat / taste / smell</li> </ul> <p><b>Motor nerve – movement / balance / coordination / protection</b></p> <ul style="list-style-type: none"> <li>• allows the brain to stimulate muscle contraction</li> <li>• carries signals to muscles</li> </ul> <p><b>Myelin sheath – movement / protection/ coordination / balance</b></p> <ul style="list-style-type: none"> <li>• wraps around the nerve</li> <li>• it acts as a layer of insulation,</li> <li>• insulate / surrounds the axon</li> <li>• increases speed of transmission</li> <li>• reduces corruption of signal</li> </ul>	<p>4x1</p> <p>4</p>	<p>Minor errors in spelling are acceptable</p>

Question		Answer	Marks	Guidance	
				Content	Levels of response
2	(b)	<p><b>Arthritis</b> <i>Diagnosis</i> Plain x-rays, CAT / MRI scanning, blood tests, clinical observation</p> <p><i>Treatment</i></p> <ul style="list-style-type: none"> <li>• reduce acidic diet</li> <li>• treated by NSAID's steroids /DMRDs</li> <li>• surgical intervention eg joint replacement, arthrodesis</li> <li>• injections of gold salts,</li> <li>• non weight bearing exercise</li> <li>• physiotherapy</li> <li>• synthetic synovial fluid</li> <li>• dietary supplements e.g. glucosamine</li> </ul> <p><b>Osteoporosis</b> <i>Diagnosis</i></p> <ul style="list-style-type: none"> <li>• bone densitometry/ DEXA</li> <li>• x-rays</li> <li>• CAT scan</li> <li>• blood tests</li> <li>• MRI</li> </ul> <p><i>Treatment</i></p> <ul style="list-style-type: none"> <li>• treatment includes HRT</li> <li>• vitamin D</li> <li>• calcium supplements</li> <li>• calcitonin injections</li> <li>• preventative lifestyle changes when started young, eg diet and exercise</li> </ul> <p style="text-align: right;"><b>PTO</b></p>	8	<p><b>Levels checklist</b></p> <p><b>Level 3</b> Detailed and accurate description Of diagnosis and treatment Accurate use of terminology</p> <p><b>Level 2</b> Sound description of diagnosis and treatment. Sound terminology used <i>Sub-max of 4 for one diagnosis or treatment described well</i></p> <p><b>Level1</b> Limited description with poor terminology used</p>	<p><b>Level 3 (7–8 marks)</b> Candidates will provide a fully developed description of how a named dysfunction could be diagnosed and treated. This will include accurate terminology and follows a logical sequence. Answer is supported by use of accurate description of the diagnosis and treatment. Sentences and paragraphs are relevant with accurate use of appropriate terminology. There will be few, if any, errors of grammar, punctuation and spelling.</p> <p><b>Level 2 (4–6 marks)</b> Candidates will provide a developed description of the diagnosis and treatment of a named dysfunction that includes some accurate terminology. The explanation of the diagnosis and 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 occasional errors of grammar, punctuation and spelling. <i>Sub-max of 4 for one diagnosis or treatment described well</i></p>

Question		Answer	Marks	Guidance	
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		<p><b>Parkinson's</b> <i>Diagnosis</i> mainly clinical observation award list of symptoms</p> <p><i>Treatment</i></p> <ul style="list-style-type: none"> <li>• treatments include levodopa and carbidopa to decrease tremors and rigidity</li> <li>• surgical grafting of dopamine secreting neurones</li> <li>• surgery to destroy certain nerve pathways (ablation)</li> <li>• canaboids to reduce symptoms</li> <li>• stem cell treatment</li> </ul> <p><b>Multiple Sclerosis</b> <i>Diagnosis</i></p> <ul style="list-style-type: none"> <li>• neurological tests</li> <li>• blood test</li> <li>• clinical observation</li> <li>• lumbar puncture</li> <li>• MRI</li> <li>• speech assessment test</li> </ul> <p><i>Treatment</i></p> <ul style="list-style-type: none"> <li>• no cure but</li> <li>• various drug treatments to suppress symptoms and effects</li> <li>• rest and support until periods of remission</li> <li>• Interferon once considered an option</li> <li>• physiotherapy</li> <li>• hyperbaric therapy</li> </ul> <p style="text-align: right;"><b>PTO</b></p>			<p><b>Level 1 (1–3 marks)</b> Candidates' will identify the diagnosis and treatment of a named dysfunction 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.</p> <p><b>0</b> – response not worthy of credit.</p>

Question			Answer	Marks	Guidance	
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			<p><b>Stroke</b></p> <p><i>Diagnosis</i></p> <ul style="list-style-type: none"> <li>• limb and/or facial weakness</li> <li>• paraesthesias or numbness</li> <li>• speech difficulty</li> <li>• headache</li> <li>• visual loss or double vision</li> <li>• confusion</li> <li>• dizziness / vertigo</li> <li>• nausea</li> <li>• neck or facial pain</li> <li>• MRI / CAT scans</li> <li>• blood tests for: Serum glucose, FBC, Electrolytes, Urea and creatinine / cardiac enzymes to rule out MI</li> <li>• partial thromboplastin and prothrombin times</li> <li>• swallow test</li> </ul> <p><i>Treatment</i></p> <ul style="list-style-type: none"> <li>• initial aspirin</li> <li>• anticoagulants</li> <li>• blood pressure reduction (ramipril)</li> <li>• diuretics</li> <li>• angiotensin converting enzyme (ACE) inhibitors to dilate blood vessels</li> <li>• bed rest</li> <li>• occupational therapy</li> <li>• physiotherapy</li> <li>• aids and adaptations</li> <li>• speech therapy</li> <li>• surgery in extreme cases to remove clot</li> </ul> <p>Accept other valid diagnoses or treatments.</p>			

Question		Answer	Marks	Guidance	
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2	(c)	<p><b>Arthritis</b></p> <ul style="list-style-type: none"> <li>• signs of cartilage damage in joints</li> <li>• aches and pains and stiffness</li> <li>• cartilage begins to lose its flexibility</li> <li>• bones begin to thicken or change shape</li> <li>• joint space narrows</li> <li>• inflammation and degeneration of joint surface</li> <li>• joints rub</li> </ul> <p><b>Osteoporosis</b></p> <ul style="list-style-type: none"> <li>• reduces the amount of bone tissue</li> <li>• causes bone weakness</li> <li>• local cells reabsorb the bone tissue</li> <li>• bones become porous and brittle</li> <li>• bones become vulnerable to breakage</li> <li>• causes people to decrease in height</li> <li>• fracturing of bones renders a person immobile</li> <li>• hearing loss with ringing in the ears and dizziness can occur</li> <li>• other complications include hypertension, kidney stones and gout</li> </ul> <p><b>Parkinson's</b></p> <ul style="list-style-type: none"> <li>• loss of brain cells that produce dopamine</li> <li>• constipation</li> <li>• daytime sleepiness</li> <li>• decreased sense of smell</li> <li>• a condition known as REM behaviour disorder (where people act out their dreams by kicking, hitting or talking during dream or REM sleep)</li> <li>• a tremor or fine shake while the person is at rest</li> <li>• rigidity or increased tone in the body's muscles</li> <li>• slowness of all movements (known as bradykinesia) and shuffling gait</li> <li>• unsteady balance (known as postural instability)</li> </ul>	8	<p><b>Levels checklist</b></p> <p><b>Level 3</b> Clear, detailed and accurate discussion of how a named dysfunction could affect an individual. Accurate terminology and follows a logical sequence.</p> <p><b>Level 2</b> Sound discussion how a named dysfunction could affect an individual. Sound terminology but does not always follow a logical sequence Occasionally lacks clarity.</p> <p><b>Level 1</b> Limited discussion with poor terminology used. Shows limited points of understanding.</p>	<p><b>Level 3 (7–8 marks)</b> Candidates will provide a fully developed discussion of how a named dysfunction could affect an individual. This will include accurate terminology and follows a logical sequence. Answers will include factually accurate changes. Sentences and paragraphs are relevant with accurate use of appropriate terminology. There will be few, if any, errors of grammar, punctuation and spelling.</p> <p><b>Level 2 (4–6 marks)</b> Candidates will provide a limited discussion of how a named dysfunction could affect an individual. The description will be accurate. Sentences and paragraphs are generally relevant but may have minor inaccuracies or lack clarity and depth of understanding. There may be occasional errors of grammar, punctuation and spelling.</p>

PTO

Question			Answer	Marks	Guidance	
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			<p><b>Multiple sclerosis</b></p> <ul style="list-style-type: none"> <li>• sheath made of myelin becomes damaged</li> <li>• body's immune system, attacks and damages body tissue causing inflammation</li> <li>• extreme tiredness (fatigue)</li> <li>• muscle weakness, stiffness and spasms</li> <li>• eye problems, including pain, blurred or double vision and temporary loss of vision</li> <li>• bladder problems</li> <li>• bowel problems</li> <li>• loss of balance, co-ordination and dizziness</li> <li>• pain from nerve damage or related to loss of mobility</li> <li>• numbness or tingling on your skin</li> <li>• difficulty speaking and swallowing</li> <li>• feeling emotional, anxious or depressed</li> <li>• sexual difficulties, such as problems with erections or vaginal dryness</li> <li>• short term memory problems/poor concentration</li> </ul> <p><b>Stroke</b></p> <ul style="list-style-type: none"> <li>• paralysis on one side of the body</li> <li>• vision problems</li> <li>• quick, inquisitive behavioural style</li> <li>• memory loss</li> <li>• depression</li> <li>• communication problems,</li> <li>• difficulties in performing daily tasks</li> <li>• muscle tightness or spasticity</li> <li>• pain</li> <li>• dysphagia</li> <li>• difficulties with reading and writing</li> <li>• bladder and bowel problems</li> </ul> <p>Accept other appropriate physical / physiological effects.</p>			<p><b>Level 1 (1–3 marks)</b> Candidates' will describe the lifestyle changes of a named dysfunction 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.</p> <p><b>0</b> – response not worthy of credit.</p>

*PTO*

Question			Answer	Marks	Guidance	
					Content	Levels of response
			<p><b>Daily Living routines may be affected</b></p> <p><b>Problems with:</b></p> <p><i>Lifestyle</i></p> <ul style="list-style-type: none"> <li>• getting in and out of bed</li> <li>• washing</li> <li>• preparing food</li> <li>• eating</li> <li>• accessing buildings, stairs, general mobility</li> <li>• any aspect of interruption to family life, socialising</li> </ul> <p><b>Work</b></p> <ul style="list-style-type: none"> <li>• finding suitable employment</li> <li>• maintaining that employment</li> <li>• mobility whilst at work</li> <li>• acceptance and support by employer</li> </ul> <p><b>Social – difficulty with:</b></p> <ul style="list-style-type: none"> <li>• accessing public facilities, shops, cinema, theatre, holidays</li> <li>• public transport</li> </ul> <p><b>Medical Appointments</b></p> <ul style="list-style-type: none"> <li>• increased frequency</li> <li>• painful treatments and surgical procedures</li> <li>• side effects from drug therapy</li> </ul> <p>Accept other valid lifestyle variations.</p>			

Question		Answer	Marks	Guidance
3	(a)	<p><b>One</b> mark for each structure identified, <b>FOUR</b> required from:</p> <ol style="list-style-type: none"> <li>1. kidney</li> <li>2. ureter</li> <li>3. bladder</li> <li>4. urethra</li> </ol>	<p>4x1</p> <p>4</p>	Answers to 2 and 4 must be spelled correctly
	(b)	<p>Candidate will describe <b>TWO</b> functions of the listed structures. <b>One</b> mark for each correct function. <b>TWO</b> functions required for each structure.</p> <p><b>Glomerulus</b></p> <ul style="list-style-type: none"> <li>• bring blood to the nephron</li> <li>• bring waste products to the nephron</li> <li>• filter one fifth of the plasma through the glomerular membrane,</li> <li>• prevents large molecules from passing</li> <li>• reabsorption of fluid / liquid into the capillaries</li> <li>• passes filtrate through to the bowman's capsule</li> <li>• works under high pressure</li> </ul> <p><b>Proximal tubule</b></p> <ul style="list-style-type: none"> <li>• most of water reabsorbed</li> <li>• reabsorption of glucose</li> <li>• reabsorption of salts</li> </ul> <p><b>Loop of Henle</b></p> <ul style="list-style-type: none"> <li>• reabsorbs some filtered water in a normal kidney</li> <li>• creates a Na concentration gradient</li> <li>• maintaining the osmolarity</li> <li>• passes filtrate through to the distal convoluted tubule</li> <li>• creates a counter-current multiplier system / removes ions</li> </ul> <p style="text-align: right;"><b>PTO</b></p>	<p>4x2</p> <p>8</p>	Do not accept 'creates high pressure'



Question	Answer	Marks	Guidance
	<p><b>Bowman's capsule</b></p> <ul style="list-style-type: none"><li>• performs the first step in the filtration of blood to form urine</li><li>• it allows liquids and small particles to pass through</li><li>• prevents larger structures (e.g. blood cells) from passing through</li><li>• passes filtrate through to the proximal convoluted tubule</li><li>• prevents leakage of fluid</li><li>• rapid filtration</li></ul>		

Question		Answer	Marks	Guidance	
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3	(c)	<p><b>Osmoregulation</b></p> <p><i>Events include</i></p> <ul style="list-style-type: none"> <li>the pituitary gland controls blood water concentration</li> <li>this gland produces the hormone ADH</li> <li>ADH is carried by the blood to the kidneys</li> <li>ADH increases the permeability of the kidney tubules allowing water to be reabsorbed from the tubules into the blood</li> <li>if blood water concentration falls, more water reabsorption is needed so that less water is lost as urine / ADH production is increased</li> <li>if blood water concentration rises, less water reabsorption is needed so that more water is lost as urine. ADH production is decreased</li> <li>this information can be arranged into a cycle which is an example of negative feedback</li> <li>water loss through sweating may be referred to</li> </ul> <p><b>Candidates may discuss homeostatic control:</b></p> <ul style="list-style-type: none"> <li>water concentration, temperature, and glucose concentration must be kept as constant as possible</li> <li>homeostasis is the maintenance of constant internal conditions in an organism</li> <li>negative feedback is an important type of control that is found in homeostasis</li> <li>a negative feedback control system responds when conditions change from the ideal or set point and returns conditions to this set point</li> <li>there is a continuous cycle of events in negative feedback</li> </ul> <p>Accept other appropriate candidate responses</p>	8	<p><b>Levels checklist</b></p> <p><b>Level 3</b> Clear, detailed and accurate discussion of how the renal system controls osmoregulation Accurate terminology and follows a logical sequence of events.</p> <p><b>Level 2</b> Sound discussion how the renal system controls osmoregulation. Sound terminology but does not always follow a logical sequence Occasionally lacks clarity.</p> <p><b>Level 1</b> Limited discussion with poor terminology used. Shows limited points of understanding.</p> <p><i>A h answer will also refer to negative feedback</i></p> <p><i>Any other valid point.</i></p>	<p><b>Level 3 (7–8)</b> Candidates will provide a fully developed discussion of how the renal system controls osmoregulation. They will demonstrate the ability to present their answer in a planned and logical sequence using appropriate and accurate terminology. Sentences and paragraphs are for the most part relevant and material will be presented in a balanced, logical and coherent manner that addresses the question. There will be few, if any, errors in the use of grammar, punctuation and spelling.</p> <p><b>Level 2 (4–6)</b> Candidates will provide a discussion of how the renal system controls osmoregulation. They will demonstrate limited ability to organise their answer, using some appropriate terminology. 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 occasional errors of grammar, punctuation and spelling.</p>

Question			Answer	Marks	Guidance	
					Content	Levels of response
						<p><b>Level 1 (1–3)</b>  Candidates will identify / describe the physiological effects of a renal dysfunction. The description will be limited with little evidence of the use of appropriate terminology. Sentences and paragraphs have limited coherence and structure, with little relevance to the main focus of the question. Errors in the use of grammar, punctuation and spelling may be noticeable and intrusive. Answers may be list like and muddled.</p> <p><b>0</b> – response not worthy of credit.</p>

Question		Answer	Marks	Guidance	
				Content	Levels of response
4	(a)	<p>The candidates' discussion will be based on the following points. These may include</p> <p><b>Infertility</b></p> <ul style="list-style-type: none"> <li>• poor viability of the egg cell</li> <li>• infertile due to drug usage / radiotherapy / injury / deformity</li> <li>• two cells may not meet at the right point</li> <li>• uterine chemistry could destroy the sperm</li> <li>• fallopian tubes could be blocked/ damaged</li> <li>• egg could be released into the body cavity and not the fibrillated end of the fallopian tube</li> <li>• cervical mucus too thick / hostile</li> <li>• failure to develop egg cells/ ovulate due to lack of hormones/ hormone imbalance</li> <li>• infertility due to anorexia or obesity</li> <li>• ectopic pregnancy</li> <li>• eggs cannot pass along the tube</li> <li>• polycystic ovary syndrome</li> <li>• endometriosis / adhesions</li> <li>• damage from infection</li> </ul> <p><b>Lifestyle causes</b></p> <ul style="list-style-type: none"> <li>• excessive consumption of alcohol</li> <li>• smoking causing atheroma in small blood vessels in reproductive system</li> <li>• sexually transmitted infections causing inflammation and atrophy</li> <li>• poor diet and lack of vitamins and minerals causing physiological dysfunction</li> <li>• anorexia and low body fat levels reducing effective blood cholesterol</li> </ul>	10	<p><b>Levels checklist</b></p> <p><b>Level 3</b> Planned, logical and accurate discussion of the causes of female infertility. Accurate terminology and follows a logical sequence of events.</p> <p><b>Level 2</b> Sound discussion of the causes of female infertility. Sound terminology but does not always follow a logical sequence Occasionally lacks clarity.</p> <p><b>Level 1</b> Limited discussion with poor terminology used. Shows limited points of understanding.</p>	<p><b>Level 3 (8–10)</b> Candidates will provide a fully developed discussion of the causes of female infertility. They will demonstrate the ability to present their answer in a planned and logical sequence using appropriate and accurate terminology. Sentences and paragraphs are for the most part relevant and material will be presented in a balanced, logical and coherent manner that addresses the question. There will be few, if any, errors in the use of grammar, punctuation and spelling.</p> <p><b>Level 2 (5–7)</b> Candidates will provide a discussion of the causes of female infertility. They will demonstrate limited ability to organise their answer, using some appropriate terminology. 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 occasional errors of grammar, punctuation and spelling.</p>

Question			Answer	Marks	Guidance	
					Content	Levels of response
						<p><b>Level 1 (1–4)</b>                      Candidates will identify / describe the causes of female infertility. The description will be limited with little evidence of the use of appropriate terminology. Sentences and paragraphs have limited coherence and structure, with little relevance to the main focus of the question. Errors in the use of grammar, punctuation and spelling may be noticeable and intrusive. Answers may be list like and muddled.</p> <p><b>0</b> – response not worthy of credit.</p>

Question		Answer	Marks	Guidance	
				Content	Levels of response
4	(b)	<p><b>Evaluation of treatments might include:</b></p> <ul style="list-style-type: none"> <li>• cost</li> <li>• effectiveness</li> <li>• intrusion</li> <li>• multiple births</li> <li>• stress</li> <li>• addictiveness</li> <li>• increased risk of defects in child as result of IVF etc</li> <li>• postcode lottery</li> </ul> <p><b>Treatment</b> These could include hormone therapy, GIFT, ZIFT, GIFT (gamete intrafallopian transfer) ZIFT (zygote intrafallopian transfer)</p> <ul style="list-style-type: none"> <li>• like IVF, these procedures involve retrieving an egg from the woman and re-implanting it, but in GIFT and ZIFT the process goes more quickly</li> <li>• in GIFT, the sperm and eggs are just mixed together before being inserted</li> <li>• in ZIFT, the eggs are placed in the fallopian tubes rather than directly in the uterus</li> <li>• with GIFT, fertilization actually takes place in the body rather than in a petri dish</li> </ul> <p>Surgery to repair damaged fallopian tubes</p> <p><b>Drug therapy and hormone therapy</b></p> <ul style="list-style-type: none"> <li>• correcting oestrogen and progesterone levels</li> <li>• <i>Clomid</i> is used to stimulate ovulation in women</li> <li>• <i>Pergonal</i> is a widely used fertility drug</li> <li>• (<i>Parlodel</i>), a drug that suppresses the pituitary gland's production of prolactin</li> <li>• <i>human chorionic gonadotropin (HCG)</i> is often used for women with polycystic ovary disease</li> <li>• <i>metformin (Glucophage)</i> is often used to help induce ovulatory cycles</li> </ul>	10	<p><b>Levels checklist</b></p> <p><b>Level 3</b> Planned, logical and accurate evaluation of at least two methods of treatment Accurate terminology and follows a logical sequence of events.</p> <p><b>Level 2</b> Evaluation of two methods of treatment. Sound terminology but limited ability to organise their answer Occasionally lacks clarity. <i>Sub-max of 5 for a well-developed evaluation of one method</i></p> <p><b>Level 1</b> Largely descriptive with poor terminology used. Shows limited points of understanding.</p>	<p><b>Level 3 (8–10 marks)</b> Candidates will provide a fully developed evaluation of at least two methods of treatment that includes accurate terminology. Candidate will address both positive and negative effects. Sentences and paragraphs are relevant with accurate use of appropriate terminology. There will be few, if any, errors of grammar, punctuation and <i>spelling</i>.</p> <p><b>Level 2 (5–7 marks)</b> Candidates will provide an evaluation of two methods of treatment. Sentences and paragraphs are generally relevant but may have minor inaccuracies or lack clarity and depth of understanding. There may be occasional errors of grammar, punctuation and spelling. Sub-max of five marks if only positive or negative comments are made. <i>Sub-max of 5 for a well-developed evaluation of one method.</i></p>

Question			Answer	Marks	Guidance	
					Content	Levels of response
			<p><b>Treatments may include lifestyle changes</b></p> <ul style="list-style-type: none"> <li>• overweight women with ovulation and menstrual cycle problems may want to lose some weight</li> <li>• stop smoking</li> <li>• reduce / stop alcohol</li> <li>• no recreational drugs</li> <li>• reduce caffeine intake</li> <li>• moderate exercise everyday helps in normalising hormone levels</li> <li>• healthy diet</li> </ul>			<p><b>Level 1 (1–4 marks)</b> Candidates' will describe the treatment 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 and intrusive errors of grammar, punctuation and spelling and answers may be list like and muddled.</p> <p><b>0</b> – response not worthy of credit.</p>

Question		Answer	Marks	Guidance	
				Content	Levels of response
5		<p><b>Discussions will be based on the following effects and their potential.</b></p> <p><b>Cardiovascular</b></p> <ul style="list-style-type: none"> <li>• damage to endothelium of coronary arteries making atheroma formation more likely</li> <li>• raised blood pressure / hypertension</li> <li>• thrombi / clots</li> <li>• increased risk of stroke (CVI) due to clot or bleed</li> <li>• thickening of the blood</li> <li>• reduced oxygen transport due to carbon monoxide absorption by the haemoglobin</li> <li>• increased / irregular heart rate</li> </ul> <p><b>Respiratory effects</b></p> <ul style="list-style-type: none"> <li>• bronchitis and over production of mucus</li> <li>• emphysema and shortness of breath</li> <li>• lung cancer and secondary deposits</li> <li>• paralyses and destroys airway cilia</li> <li>• poor lung function and chest pain</li> <li>• increased incidence of lung infections / pneumonia / pleurisy</li> <li>• bronchiectasis</li> <li>• bronchiolitis</li> <li>• pneumothorax and SOB</li> <li>• plural effusions</li> <li>• carbon monoxide poisoning and poor oxygen absorption</li> <li>• cough</li> </ul> <p style="text-align: right;"><b>PTO</b></p>	20	<p><b>Levels checklist</b></p> <p><b>Level 4</b> Detailed and comprehensive discussion of at least two physiological effects on body systems, a logical conclusion. a well-planned and logical answer, with a clearly defined structure and conclusion</p> <p><b>Level 3</b> detailed discussion of at least two physiological effects on body systems answer has a planned and logical sequence using appropriate and accurate terminology.</p> <p><b>Level 2</b> Explanation of at least two physiological effects on body systems limited ability to organise their answer, some appropriate terminology</p>	<p><b>Level 4 (16–20)</b> Candidates will provide a detailed and comprehensive discussion of at least two physiological effects that smoking can have on body systems, making a logical conclusion. 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 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.</p> <p><b>Level 3 (11–15)</b> Candidates will provide a detailed discussion of at least two physiological effects that smoking can have on body systems They will demonstrate the ability to present their answer in a planned and logical sequence using appropriate and accurate terminology. Sentences and paragraphs are for the most part relevant and material will be presented in a balanced, logical and coherent manner that addresses the question. There may be occasional errors in the use of grammar, punctuation and spelling.</p>



Question			Answer	Marks	Guidance	
					Content	Levels of response
			<p><b>Urinary</b></p> <ul style="list-style-type: none"> <li>increased risk of bladder cancer</li> <li>reduced urine output</li> <li>urine retention &amp; infections</li> </ul> <p><b>Reproductive</b></p> <ul style="list-style-type: none"> <li>infertility due to arterial narrowing</li> <li>impotence due to poor blood flow</li> <li>increased risk of cervical and prostate cancer</li> <li>low birth weight due to CO poisoning</li> <li>miscarriage</li> <li>SIDS</li> <li>asthma, respiratory infections</li> <li>complications with the birth</li> <li>affected through mothers milk leading to breathing problems, poor lung function, chest infections, bronchitis and pneumonia</li> </ul> <p><b>Digestive</b></p> <ul style="list-style-type: none"> <li>increased gastric acid leading to gastritis and ulceration</li> <li>reduced appetite</li> <li>cancer of the oesophagus, stomach, pancreas</li> <li>increased risk of liver and large bowel cancer</li> <li>decreased sense of taste and smell</li> <li>oral problems</li> </ul> <p>The above effects may also be linked to physical activity.</p> <p>Accept other valid responses.</p> <p>May include loss of elasticity in skin but <b>not</b> skin discolouration</p>		<p><b>Level 1</b> Description and assessment will be limited, little evidence of appropriate terminology.</p>	<p><b>Level 2 (6–10)</b> Candidates will provide an explanation of at least two physiological effects that smoking can have on body systems. They will demonstrate limited ability to organise their answer, using some appropriate terminology. 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 occasional errors of grammar, punctuation and spelling.</p> <p><b>Level 1 (0–5)</b> Candidates' description and assessment will be limited, with little evidence of the use of appropriate terminology. Sentences and paragraphs have limited coherence and structure, with little relevance to the main focus of the question. Errors in the use of grammar, punctuation and spelling may be noticeable and intrusive. Answers may be list like and muddled.</p> <p><b>0</b> – response not worthy of credit.</p>

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