

Test title: 0170-001/501 Level 2 in Land-Based Studies –Theory exam

June 2019

Q	Acceptable answer(s)	Guidance	Max mks	Ref
1	<p>a) Name <b>two</b> Government organisations that may influence land use. (2 marks)</p> <p>b) For <b>each</b> organisation named in 1a), describe <b>one</b> of their effects on farming. (2 marks)</p> <p><b>Answer</b></p> <p>a) 1 mark each, up to 2 marks b) 1 mark each, up to 2 marks</p> <p>Department for Environment Food and Rural Affairs (DEFRA)</p> <ul style="list-style-type: none"> <li>• Put policies in place to ensure farmers protect the natural environment/ biodiversity/plants/ animals</li> <li>• To encourage sustainable development</li> <li>• they monitor the movement of animals (if there's an outbreak of a disease)</li> <li>• To improve environmental protection and pollution control</li> <li>• They stop farmers growing GM crops</li> <li>• They control what pesticides can be used by farmers</li> </ul> <p>Natural England</p> <ul style="list-style-type: none"> <li>• to protect and improve England's natural environment.</li> <li>• It manages the EU's agri-environment schemes,</li> <li>• designates National Parks and Areas of Outstanding Natural Beauty,</li> <li>• notifies SSSIs /manages National Nature Reserves so would need to follow guidelines</li> </ul>	<p>Accept any other relevant answer</p> <p>Accept organisations from outside of England</p>	4	<p>201 1.1 AO1 AO2</p>

	<p>(eg cutting hedges at certain times, restrictions on land use)</p> <ul style="list-style-type: none"> <li>• Will get fined for not following the rules and regulations</li> </ul> <p>Environment agency</p> <ul style="list-style-type: none"> <li>• Put restrictions on water usage</li> <li>• They fine you if you pollute water courses</li> <li>• Control NVZ's</li> </ul> <p>National parks</p> <ul style="list-style-type: none"> <li>• Aims to preserve areas of special interest so can be restrictions on land use</li> <li>• Controls planning permission for buildings (so they influence farming enterprises)</li> </ul>			
<b>2</b>	<p>Describe <b>six</b> ways topography can influence the type of farming. (6 marks)</p> <p>Answer</p> <p>1 mark each, up to 6 marks</p> <ul style="list-style-type: none"> <li>• On open fields, large machines can be used</li> <li>• Access to fields would influence the size of equipment used</li> <li>• Vehicles used for slopes are required to be more stable. (eg, wider wheels, 4 wheel drives, lower centre of gravity)</li> <li>• Cant grow certain crops on mountains</li> <li>• South facing land is earlier growing</li> <li>• North facing land colder, later growing.</li> <li>• Sheep survive better on higher ground than other types of livestock</li> <li>• Cattle are more suited to lower ground</li> </ul>	Accept any other relevant answer	<b>6</b>	<b>201 1.2 AO2</b>
<b>3</b>	<p>a) Describe <b>two</b> potential benefits of Genetically modified (GM) crops. (2 marks)</p> <p>b) Describe <b>two</b> potential problems of GM crops. (2 mark)</p> <p>Answer</p> <p>a) 1 mark each, up to 2 marks</p> <ul style="list-style-type: none"> <li>• Resistance to diseases/ pests</li> </ul>	Accept any other relevant answer	<b>4</b>	<b>201 2.2 AO2</b>

	<ul style="list-style-type: none"> <li>• Increased yields</li> <li>• Reduce number of pesticides used</li> <li>• Reduce cost of production</li> <li>• Helps to meet consumer demands</li> </ul> <p>b) 1 mark each up to 2 marks</p> <ul style="list-style-type: none"> <li>• Unable to control pesticide resistance</li> <li>• Cross contamination of one crop to another</li> <li>• Unknown genetic consequences</li> <li>• Consumer resistance</li> <li>• Restriction on variety of crops that can be grown</li> </ul>			
<p><b>4</b></p>	<p>a) Name <b>four</b> parts of a plant cell. (4 marks)</p> <p>b) Describe the function of <b>each</b> part named in 4a. (4 marks)</p> <p><b>Answer</b></p> <p>a) 1 mark each up to 4 marks</p> <p>b) 1 mark each up to 4 marks</p> <p>cell wall</p> <ul style="list-style-type: none"> <li>• Protects organelles inside cell</li> <li>• Semi-permeable (controls osmosis)</li> <li>• Gives strength</li> <li>• Gives structure</li> </ul> <p>cell membrane</p> <ul style="list-style-type: none"> <li>• Protects the cell from its surroundings</li> <li>• Controls the movement of substances in and out of the cell</li> </ul> <p>cytoplasm</p> <ul style="list-style-type: none"> <li>• Gives the cell its shape</li> <li>• Keeps organelles in place</li> <li>• Responsible for breaking down waste</li> <li>• Aids metabolic activity</li> </ul> <p>Nucleus</p> <ul style="list-style-type: none"> <li>• Stores the plants DNA</li> <li>• Co-ordinates cell's activities</li> <li>• Responsible for reproduction (cell division)</li> </ul>	<p>Accept any other relevant answer</p>	<p><b>8</b></p>	<p><b>202</b></p> <p><b>1.1</b></p> <p><b>Ao1</b></p> <p><b>AO2</b></p>

	<p>Mitochondria</p> <ul style="list-style-type: none"> <li>• Produce energy for the cell (ATP)</li> <li>• Regulate cell metabolism</li> <li>• Perform cellular respiration</li> </ul> <p>vacuole</p> <ul style="list-style-type: none"> <li>• Contain water for cell</li> <li>• Contain enzymes</li> <li>• Isolate harmful material</li> <li>• Store waste products</li> <li>• Help maintain pressure in cell</li> </ul> <p>Chloroplasts</p> <ul style="list-style-type: none"> <li>• Conducts photosynthesis</li> <li>• Captures energy from sunlight</li> <li>• Converts and stores energy</li> <li>• Frees oxygen and water</li> </ul>			
<b>5</b>	<p>Describe <b>two</b> functions of flowers on a plant. (2 marks)</p> <p>Answer: 1 mark each, up to 2 marks</p> <ul style="list-style-type: none"> <li>• To attract pollinators</li> <li>• To aid in reproduction of the plant</li> <li>• To distract predators</li> <li>• To aid production of seed</li> </ul>	Accept any other relevant answer	<b>2</b>	<b>202 1.1 Ao2</b>
<b>6</b>	<p>Describe the process of aerobic respiration in plants. (4 marks)</p> <p>Answer: 1 mark for each, up to 4 marks</p> <p>Respiration takes place in the mitochondria of the cell (1 mark) Respiration in plants involves using the sugars (1) produced during photosynthesis (1) plus oxygen (1) to produce energy for plant growth (1 mark) Carbon dioxide (1 mark) and Water (1 mark) are produced by Aerobic respiration (1 mark)</p>	Accept any other relevant answer	<b>4</b>	<b>202 1.2 Ao2</b>
<b>7</b>	<p>List <b>four</b> consequences of improper diet for an animal. (4 marks)</p> <p>Answer</p>	Any other relevant answer	<b>4</b>	<b>202 3.3 AO1</b>

	<p>1 mark for each, up to 4 marks</p> <ul style="list-style-type: none"> <li>• malnutrition</li> <li>• obesity</li> <li>• stunted growth</li> <li>• skeletal problems</li> <li>• Reduction in milk production</li> <li>• Poor quality of milk</li> <li>• Metabolic problems</li> <li>• Increase chance of health problems (eg tumours)</li> <li>• Weak</li> <li>• Malformed</li> <li>• Dead offspring</li> </ul>			
8	<p>For an animal of your choice, describe <b>six</b> visual signs of good health. (6 marks)</p> <p><b>Answer</b> 1 mark for each, up to 6 marks</p> <ul style="list-style-type: none"> <li>• Behaviour – animal stays with other animals</li> <li>• Mouth should not have any sores or ulcers</li> <li>• Nose should be wet</li> <li>• Eyes should be clear and bright</li> <li>• Ears should be alert</li> <li>• Coat /feathers should be shiny/good condition</li> <li>• No skin swellings (could be a sign of disease)</li> <li>• No discharges (vaginal, nasal, aural, ocular, oral) could be a sign of disease</li> <li>• eating and drinking the correct amount</li> <li>• No vomiting could be a sign of poisoning</li> <li>• Urine and faeces output and condition is normal</li> <li>• no unusual weigh loss</li> <li>• Posture and movement should be appropriate to the type of the animal</li> <li>• No coughing</li> </ul>	Any other relevant answer	6	202 AO2 4.2

<b>9</b>	<p>List <b>four</b> factors that could affect the selection of new equipment on a farm. (4 marks)</p> <p><b>Answer</b></p> <ul style="list-style-type: none"> <li>• Cost</li> <li>• Value for money</li> <li>• Type of business</li> <li>• Operating environment</li> <li>• Climate / weather</li> <li>• Geography</li> <li>• Topography</li> <li>• Geology</li> <li>• Nature of the business concerned</li> <li>• Flexibility of usage</li> <li>• Running costs</li> </ul>	Any other relevant answer	<b>4</b>	<b>203 AO1 1.2</b>
<b>10</b>	<p>Explain why <b>each</b> of the following items of equipment are used in land management and production.</p> <p>a) A tractor b) A cultivator c) A combine harvester</p> <p><b>Answer</b></p> <p>a) Tractors are used to carry out cultivations / tow trailers(1) because they have a three point linkage /towing hitch (1) b) Cultivators prepare the ground for crops (1) as they have tines that can move the soil (1) c) Combine harvester cuts, separates the grain and straw (1) because it has all the parts in one machine (1)</p>	Any other relevant answer	<b>6</b>	<b>203 AO2 2.1</b>
<b>11</b>	<p>Discuss how technology has affected animal production, health and welfare on commercial farms. (12 marks)</p>	<b>Indicative content</b>	<b>12</b>	<b>202 3.1-</b>

<p><b>Answer</b></p> <p><b>Band 1 (1-4 marks)</b>                  Limited discussion of how technology has affected animal health and welfare. There will be limited examples. Answer may be disorganised and ambiguous.</p> <p><b>Band 2 (5-8 marks)</b>                  Adequate discussion of how technology has affected animal health and welfare. There will be adequate examples. There will be some use of specialist terms, although they may not always be used appropriately. The information is presented mostly in a structured format.</p> <p><b>Band 3 (9-12 marks)</b>                  Detailed discussion of how technology has affected animal health and welfare. There will be detailed examples. Specialist terms will be used correctly and appropriately. Information will be presented in a structured format and logical order.</p>	<p>Building Climate Control makes buildings a healthier place for animals</p> <p>Data collection from tagging</p> <p>Ultrasound pregnancy testing equipment allows feeding regimes to be adjusted depending on number of foetuses.</p> <p>Biomechanical measurement equipment allows feeding regimes to be adjusted</p> <p>Pressure pads allows animals to be weighed regularly and easily to help work out diets</p> <p>Pedometers allow checks on distance walked.</p> <p>Thermographic imagery allows medical problems to be diagnosed</p> <p>DNA ‘fingerprinting’ can help pick up any hereditary problems</p> <p>Animal cloning could allow particular characteristics to be kept</p> <p>Semen preservation could allow particular characteristics to be kept</p> <p>Hydrotherapy can allow muscle regeneration after injury</p> <p>Exercise equipment can allow muscle regeneration after injury</p> <p>Magnetic therapy can help</p>	<p><b>3.3</b></p> <p><b>4.2,</b></p> <p><b>4.3</b></p> <p><b>203</b></p> <p><b>1.1</b></p> <p><b>3.1</b></p> <p><b>3.2</b></p> <p><b>2.1</b></p>
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**Confidential**

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