

## 0172-539/039 June mark scheme – Technical in Animal Management (Zoos)

Q	Acceptable answer(s)	Guidance	Max mks	Ref
1	<p>1 mark each for any of the following, maximum of 3 marks</p> <ul style="list-style-type: none"> <li>• Transport</li> <li>• Animals</li> <li>• Housing and equipment</li> <li>• Premises</li> <li>• Tools</li> <li>• Feed stocks</li> </ul> <p>Any other appropriate answer</p>		3	364-2.2 AO1
2	<p>1 mark each for any explanation of the following, maximum of 3 marks</p> <ul style="list-style-type: none"> <li>• Number of customers will dictate the price of service or product/stock levels (1)</li> <li>• Type of customers i.e Young vs old- how much the can afford to pay (1)</li> <li>• Characteristics of customers will affect the frequency of sales/influence product design (1)</li> <li>• Knowledge of Market segments to target customers/gaps in the market (1)</li> <li>• Advertising decisions i.e target customers/type of advertising and location/ timing. (1)</li> </ul> <p>Any other appropriate answer</p>		3	364-3.1 AO2
3	<p>1 mark each for any of the following legislation (including date), maximum of 3 marks</p> <ul style="list-style-type: none"> <li>• Animal Welfare Act (2006)</li> <li>• CITES</li> <li>• Import of Live Fish Act (1980)</li> <li>• Pet Animals Act (1951)</li> <li>• Health and Safety at Work Act (1974)</li> </ul> <p>Any other appropriate answer</p>		3	313-1.5 AO1

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4	<p>1 mark each for each advantage, maximum 2 marks and 1 mark each for each disadvantage, maximum of 2 marks</p> <p><b>Advantages:</b></p> <ul style="list-style-type: none"> <li>• Lots of eggs produced, so increased chance of survival (1)</li> <li>• No parental care, saves energy cost (1)</li> <li>• Increased genetic diversity, more than 1 male fertilises the eggs (1)</li> <li>• Fast hatching (1)</li> </ul> <p><b>Disadvantages:</b></p> <ul style="list-style-type: none"> <li>• Most eggs fail to hatch (1)</li> <li>• High levels of predation (1)</li> <li>• High level of unfertilised eggs (1)</li> </ul>		4	313-2.3 AO2
5	<p>1 mark for any of the following, maximum of 3 marks</p> <p><b>Species &amp; Numbers:</b> Avoid overcrowding (1), stress levels (1), disease spread (1), feeding (1), filtration (1), predation/aggression/territoriality (1).</p> <p>Any other appropriate answer</p>		3	313-4.2 AO2
6	<p>1 mark for any of the following, maximum of 2 marks</p> <ul style="list-style-type: none"> <li>• Stress which lowers the immune system</li> <li>• Nitrogen cycle can go out of sync</li> <li>• Nitrates/Nitrites/Ammonia imbalances</li> <li>• pH imbalance</li> <li>• filtration and bacteria</li> </ul> <p>Any other appropriate answer</p>		2	313-4.1 AO2
7	<p>1 mark for any of the following, maximum of 2 marks</p> <ul style="list-style-type: none"> <li>• scatter feeding</li> <li>• automatic feeding</li> <li>• hand feeding</li> <li>• drip feeding</li> </ul> <p>Any other appropriate answer</p>		2	313-3.2 AO1
8	<p>1 mark for each named organ, 1 mark for each function, maximum of 2 marks</p> <p>1: Crop (1) 2: Gizzard (1) – Crushes (1) and grinds food (1)</p>		4	314-4.1 AO1

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9	<p>1 mark for explanation of each of the following, maximum of 6 marks</p> <ul style="list-style-type: none"> <li>• reduction of stereotypical behaviour</li> <li>• increasing feeding times</li> <li>• encouraging natural behaviour</li> <li>• Stimulates mental health</li> <li>• educating the public</li> <li>• replicate natural environment</li> <li>• increased breeding success</li> </ul> <p>Any other appropriate answer.</p>		3	314-1.3 AO2
10	<p>1 mark each factor, 1 for explanation, for any of the following, maximum of 4 marks</p> <ul style="list-style-type: none"> <li>• Species kept require different dietary types: amount of food, feeding regimes</li> <li>• Dietary type: seed eaters, frugivores, carnivores, insectivores, nectar feeders</li> <li>• Feeding techniques: scatter feeding, presentation, on the glove, live food, enrichment</li> <li>• Flight weight: for public display/bird general health weight must be carefully calculated and monitored</li> <li>• Equipment needed: preparation of food, presentation of food</li> <li>• Supplementation: dietary requirements to ensure general health, promote breeding in the correct season, grit to help with digestion</li> <li>• Special dietary requirements: medication, wormers, anti-parasites</li> </ul> <p>Any other appropriate answer</p>		4	314-1.2 AO2
11	<p>1 mark for any of the following factors, maximum of 4 marks</p> <ul style="list-style-type: none"> <li>• Quarantine/segregation of birds (1): quarantined to allow any diseases that might be incubating to show their signs (1).</li> <li>• Vaccination (1): prevention of viral infections caused by contamination of sharing food and accommodation (1)</li> <li>• Improvements to sourcing (1): Knowing the history of the birds health and care conditions (1)</li> <li>• Introduction process (1): new birds should be separated to avoid fighting and sharing of food and water equipment (1)</li> </ul> <p>Any other appropriate answer</p>		4	314-2.3 AO2

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12	<p>1 mark for any of the following, maximum of 2 marks</p> <ul style="list-style-type: none"> <li>• low energy light bulbs</li> <li>• biodegradable substrates</li> <li>• bio fuels</li> <li>• solar panels</li> </ul> <p>Any other appropriate answer</p>		2	316-4.3 AO1
13	<p>1 mark per each explanation of the following:</p> <ul style="list-style-type: none"> <li>• <b>Reduce escapes:</b> nets checked for holes, traps/crush cages that aren't maintained or broken will increase chance of escape</li> <li>• <b>Prepared for emergencies:</b> in the event of an emergency broken equipment would result in being unprepared</li> <li>• <b>Minimising stress:</b> to the animal to avoid escape and recapture</li> <li>• <b>Minimising risk of injury to animal:</b> if equipment if broken or damaged it could injure or harm the animal</li> <li>• <b>Minimising risk to of injury to staff:</b> if animal needs to be recaptured and equipment is faulty or poorly maintained staff can be put at risk</li> </ul> <p>Any other appropriate answer</p>		3	316-4.4 AO2
14a	<p>1 mark for any of the following, maximum of 2 marks</p> <p><b>Enrichment:</b> should be changed regularly to ensure animals don't lose interest (1) checked to ensure equipment is not damaged (1) behavioural record of interactions with enrichment to monitor its use (1) type of enrichment changed (1)</p> <p>Any other appropriate answer</p>		2	316-3.2 AO2
14b	<p>1 mark for any of the following, maximum of 2 marks</p> <p><b>Cleaning:</b> record kept for cleaning frequency (1) for overall enclosure/nests/bedding/feeding areas (1) maintain hygiene for animal welfare to reduce spread of disease (1) monitor changes in faeces (1) identifying damaged equipment (1)</p> <p>Any other appropriate answer</p>		2	316-3.2 AO2

15	<p>1 mark for any of the following, maximum of 2 marks per advantage and 2 marks per disadvantage.</p> <p><b>Advantages:</b></p> <ul style="list-style-type: none"> <li>• Opportunity to represent natural associations between species (1)</li> <li>• The animals are provided with behavioural enrichment through species interactions (1)</li> <li>• Species enjoy increased activity levels in a mixed exhibits (1)</li> <li>• Mixed species may benefit from being housed in a bigger enclosure (1)</li> <li>• Maximised use of whole of enclosure space by different species with different needs (1)</li> <li>• Grassland management control, different species will each favour different lengths of browse/grazing (1)</li> </ul> <p><b>Disadvantages:</b></p> <ul style="list-style-type: none"> <li>• Possible competition for food between species (1)</li> <li>• Possible competition for space between species (1)</li> <li>• Negative interactions between species e.g. aggression (1)</li> <li>• Possibility of unnatural behaviours and interactions between species (1)</li> <li>• Risk of disease and parasite transmission between species (1)</li> <li>• Risk of hybridisation between closely related species (1)</li> <li>• Possibility of animals eating the wrong/inappropriate foods meant for other species (1)</li> </ul> <p>Any other appropriate answer</p>		4	316-4.3 AO2
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16	<p><b>Band 1:</b> 1-4 marks</p> <p>Basic identification of the physical resources or Animal welfare considerations required for the different species, with limited examples. Simple justifications of the physical resource requirements or Animal welfare considerations.</p> <p>To access the higher marks in the band, the response will contain species examples linked to welfare and transportation required.</p> <p><b>Band 2:</b> 5-8 marks</p> <p>Good explanation of the physical resources and welfare considerations, with some relevant species examples. Valid justifications of the physical resource requirements including for handling and restraint.</p> <p>To access higher marks in the band, the response will contain clear and accurate links to welfare and transportation including disease management.</p> <p><b>Band 3:</b> 9-12 marks</p> <p>Thorough explanation of physical resources and welfare considerations, considered species examples used throughout. Thorough description of the impacts of transport considerations and techniques needed for handling and restraint, a clear understanding of disease management shown.</p> <p>To access higher marks in the band, a sound understanding of the impact of stress and welfare considerations for the animals included.</p>	<p><b>Indicative content</b></p> <p><b>Physical resource requirements</b></p> <ul style="list-style-type: none"> <li>• Property</li> <li>• Vehicles &amp; machinery</li> <li>• Tools &amp; equipment</li> <li>• Stock</li> </ul> <p><b>Animal considerations</b></p> <ul style="list-style-type: none"> <li>• Techniques for handling and restraint of zoo animals</li> <li>• Animal welfare considerations</li> <li>• Transport of animal considerations</li> </ul>	12	<p><b>314:</b> 2.3, 3.1 and 3.3</p> <p><b>364:</b> 2.2</p> <p><b>316:</b> 4.4 and 4.1</p> <p><b>313:</b> 5.2 AO4</p>
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