

0172 Technicals in Animal Management – 0172-535 (Zoos and Wildlife)

Underline essential technical terms to be seen in the answer

Embolden **and**, **not** or **or** within the answer to clarify requirements for the mark,

Use brackets to indicate text that is extraneous for the mark (but supports examiner understanding)

Use slash to separate alternative/equivalent acceptable terms within an answer

Standard wording:

*Do **not** accept..... (Expected responses that are incorrect but close)*

*Answer must focus on..... and **not**..... (Clarification of the required focus/ clarifies boundary between acceptable and unacceptable – word ‘focus’ can be replaced as appropriate – capture, explain, elicit, highlight etc)*

Allow..... (Answers that may be on the boundary of acceptable – elaborate to clarify if necessary – usually added at standardisation)

Q	Acceptable answer(s)	Guidance	Max mks	Ref
1	1 mark for disease and 1 mark for pathogen, maximum of 2 marks. Disease: Fungal or fungus Pathogen: Chytrid or chytridiomycosis		2	310-2.1 AO1
2a	1 mark for correct disease, maximum of 1 mark. Disease - Metabolic bone disease (1)		1	310-2.1 AO2
2b	1 mark for each cause, maximum of 3 marks. Causes – low dietary levels of calcium (1) and/or vitamin D (1) phosphorous levels are too high (1) inadequate exposure to ultraviolet-B wavelengths (1) improper nutrition (1) Any other appropriate answer		3	310-2.1 AO2
2c	1 mark for each treatment, maximum of 2 marks. Treatments – calcium and vitamin d injections (1), oral supplements/liquid calcium (1) dietary supplements (1) adequate exposure to ultraviolet light (1) calcium rich foods (1) Any other appropriate response.		2	310-2.1 AO2
3	1 mark for each feature of care and 1 mark for each impact, maximum of 2 marks for each feature, maximum of 6 marks. <ul style="list-style-type: none"> • Poor ventilation (1) Impacts – cause respiratory conditions (1) incorrect humidity levels within the enclosure (1) can lead to shedding problems /dysecdysis (1) • Inappropriate substrate (1) 		6	310-2.1 AO2

	<p>Impacts – some substrates have been reported to cause impaction if ingested e.g. wood chips, shavings, walnut shells (1) unable to perform natural behaviour (1) as substrate doesn't simulate a natural environment (1)</p> <ul style="list-style-type: none"> • Inappropriate feeding (1) Impacts – malnutrition (1) incorrect or no supplementation can lead to MBD (1) food too high in oxalates inhibits the uptake of calcium/ deficiencies in dietary calcium (1) improper calcium/phosphorus (Ca:P) ratios (1) low calcium content of prey (1) phytates found in some foods (1) reduce the uptake of phosphorus (1) calcium (1) and iron (1) • Inappropriate lighting (1) Impact - lack of the appropriate ultraviolet (UV) light spectrum (1) can lead to MBD (1) • Poor restraint/handling (1) Impacts – If handled incorrectly can cause injury to the animal from being dropped (1) or tearing skin of smaller geckos if incorrect grip (1) or tail autotomy (shed tail) if the handlers grip is in the wrong place and animal is struggling (1) <p>Any other appropriate response.</p>			
4	<p>1 mark for any of the following, maximum of 2 marks.</p> <ul style="list-style-type: none"> • Vaccination of zoo species • Parasite control • Quarantine • Routine blood/faecal testing and screening • Elimination/trapping vectors • Use of physical barriers to isolate/exclude <p>Any other appropriate response.</p>		2	316-4.1 AO1

<p>5a</p>	<p>1 mark for each advantage, maximum of 2 marks. 1 mark for each dis-advantage, maximum of 2 marks.</p> <p>Wet moat advantages</p> <p>Some animals may use the water or objects in it e.g. eat some of the plants growing in it or wading in it (1) wet moats can be used as habitats for other animals e.g. plants and fish (1) provides 'naturalistic' view i.e. invisible barrier between species (1)</p> <p>Wet moat disadvantages</p> <p>Animals can fall into the moat and get trapped and even drown (1) water can provide a route for disease transmission (1) a lot of space is required which cannot be used by animals in most situations (1) water can freeze (1) keepers need a way to access animals and/or enclosure safely (1) increases the distance between the visitors and animals (1) which can reduce visibility (1)</p> <p>Any other appropriate response.</p>		<p>4</p>	<p>316-4.3 AO2</p>
<p>5b</p>	<p>1 mark for each advantage, maximum of 2 marks. 1 mark for each dis-advantage, maximum of 2 marks.</p> <p>Solid glass advantages</p> <p>Prevents disease transmission (1) double glazing provides noise reduction (1) using acrylic and glass is very strong (1) provides a good view for visitors (1) separates animals, depending on height provides safety for animals (1) prevents visitors from feeding animals (1) animal territory visually increases (1) enriching for animal to have view of the visitors (1)</p> <p>Solid glass disadvantages</p> <p>Can provide injury if animal collides with it (1) close proximity of animals and visitors (1) may effect communication between animals (1) needs regular washing (1) is expensive as a material (1) visibility can be reduced if glass is scratched, if it is sunny (reflection) or if there is condensation (1)</p> <p>Any other appropriate response.</p>		<p>4</p>	<p>316-4.3 AO2</p>
<p>6a</p>	<p>1 mark for each type of evolution (maximum of 2 marks), 1 mark for each definition of each evolution (maximum of 2 marks) and 1 mark for each example of evolution (maximum of 2 marks).</p> <ul style="list-style-type: none"> • Convergent (1) animals not related but having similar traits to achieve similar goals/organisms not closely related (not monophyletic), independently evolve similar traits as a result of having to adapt to similar environments or ecological niches (1) Example: Birds and bats both have wings for flying (1) • Parallel (1) independent evolution of similar traits, starting from a similar ancestral condition/ an evolutionary process by which 		<p>6</p>	<p>308-3.2 AO2</p>

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	<p>two or more separate species in the same environment develop similar adaptation or characteristic for survival (1)</p> <p>Example: Bright colouration serving as a warning in many venomous species (1)</p>			
6b	<p>1 mark for any of the following, maximum of 2 marks.</p> <p>Divergent evolution examples - vertebrate limb (1) Darwin's finches (Galapagos Islands) (1) wolves and domestic dogs (1) or mammal limb is either a hand, wing or flipper (1) Any other appropriate response.</p>		2	308-3.2 AO2
7	<p>1 mark for any of the following including date where applicable, maximum of 2 marks.</p> <ul style="list-style-type: none"> • The Zoo Licensing Act 1981 (1) • The Secretary of State's Standard on Modern Zoo Practice (1) • Endangered Species Act 1973 (1) • Animal health legislation (1) 		2	316-3.1 AO1
8	<p>1 mark for each of the following, maximum of 2 marks.</p> <p>a) Fecundity – fertility/the ability to produce abundant healthy growth/offspring (1)</p> <p>b) Metapopulations - group of populations that are separated by space but consist of the same species/group of local populations that are connected by immigration/a regional group of connected populations of a species (1)</p>		2	308-1.2 AO1
9	<p>1 mark for any of the following, maximum of 3 marks.</p> <ul style="list-style-type: none"> • Seasonality • Migration • Emerging diseases • Climate change • Habitat destruction • Influence of man. 		3	308-1.3 AO1
10a	<p>1 mark for each description, maximum of 3 marks and 1 mark for each example, maximum of 3 marks.</p> <ul style="list-style-type: none"> • Food-based definition - Enrichment that is centred around food (1) Example – examples include hiding food around enclosure (1) or making it hard to obtain inside a puzzle (1) or by providing food that is low in calories (1) so that once found, more food needs to be eaten (1) or providing a new type of food (1) • Sensory definition - Anything that stimulates the animals' senses, including, what they see, hear & smell (1) 		6	316-2.2 AO2

	<p>Example - bird song/other animal sounds (1) TV (1) olfactory – biological samples faeces/urine/shed skin (1) light reflecting off a crystal (1) a rattle or blood trails (1)</p> <ul style="list-style-type: none">• Social definition - Interactions with other animals or people (1) <p>Example - mixed species exhibits (1) and training with the keeper (1)</p> <p>Any other appropriate response.</p>			
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<p>10b</p>	<p>1 mark for each benefit, maximum of 3 marks.</p> <ul style="list-style-type: none"> • Food based benefits - increases time spent foraging for food (1) prolong the feeding experience (1) • Sensory benefits - encourages animals to assess their environment (1) promoting natural behaviours (1) like exploration/scent marking/licking/rolling (1) • Social benefits - encourages social behaviours that animals may show in the wild (1) including/feeding/foraging/defence/territoriality/reproduction and courtship (1) <p>Any other appropriate response.</p>		<p>3</p>	<p>316-2.2 A02</p>
<p>11</p>	<p>Band 1: 1-4 marks The candidate briefly described some of the roles and responsibilities of zoos with regard to both in situ and ex situ conservation, but these may not all be valid. Key points were linked to specific species, but clear gaps in knowledge were evident and limited understanding shown. Technical terminology is used infrequently or inaccurately. To access the higher marks within the band, the candidate referenced a specific organisation related to conservation.</p> <p>Band 2: 5-8 marks The candidate demonstrated an in-depth understanding of in situ and ex situ conservation and provided a range of examples of how conservation activities link to their chosen species. Key points in relation to the role and responsibilities of zoos were described in detail, with some gaps in knowledge evident. Technical terminology is used frequently and mostly accurately. To access the higher marks in the band, the candidate discussed how conservation activities are linked to a variety of organisations.</p> <p>Band 3: 9-12 marks The candidate demonstrated a comprehensive understanding of in situ and ex situ conservation and provided a wide range of current examples of how conservation activities link to their chosen species. Key points in relation to the role and responsibilities of zoos were coherently described, with minor gaps in knowledge. Technical terminology is used frequently and accurately throughout. To access the higher marks in the band, the candidate discussed how a range of conservation activities are linked to a variety of organisations. The candidate linked their discussion points to current legislation.</p> <p>For no awardable content, award 0 marks.</p>	<p>Indicative content:</p> <ul style="list-style-type: none"> • Legislation <ul style="list-style-type: none"> • Zoo licensing Act 1981 – Conservation measures for zoos • CITES • COTES • SSMZP • In situ and ex situ conservation <ul style="list-style-type: none"> • IUCN • WWF • Endangered species international • Release programmes • Wild population reserves • Links to external organisations to promote conservation. 	<p>12</p>	<p>308: 2.2 310: 1.2 316: 1.2 and 3.1 A04</p>