

Qualification title: 0173 Land and Wildlife

Test title: 0173-009/509

Version: March 2018

Q	Acceptable answer(s)	Guidance	Max mks
1	<p><b>Answer:</b></p> $6\text{CO}_2 + 6\text{H}_2\text{O} \xrightarrow{\text{light energy}} \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$ <p><b>a:</b> Carbon, Oxygen and Hydrogen <b>(1 Mark for each)</b>  <b>b:</b> Chlorophyll <b>(1 Mark)</b></p>		4
2	<p><b>Answer:</b></p> <p><b>a) Any of the following:</b></p> <ul style="list-style-type: none"> <li>- Rain</li> <li>- Snow</li> <li>- Hail</li> <li>- Sleet</li> </ul> <p><b>1 mark each up to 2 marks</b></p> <p><b>b) Any of the following :</b></p> <ul style="list-style-type: none"> <li>- Condensation</li> <li>- Evaporation</li> <li>- Evapotranspiration</li> <li>- Sublimation</li> <li>- De-sublimation</li> <li>- Run off</li> <li>- Infiltration</li> <li>- Percolation</li> <li>- Through flow</li> <li>- Interception</li> </ul> <p><b>1 mark each up to 2 marks</b></p>	<p><i>Accept and award marks for any other appropriate answer.</i></p>	4
3	<p><b>Answer:</b></p> <p><b>Aerobic Respiration</b> uses oxygen to breakdown/burn a glucose molecule <b>(1 Mark)</b> Carbon dioxide and water are released as waste products <b>(1 Mark)</b></p>		4

	<b>Anaerobic Respiration</b> is used when oxygen is not available ( <b>1 Mark</b> ) Lactic Acid (in animals) or Ethanol (in plants) is released as a waste product ( <b>1 Mark</b> )		
<b>4</b>	<p><b>Answer:</b></p> <p>a) Carbon taken in from the atmosphere by plants to produce carbohydrates by <b>photosynthesis</b> from the atmosphere (<b>1 mark</b>)  Animals feed on the plant/carbohydrates passing the carbon compounds along the food chain (<b>1 mark</b>).  Most of the carbon they consume is exhaled as carbon dioxide formed during <b>respiration</b> (<b>1 mark</b>).  The dead organisms are eaten by <b>decomposers</b> and the carbon in their bodies is returned to the atmosphere as carbon dioxide (<b>1 mark</b>).  In some conditions the plant and animal material may be available as fossil fuel in the future for <b>combustion</b> releasing carbon dioxide into the atmosphere (<b>1 mark</b>).</p> <p><b>Up to 4 marks.</b></p> <p>b)</p> <ul style="list-style-type: none"> <li>- Bacteria (<b>1 Mark</b>)</li> <li>- Lightning Strikes (<b>1 Mark</b>)</li> </ul>	<i>Accept and award marks for any other appropriate answer.</i>	<b>6</b>
<b>5</b>	<p><b>Answer:</b></p> <p>a. Loam soil (<b>1 Mark</b>)  b. Metamorphic rocks (<b>1 Mark</b>)</p>		<b>2</b>
<b>6</b>	<p><b>Answer:</b></p> <p>Pressure decreases with increasing altitude (<b>1 Mark</b>). This is because air molecules are held close to the earth's surface by the force of gravity (<b>1 mark</b>), higher altitudes have fewer air molecules (<b>1 mark</b>) and air pressure is measured by the total amount of air above a specified point. (<b>1 mark</b>)  This means that as the altitude increases there is less air to measure. (<b>1 mark</b>)</p> <p>Up to a total of <b>4 Marks</b></p>	<i>Accept and award marks for any other appropriate answer.</i>	<b>4</b>
<b>7</b>	<p><b>Answer:</b></p> <p>a) Polygamous mating system is either 1 Male breeding with more than one female or 1 Female breeding with more than one male (<b>1 Mark</b>)</p> <p>b) A Monogamous mating system is one male mating with one female (<b>1 Mark</b>)</p>		<b>2</b>
<b>8</b>	<b>Answer 8a -</b>	<i>Accept and award marks for any other</i>	<b>6</b>

	<ul style="list-style-type: none"> <li>- Source populations tend to be larger than sink populations</li> <li>- Source populations are less prone to extinction than sink populations</li> <li>- Source Populations occupy larger areas of viable habitat/areas than sink populations</li> <li>- Source populations are not reliant on immigration/sink populations are reliant on immigration</li> </ul> <p><b>1 mark for each of the points (up to 3 marks)</b></p> <p><b>Answer 8b -</b></p> <ul style="list-style-type: none"> <li>- Isolation can lead to reduced fitness in the population</li> <li>- Isolation can result in a narrowing of the gene pool</li> <li>- Isolation can result in species extinction</li> <li>- Isolation can cause evolutionary changes in the population</li> </ul> <p><b>1 mark for each of the points (up to 3 marks)</b></p>	<p><i>appropriate answer.</i></p>	
<p><b>9</b></p>	<p><b>Answer:</b> <b>Any one from the following:</b></p> <ul style="list-style-type: none"> <li>- Agriculture</li> <li>- Urbanisation</li> <li>- Deforestation/Afforestation</li> <li>- Leisure/Recreation</li> <li>- Natural Disasters</li> <li>- Seasonal Events</li> <li>- Industry</li> <li>- Re-generation</li> <li>- Succession</li> </ul>		<p><b>1</b></p>
<p><b>10</b></p>	<p><b>Answer 10a:</b></p> <ul style="list-style-type: none"> <li>- Wood Banks</li> <li>- Trackways</li> <li>- Saw Pits</li> <li>- Charcoal Hearths</li> <li>- Ancient Woodland Indicators</li> <li>- Boundary Shape</li> <li>- Out-Grown Hedges</li> <li>- Ditches</li> <li>- Pits</li> <li>- Place Names/Wood Name</li> <li>- Old historical maps</li> <li>- Old Literature</li> </ul> <p><b>1 Mark for each (up to 4 marks)</b></p> <p><b>Answer 10b:</b></p>		<p><b>6</b></p>

	<ul style="list-style-type: none"> <li>- Provides habitat for plants and animals</li> <li>- Provides nest sites for birds/mammals</li> <li>- Provides habitat/food for fungal species</li> <li>- An important component/part of the nutrient cycle</li> <li>- Sustains biodiversity</li> <li>- Acts as a carbon sink (<b>mitigation against climate change</b>)</li> </ul> <p><b>1 Mark for each (up to 2 marks)</b></p>		
<b>11</b>	<p><b>Answer:</b> Maximum of <b>3 marks</b> for each type</p> <p>A <u>wood pasture</u> by definition has grazing animals within it. They will reduce the amount of vegetation in the shrub layer/shrub layer may be absent (<b>1 Mark</b>). They will create a browse line (<b>1Mark</b>) The field layer in a wood pasture will be more uniform (<b>1 Mark</b>) The canopy layer in a wood pasture will be comprised of large trees (retained for timber) (<b>1 Mark</b>) spaced out to allow enough light to the woodland floor to generate grass growth (<b>1 Mark</b>)</p> <p>In a <u>coppice woodland</u> the shrub layer/understory will be present (<b>1 Mark</b>) as grazing animals are generally excluded (<b>1 Mark</b>) The field layer in a coppice woodland will be more structurally diverse (<b>1 Mark</b>) The canopy layer in a coppice with standards will be comprised of large trees (retained for timber) (<b>1 Mark</b>) spaced out to allow enough light to the woodland floor to generate coppice regrowth (<b>1 Mark</b>)</p>	<i>Accept and award marks for any other appropriate answer.</i>	<b>6</b>
<b>12</b>	<p><b>Answer:</b></p> <p>Ecotones benefit wildlife by increasing the diversity of habitats in a woodland (<b>1 Mark</b>) Ecotones provide ecological niches for specialist species (<b>1 Mark</b>) Ecotones can enhance the structural diversity in a woodland. (<b>1 Mark</b>)</p>	<i>Accept and award marks for any other appropriate answer.</i>	<b>3</b>
<b>13</b>	<p><b>Indicative content</b></p> <ul style="list-style-type: none"> <li>- Generalised habitat survey eg phase 1 habitat survey</li> <li>- Botanical survey</li> <li>- Protected species survey</li> <li>- Soil survey</li> <li>- Tree survey</li> <li>- Invasive species survey</li> <li>- Survey of stand composition</li> <li>- Herbivore survey</li> </ul>		<b>12</b>

- Bird survey
- Amphibian survey
- Insect/invertebrate survey
- Climate data
- Archaeological survey
- Historic feature survey

**Band 1: 1-4 Marks**

A basic discussion of a limited range of surveys that could be carried out was produced, with some consideration given to key protected species and historical and archaeological features. Consideration of timings of the surveys and methods involved have been included but are inaccurate.

**Band 2 : 5-8 Marks**

A good discussion of a wide range of surveys that could be carried out was produced, with clear consideration given to key protected species and historical and archaeological features. Consideration of timings of the surveys and methods have been included with some minor inaccuracies.

**Band 3: 9-12 Marks**

An excellent discussion of an extensive range of surveys that could be carried out was produced, with detailed consideration of a range of key protected species and historical and archaeological features. Consideration of timings of the surveys has been included accurately throughout, perhaps with very minor inaccuracies.