

**Qualification: 0173-011/511 Level 3 Technical in Land and Wildlife Management– Theory Exam**

**March 2019**

1	State how atmospheric pressure is affected by increasing altitude.		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
	Increasing altitude leads to a decrease in atmospheric pressure (1)		1
2	State how igneous rock is formed.		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
	Igneous rock is formed from molten magma (1)		1
3	Sand, silt and clay particles form the mineral element of soil. a. Identify which one of these three particles is the smallest in size. b. Identify which one of these three particles feels gritty when rubbed between your fingers. c. Explain why a loam soil is productive.		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
	a. Clay (1) b. Sand (1) c. Loam soil = good mix (1) of all three particle sizes ensuring good drainage / well oxygenated (1) but also water retention (1) by having good mix of micro, meso and macro pores (1). This provides ideal conditions for plant growth (1). the clay content (re colloids) hold nutrients in soil making Loams nutrient rich (1)		7

4	Explain how Wildfowl centres affect local environmental processes.		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
	<p>Grazing pressure from the wildfowl (1) can expose the soil (1) leading to increased run off/erosion (1). Increase in wildfowl dropping increases nutrients on the land (1) and eutrophication of the water (1).</p> <p>Have accepted answers to do with changing the area to create the wildfowl centre eg damming of river causing problems upstream (1) / blocking drains / flooding fields changing the water table(1) and affecting habitats for other species (1).</p>	<b>Any other relevant answers.</b>	3
5	State the <b>legal status</b> of <b>one</b> named aquatic mustelid.		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
	<p>Otter (1)– total protected (1) Mink (1)– not protected (1)</p>	<b>1 mark for naming the animal to a maximum of 1 mark and 1 mark for the legal status up to a maximum of 2 mark.</b>	2
6	Identify <b>two</b> key characteristics of a fox's footprint.		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
	<ul style="list-style-type: none"> <li>• 4 toes with claws (1)</li> <li>• Longer than it is wider/ Rectangle shape (1)</li> <li>• Approx 50mm long (1)</li> <li>• Placed in a single line rather than on top of each other (1)</li> <li>• An equal lined cross between the pads (1)</li> </ul>	<b>1 mark each, up to a maximum of 2 marks.</b>	2

7	Explain how the Larsen trap takes advantage of the Carrion Crow's breeding behaviour.		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
	<ul style="list-style-type: none"> <li>• Crows form breeding pairs and defend a territory from other crows in Spring (1)</li> <li>• Allowed to use a decoy crow in a Larsen trap (1)</li> <li>• Decoy placed in territory of a pair will be attacked (1)</li> <li>• This leads to the crows entering the Larsen and being trapped (1)</li> </ul>	<p><b>1 mark each, maximum of 4 marks.</b></p> <p><b>Any other relevant answers.</b></p>	4
8	Describe <b>four</b> non-lethal methods for protecting newly released pheasant poults from mammalian predators.		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
	<ul style="list-style-type: none"> <li>• Exclusion – release pen fence prevents access from foxes (1)</li> <li>• Audible deterrents– use of radio at night (1)</li> <li>• Visual deterrents – use of hanging CDs (1)</li> <li>• Scent – placing strong smelling scents eg urine around the pen (1)</li> <li>• Electrical – use of two strand electrical fence around perimeter of pen (1)</li> <li>• Diversionary feeding – provide other food elsewhere (1)</li> <li>• Physical presence / encourage people to walk round– they see you / are disturbed and go elsewhere (1)</li> </ul>	<p><b>1 mark each, maximum of 4 marks.</b></p> <p><b>Any other relevant answers.</b></p>	4
9	Name <b>three</b> components of a cartridge.		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
	<ul style="list-style-type: none"> <li>• Crimp</li> <li>• Head</li> <li>• Primer</li> <li>• Propellant</li> <li>• Case</li> <li>• Wad</li> <li>• Pellets / shot</li> <li>• Brass / base</li> </ul>	<p><b>Any 3, up to a maximum of 3 marks.</b></p> <p><b>Any other relevant answers.</b></p>	3

10	Describe <b>one</b> precaution that should be taken to avoid ricochet in relation to rifle shooting.		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
	<ul style="list-style-type: none"> <li>• Shooting into a back stop of soft earth / safe backstop (1).</li> <li>• Clear shot no obstructions (1)</li> <li>• Bullet – higher velocity bullets more likely to penetrate and not ricochet (1)</li> </ul>	<b>Also accepted: Angle of bullet to target surface – plus explanation for water</b>	1
11	Explain <b>three</b> factors that would affect the trajectory of a rifle bullet.		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
	<ul style="list-style-type: none"> <li>• Weight of the bullet (1) - a heavier bullet will be more affected by gravity (1)/therefore not travel as far (1).</li> <li>• The velocity of the bullet (1) – the faster the bullet travels the less effect gravity has on it before it hits the ground (1)/the greater the velocity the further it will travel before it hits the ground (1)</li> <li>• Increase in altitude (1) – as altitude increases air pressure decreases which results in less resistance to the movement of bullet (1) / which allows the bullet to travel further (1)</li> <li>• Increase in humidity (1)- reduces the density of air which results in less resistance to the movement of bullet (1) / which allows the bullet to travel further(1)</li> <li>• Increase in temperature (1) -produces a higher internal pressure on combustion (1)/which increases velocity(1)/ which allows the bullet to travel further(1)</li> <li>• Wind speed(1)-movement of bullet to the left/right depending on strength and direction (1)</li> <li>• Damage to crown of the barrel (1) – if this is damaged it won't fly true when it comes out of the barrel you can get a spin causes problems with distance and spin. (1)</li> <li>• (Unseen) obstructions (1) twigs / branches that you can't see through the scope /which deflect the bullet(1)</li> </ul>	<b>1 mark for the factor up to 3 marks and 1 mark for the effect, up to 3 marks.</b>	6

12	State the difference between a single stage and a hair trigger on a rifle.		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
	<p>Single stage – one pull at a predetermined pressure releases firing pin (1)  Hair – first has to be set, then the slightest touch releases the firing pin (1)  Have also allowed answers along the lines of A hair trigger is a much lighter trigger/ a hair trigger will go off as soon as it is touched and requires much less weight/effort to pull to release the firing pin (1). A single stage trigger you will be able to gently hold without it going off before squeezing it to release the firing pin (1).  <b>or</b>  The pressure needed to make the firing pin hit the primer on a rifle with a single stage trigger is much greater than the force needed on that of a hair trigger (1)The pull of the trigger is also much shorter on a rifle with a hair trigger than that of a single stage trigger (1)</p>	<b>1 mark for each, maximum of 2 marks.</b>	2
13	State <b>three</b> physical differences between male and female mallard duck which aids identification.		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
	<ul style="list-style-type: none"> <li>• Genitalia</li> <li>• Colour of plumage</li> <li>• Bill colour</li> <li>• Sex feather/curled feather towards the tail</li> </ul>	<b>1 mark for each, up to 3 marks.</b> <b>Any other relevant answers.</b>	3
14	<p>Grey Partridge and Grouse will form strong pair bonds.</p> <p>Name the technical term for this breeding strategy.</p>		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
	Monogamy (1)		1

15	Describe <b>three</b> key requirements of newly hatched pheasant chicks in the wild.		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
	<p>Insects – newly hatched chicks require food for first weeks of life (1) - Plant specific crops (1)/manage existing habitats to ensure high levels of insect life (1)/by minimising agrochemicals used (1)/beetle banks (1)/conservation headlands (1)</p> <p>Protection from predators (1) – legal predator control eg stoats, weasels, rats, foxes – reduction in numbers to allow chicks to survive.(1) – lethal/non-lethal methods of controlling avian predators</p> <p>Cover (1) – to provide cover from avian predators through habitat provision/management (1)/the cover provides shelter from the elements through habitat provision/management (1)</p> <p>The mark scheme doesn't seem to fully match the question as the question doesn't ask for management techniques for each key requirement yet the mark scheme says should be giving 1 mark for management technique. What I have done is give one mark for each requirement eg food / cover / protection from predators, then another mark for associated description eg cover(1) shelter from weather(1) Have also allowed water (1) from small puddles / droplets on cover (1)</p>	<p><b>1 mark for key requirements to a maximum of 3 marks, 1 mark for management technique per key requirement up to a maximum of 3 marks.</b></p> <p><b>Cover for avian predators can only be used once.</b></p> <p><b>Any other relevant answers.</b></p>	6
16	Describe <b>when</b> and <b>how</b> a pair count should be undertaken for Grouse.		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
	<p>When – spring time when birds have paired (1)</p> <p>How – walk transect/area representative of moor/ drive round set route and count pairs as flushed/ flushed by dogs (1) – sample census (1)</p>	<p><b>1 mark for the how and 1 mark for when to a maximum of 2 marks.</b></p>	2

17	<p>A landowner has asked for advice about how to control potential geese numbers on his grazing land around an estuary.</p> <p>Discuss the considerations that should be given in a response.</p>		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
	<p><b>Indicative content:</b></p> <ul style="list-style-type: none"> <li>• Methods of deterring geese</li> <li>• Identification and survey of species and numbers</li> <li>• Change of crop / habitat management</li> <li>• Breeding ecology and life cycle</li> <li>• Habitat requirements</li> <li>• Land use</li> <li>• Land cover</li> <li>• Pests and predators control – lethal and non-lethal</li> <li>• Crop damage</li> <li>• Use of firearms / ammunition</li> <li>• Legislation of the use of firearms</li> </ul>	<p><b>Band 1: 1-4 Marks</b> A limited number of considerations being put forward with only a limited explanation/description given for each one demonstrating a limited knowledge of geese ecology and management techniques. Limited knowledge of firearm use and other control methods.</p> <p><b>Band 2: 5-8 Marks</b> A wide range of possible considerations being put forward with a good explanation/description given for each one demonstrating a good knowledge of geese ecology and management techniques. A wide range of knowledge of firearm use and other control methods.</p> <p><b>Band 3: 9-12 Marks</b> An extensive and imaginative range of possible considerations being put forward with a broad and in-depth knowledge explanation/description given for each one, demonstrating a broad and in-depth knowledge of geese ecology and management techniques. A comprehensive level of knowledge of firearm use and other control methods.</p>	12