HM Government

T-LEVELS

T Level Technical Qualification in Animal Care and Management (Level 3)

Theory Exam – Animal Management Core Pathway

Sample mark scheme

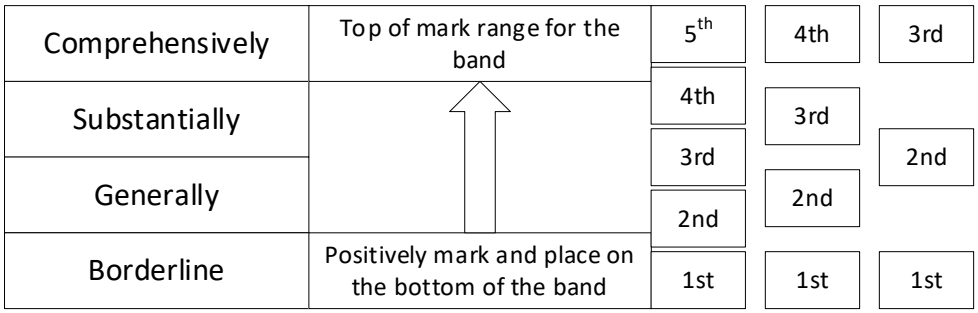
May 2024 Version 1.0

City & Guilds

Marker guidance

Unless otherwise stated in the marker guidance for a specific question, the following conventions apply:

- All marking, from start to finish must be consistent and in line with the mark scheme guidance. Continue to refer to the mark scheme throughout marking.
- For questions that ask for a specific number of points, accept the first answers given up to the number requested e.g., State three… only accept the first three answers listed, and disregard any additional answers provided.
- For questions requiring continuous prose answers, mark positively – all correct answers should receive the appropriate mark according to the mark scheme. Any wrong (**but neutral**) answers should be ignored, and no marks should be lost.
- In some circumstances, it is appropriate to disallow a candidate answer that initially appears to give the correct answer as given in the mark scheme, if it is undermined by the fact that it goes on to actively **contradict** its intention. Sometimes the minimal wording used in the mark scheme allows a match that in reality is trivial and it is clear the candidate is referring to the wrong knowledge/understanding. Only the part of the response to which the contradiction applies should be disallowed, not the whole response. Material that is irrelevant/neutral but not contradictory should be ignored and positive marking applied as above.
- Use the full range of marks for a question as described by the mark scheme – e.g. for a 2-mark question, 0, 1 or 2 marks will always be available to award (never just 0 or 2). For levels marking, the full range of marks should be used freely as described by the mark scheme including 0 and full marks.
- Always award whole marks; half marks cannot be awarded.
- Allow phonetic misspellings as long as the meaning is clear, i.e. not so similar to another relevant but wrong term that you have to guess which was intended.
- Only allow 'it' as reference to the question topic if it is clear what 'it' refers to.
- Mark crossed out work UNLESS it has been replaced by another response.
- Where judgement is required, apply the guidance. Where the guidance does not sufficiently support for a particular candidate response/interpretation, contact your Team Lead.
- Accept alternative wording that reflects what is given in the mark scheme.
- Contact your Team Lead if any additional correct answers arise which need to be added to the mark scheme.
- For level of response mark schemes:
  Note: indicative content has been provided to help orient the marking, providing a sense of the intentions of the question and expected parameters of the response. It is not exhaustive, and candidates do not need to cover all points referenced. Candidates may provide good quality responses while taking an approach which legitimately focuses either on breadth or depth given the time constraints. While the best responses are more likely to go to some depth across a broader range, there will be acceptable variation. Any pointers in the question towards coverage e.g. '…a range of…' should be kept in mind and balanced, through professional judgement, as to how much this affects the overall quality of the response when applying the marking instructions.
    - First, read the full candidate response and decide which band descriptor best fits the overall level of quality of the response, in the context of the indicative content.
    - Then, to decide on a mark within the band, consider the ***degree to which*** **the response fits the criteria**, as indicated by the diagram below:



The table below provides further detail on the descriptors used within each of the mark bands and what is expected at each level. Use the descriptors below alongside the mark scheme to support accurate and consistent judgment of candidate's response and allocation of marks.

AO2	**AO3**
Basic	
Limited understanding that is relevant to the context or question. Limited accuracy in interpretation through lack of application of relevant knowledge and understanding.	Limited accuracy in analysis through lack of application of relevant knowledge and understanding. Unsupported evaluation through lack of application of knowledge and understanding. Unsupported judgement through lack of application of knowledge and understanding.
Good	
Some understanding that is relevant to the context or question. Some accuracy in interpretation through the application of some relevant knowledge and understanding.	Some accuracy in analysis through the application of some relevant knowledge and understanding. Partially supported evaluation through the application of some relevant knowledge and understanding. Partially supported judgement through the application of some relevant knowledge and understanding.
Thorough	
A range of accurate understanding that is relevant to the context or question. Accurate interpretation through the application of relevant knowledge and understanding.	Accurate analysis through the application of relevant knowledge and understanding. Supported evaluation through the application of relevant knowledge and understanding. Supported judgement through the application of relevant knowledge and understanding.
Comprehensive	
A range of detailed and accurate understanding that is fully relevant to the context or question. Detailed and accurate interpretation through the application of relevant knowledge and understanding.	Detailed and accurate analysis through the application of relevant knowledge and understanding. Detailed and substantiated evaluation through the application of relevant knowledge and understanding. Detailed and substantiated judgement through the application of relevant knowledge and understanding.

This exam has been split into **two** sections.

Below details the types of questions and marks available for each section. Please allow time for each section accordingly.

Section A is made up of **44** marks and includes **14** short answer and medium answer questions.
Section B is made up of **36** marks and includes **3** extended response questions.

Assessment Objectives	Mark allocation
AO1a Demonstrate knowledge The ability to demonstrate recall of relevant knowledge in response to straightforward questioning.	**10%**
AO1b Demonstrate understanding The ability to explain principles and concepts beyond recall of definitions, but in a general way – i.e., out of a particular context in response to straight forward questioning.	**15%**
AO2 Apply knowledge and understanding to different situations and contexts Using and applying knowledge and understanding, taking the understanding of generalities and applying them to specific situations. Questions are likely to ask for application in relation to a straightforward situation.	**45%**
AO3a Analyse information & issues Complex thinking that distinguishes patterns & relationships, breaking material into constituent parts, and determining how the parts are related to one another and holistically, inferring underlying assumptions / conditions /relevance / causation.	**30%**
AO3b Evaluation information & issues The ability to make judgements about the value, for some purpose, of own or others' work / ideas / solutions / methods using internal or external criteria or standards relevant for the occupational area. These criteria may include e.g., quality, accuracy, effectiveness, efficiency, coherence, consistency, and may be quantitative or qualitative.	

Section A

Q1	Name **one** legislation or regulation regarding waste disposal that businesses in the animal management sector must comply with. (1 mark)	
Mark Scheme	• Controlled Waste (England and Wales) Regulations (2012) (1) • The Waste (England and Wales) Regulations (2011) (1) • The Environmental Protection Act (1990) (1) • The Animal By-Products (Enforcement) (England) Regulations (2013) (1) • Clean Air Act (1993) (1)	**Marking guidance** Award **1 mark** for a correct answer, up to a maximum of **1 mark.** Accept answers that don't include '(England and Wales)'. Accept answers that don't include the date of the Act. Credit any other appropriate response.
Total marks	1	
AO	AO1a	
Qual spec reference	2.1 Waste management principles in the animal management sector	

Q2	State the function of spiracles in an invertebrate. (1 mark)	
Mark Scheme	• To allow air to enter the body (1)	**Marking Guidance** Award **1 mark** for a correct answer, up to a maximum of **1 mark.** Credit any other appropriate response with alternative wording that reflects what is given in the mark scheme.
Total Marks	1	
AO	AO1a	
Qual spec reference	6.2 The structure and function of the respiratory system in relation to animal physiology.	

Q3	Identify **two** components of blood. (2 marks)	
Mark Scheme	• Plasma (1) • Erythrocytes/ red blood cells (1) • Leukocytes/ white blood cells (1) • Platelets (1)	**Marking guidance** Award **1 mark** for each correct answer, up to a maximum of **2 marks.**
Total marks	2	
AO	AO1a	
Qual spec reference	6.3 The structure and function of the circulatory system in relation to animal physiology	

Q4	State **two** control measures which minimise the risks associated with lone working. (2 marks)	
Mark Scheme	• Always carry a mobile phone/radio (1) • Always make sure someone knows the location of work (1) • Always make sure someone knows an approximate time of return (1) • Agree on times for the employee to contact the employer throughout the shift (1)	**Marking guidance** Award **1 mark** for each correct answer, up to a maximum of **2 marks.** Credit any other appropriate response.
Total marks	2	
AO	AO1a	
Qual spec reference	1.1 Hazards, risks and control measures associated with working in the animal management sector.	

Q5	Explain **one** reason why it is important to ethically source cadaver disposal services. (2 marks)

Mark Scheme	• To ensure that cadavers are not disposed of in landfill sites (1) as this would cause distress to owners/affect the business reputation (1) • To ensure that the business legally complies with legislation (1) as non-compliance could result in a fine to the business (1) • To protect the environment/ensure that biosecurity is maintained (1) as unethical disposal could spread disease/contaminate the environment/impact public health (1)	**Marking guidance** Award **1 mark** for a basic explanation, and award **1 further mark** for a developed explanation, up to a maximum of **2 marks** Credit any other appropriate response.
Total Marks	2	
AO	AO1b	
Qual spec reference	4.1 Principles of supply chains in the animal management sector	

Q6	a) Identify **one** of the divisions of the autonomic nervous system. (1 mark) b) Explain how the autonomic nervous system responds to a threat. (2 marks)	
Mark Scheme	a) • Sympathetic (1) • Parasympathetic (1) b) • An impulse is sent to the adrenal gland to release adrenaline (1) which activates the fight or flight response/increases heart and respiratory rate/increases blood flow to the muscles (1)	**Marking guidance** a) Award **1 mark** for stating a correct division of the ANS. Credit any other appropriate response b) Award **1 mark** for a basic explanation, and award **1 further mark** for a developed explanation, up to a maximum of **2 marks** Credit any other appropriate response.
Total marks	3	
AO	AO1a – 1 AO1b – 2	
Qual spec reference	6.6 The structure and function of the nervous system in relation to animal physiology	

Q7	Explain what is meant by 'negative reinforcement' when working with animals. (2 marks)	
Mark Scheme	• Negative reinforcement is the act of removing an unpleasant stimulus after a desired behaviour is	**Marking guidance**

	displayed (1) to increase and encourage the likelihood of that behaviour being repeated (1)	Award **1 mark** for a basic explanation, and award **1 further mark** for a developed explanation, up to a maximum of **2 marks** Credit any other appropriate response with alternative wording that reflects what is given in the mark scheme.
Total marks	2	
AO	AO1b	
Qual spec reference	5.1 Principles of learning theories	

Q8	Give **two** examples of the implications to animal welfare, if there are disruptions to the supply chain demands of a veterinary practice. (2 marks)	
Mark Scheme	• Animals' health may be impacted due to inability to source their prescribed food (1) • Pain/suffering due to lost supply of medication/postponement of surgical procedures (1) • Increased risk of preventable diseases due to lost supply of vaccines (1) • Delayed diagnosis of illness due to inability to source diagnostic supplies (1) • Animals requiring more invasive procedures due to inability to maintain servicing of diagnostic equipment (1)	**Marking guidance** Award **1 mark** for each correct example, up to a maximum of **2 marks.** Credit any other appropriate response.
Total Marks	2	
AO	AO1b	
Qual spec reference	4.1 Principles of supply chains in the animal management sector	

Q9	Explain **two** functions of the integumentary system in amphibians. (4 marks)

Mark Scheme	• Facilitates the movement of oxygen and carbon dioxide across the amphibian's surface (1) to allow the amphibian to breathe/respire (1) • Allows the amphibian to blend into its environment (1) enabling them to evade predators (1) • Forms a physical barrier as part of the primary defence mechanism (1) to protect against infection by pathogens (1) • Forms a moist layer of mucus that maintains the integrity of the skin (1) which prevents dehydration of the amphibian (1)	**Marking guidance** Award **2 marks** for each correct explanation up to a maximum of **4 marks.** Award **1 mark** for a basic explanation, and award **1 further mark** for a developed explanation, up to a maximum of **2 marks** Award a maximum of **4 marks** for two functions fully explained.
Total marks	4	
AO	AO1b	
Qual spec reference	6.9 The structure and function of the integumentary system in relation to animal physiology 6.2 The structure and function of the respiratory system in relation to animal physiology	

Q10	A herd of cows are being held in a field on a rainy day. One of the cows has a wound on its rump that requires a topical treatment spray to be applied.

	a) Define the term 'topical' in relation to animal medication techniques. (1 mark) b) Explain **two** considerations for the handler when applying this method of treatment to the cow. (4 marks)	
Mark Scheme	a) A treatment applied to the surface of an animal (1) b) • The cow should be removed from the herd for treatment (1) to reduce the risk of injury to the handler from the rest of the herd (1) • Appropriate restraints for the cow should be used (1) as the noise from the spray could spook the cow **or** to protect the handler from being kicked (1) • The environment for the treatment taking place should be dry (1) to ensure the treatment is not washed away by the rain (1) • The handler should wear a mask when applying treatment (1) to prevent inhalation of the topical treatment spray (1)	**Marking guidance** a) Award **1 mark** for the correct definition of the term. Credit any other appropriate response with alternative wording that reflects what is given in the mark scheme. b) Award **2 marks** for each correct explanation up to a maximum of **4 marks** Award **1 mark** for a basic explanation, and award **1 further mark** for a developed explanation, up to a maximum of **2 marks** Credit any other appropriate response.
Total marks	5	
AO	AO1a – 1 mark AO2 – 4 marks	
Qual spec reference	7.1 Categories and techniques of animal medication 7.3 First aid for animals including for wounds and conditions using a first aid kit	

Q11	A dog has arrived at a rescue centre and is nervous of humans. The dog is cowering, urinating and shaking when the handlers approach its kennel door. Explain **two** habituation techniques that can be used to reduce the dog's nervousness. (4 marks)

Mark Scheme	• Positive reinforcement techniques/treats/praise/gentle patting can be used (1) to reward calm and desirable behaviours (1) • Approach the dog slowly/gently and avoid loud noises/sudden movements (1) to prevent the dog from reacting negatively (1) • Gradually increasing the time people spend around the enclosure (1) to avoid overstimulation to the dog (1) • Initially allow only limited staff to interact with the dog (1) to improve the animal's confidence in interacting with people (1) • Gradually introducing the dog to new people in a calm/controlled environment (1) to prepare them for rehoming (1)	**Marking guidance** Award **2 marks** for each correct explanation up to a maximum of **4 marks.** Award **1 mark** for a basic explanation, and award **1 further mark** for a developed explanation, up to a maximum of **2 marks**. Award a maximum of **4 marks** for two techniques fully explained. Credit any other appropriate response.
Total marks	4	
AO	AO2	
Qual spec reference	5.1 Principles of learning theories	

Q12	An animal has been diagnosed with ringworm. Explain **two** actions to safely dispose of the animal's bedding. (4 marks)

Mark Scheme	• Staff should wear appropriate PPE to protect the handler from infection (1) to prevent onward transmission to other animals or humans (1) • The bedding should be cleared from the enclosure using designated tools and equipment so that they are not used for other animal enclosures (1) to prevent cross-contamination into the enclosures of other animals (1) • The bedding must be placed in clearly identifiable yellow incineration/hazardous waste bags to ensure that all staff are aware of the contents (1) so that the waste is not accidently mixed with other types of waste (1) • Waste bags must be incinerated at high temperatures to destroy pathogens (1) to reduce the risk of any diseases being transferred (1) • Waste must be securely sealed using a secure knot/plastic tie/double bagged to prevent contents from spilling (1) which could contaminate the waste storage areas (1) • A licensed carrier should be used to collect the waste to guarantee safe disposal (1) and to ensure that the business complies with current legislation (1)	**Marking guidance** Award **1 mark** for a basic explanation, and award **1 further mark** for a developed explanation, to a maximum of **2 marks**. Award a maximum of **4 marks** for two actions fully explained. Credit any other appropriate response.
Total marks	4	
AO	AO2	
Qual spec reference	2.1 Waste Management principles in the animal management sector 7.2 Diseases, disorders, parasites and notifiable diseases that can affect animals.	

Q13	Explain **two** requirements of an emergency plan for dealing with a fire in a building that houses animals at a wildlife park that is open to the public. (6 marks)	
Mark Scheme	• The presence of animal feed and bedding materials in buildings should be considered as these are likely to be flammable (1). Firefighting equipment appropriate to the type of flammable materials should be located close to fire hazards as there is a greater risk of fire/ignition (1) and the location of the equipment should be recorded so that they can be easily accessed by staff (1) • Specify a safe outside area(s) for animals following evacuation so they can safely be contained/controlled (1). Escape routes for animals should be marked on the plan to prevent loss / harm to park staff handling the evacuation (1) and these routes must be kept free from stored materials/equipment to ensure safe and timely exit by animals (1) • The emergency plan should include allocation of roles of staff during an emergency to avoid confusion in the event of a fire (1). Nominated members of staff should direct the public to a specified assembly point so that there is an orderly evacuation (1) and regular fire drills should be undertaken to ensure everyone is familiar with their roles during an emergency. (1)	**Marking guidance** Award **1 mark** for each basic explanation, and award **1-2 further marks** for each developed explanation, to a maximum of **3 marks**. Award a maximum of **6 marks** for two requirements fully explained. Credit any other appropriate response.
Total marks	6	
AO	AO2	
Qual spec reference	1.2 Procedures and contingency and emergency plans to follow when dealing with emergency situations in animal management sector.	

Q14	Animals kept in zoos are regularly weighed as part of their health monitoring. In order to minimise stress, large mammals are trained to walk onto a weighing platform. Explain how positive reinforcement can be used in operant conditioning to train the large mammals to be weighed. (6 marks)

Mark Scheme

Band	Marks	Descriptor
3	5-6	Demonstrates thorough application of knowledge and understanding of operant conditioning. Reasoning for how positive reinforcement can be used is highly detailed and relevant.
2	3-4	Demonstrates good application of knowledge and understanding of operant conditioning. Reasoning for how positive reinforcement can be used is mostly detailed and relevant.
1	1-2	Demonstrates basic application of knowledge and understanding of operant conditioning. Reasoning for how positive reinforcement can be used has limited detail and relevance.
	0	**No relevant material**

Indicative content

- Use of positive reinforcement (reward) creates a positive association with the action of stepping on the scales, leading to increased engagement and allowing cooperative care to take place.
- A large mammal in a zoo is likely to be a potential danger and so operant conditioning allows for safe training and minimal hands-on handling of the mammal which reduces the risk of harm to the handler.
- Large mammals would firstly be introduced to an unknown piece of equipment i.e. the scales by placing them in its indoor environment so that the mammal can become familiar with the equipment in its own environment.
- Shaping can be used – rewarding the mammal when it looks / steps towards / puts one foot on the scales and then building on this response so that the mammal needs to do progressively more to earn the reward.
- Alternatively, the trainer could wait until the mammal steps on the scales and then provide the reward if this is more suitable for the mammal.
- The reward for large mammals in a zoo environment is likely to be food or access to an outside enclosure. Therefore, the timing of the training needs to be considered, for example not training after feeding.
- The timing of the training should also take into account the need to reduce distractions, for example, taking place prior to opening times of the zoo when there are no members of the public present.
- The training sessions should be short to ensure engagement from the mammals and the reward should be given in quick succession to the mammal stepping on the scales to ensure the correct association is made.
- A consistent training schedule would help the mammal to understand what is expected and reinforces the desired behaviour through rewarding.
- Clicker training or touch training, which allows the desired behaviour (interacting with the scales) to be marked by a sound which is associated with a reward could be used.
- Once the training outcome is achieved, continued repetition should be undertaken to reinforce the desired behaviour.

Total marks	6
AO	AO2
Qual spec reference	5.1 Principles of learning theories

Section B

Q15

An adult dog at a rescue centre has recently been diagnosed with the bacterial infection, salmonella, which has resulted in weight loss. The dog is vomiting, has diarrhoea and is lethargic. The dog is currently undergoing veterinary care and treatment.

Analyse how salmonella affects the digestive system of the dog. Justify the actions the rescue centre need to undertake to maintain the health of the dog whilst it is in isolation and being treated for the bacterial infection. You are not expected to discuss the veterinary medicine prescribed.

(12 marks)

Mark Scheme

Band	Marks	Descriptor
4	**10-12**	Demonstrates comprehensive application of knowledge and understanding of how salmonella affects the digestive system and the required actions to maintain the health of animals in relation to diseases that affect the digestive system. Demonstrates comprehensive use of analysis of the digestive system in relation to how it is affected by salmonella. Demonstrates comprehensive evaluative skills by justifying an excellent range of required actions to maintain the health of animals in relation to diseases that affect the digestive system. Justifications are supported with highly detailed and relevant reasoning.
3	**7-9**	Demonstrates thorough application of knowledge and understanding on how diarrhoea affects the digestive system and the required actions to maintain the health of animals in relation to diseases that affect the digestive system. Demonstrates thorough use of analysis of the digestive system in relation to how it is affected by salmonella. Demonstrates thorough evaluative skills by justifying a good range of required actions to maintain the health of animals in relation to diseases that affect the digestive system. Justifications are supported with mostly detailed and relevant reasoning.
2	**4-6**	Demonstrates good application of knowledge and understanding on how diarrhoea affects the digestive system and the required actions to maintain the health of animals in relation to diseases that affect the digestive system. Demonstrates good use of analysis of the digestive system in relation to how it is affected by salmonella. Demonstrates good evaluative skills by justifying a moderate range of required actions to maintain the health of animals in relation to diseases that affect the digestive system. Justifications are supported with some detail and relevant reasoning.
1	**1-3**	Demonstrates basic application of knowledge and understanding on how diarrhoea affects the digestive system and the required actions to maintain the health of animals in relation to diseases that affect the digestive system.

		Demonstrates basic use of analysis of the digestive system in relation to how it is affected by salmonella. Demonstrates basic evaluative skills by justifying a limited range of required actions to maintain the health of animals in relation to diseases that affect the digestive system. Justifications are supported with minimal detail and relevant reasoning.
	0	**No relevant material**

Indicative content

Analysis of how salmonella affects the digestive system

- Salmonella infection results in disruption of the intestinal tract producing diarrhoea. This is as a consequence of increased peristalsis which moves the food through the intestines too quickly, meaning that it can't be broken down (digested) properly and limits nutrient absorption.
- Salmonella releases chemicals (toxins) which cause the intestinal cells to release excess fluids resulting in secretory diarrhoea.
- Toxins released by salmonella affects the function of the villi which causes an imbalance of fluid secretion and nutrient absorption resulting in an increased volume of fluid entering the large intestine. Essential salts, fluids, and nutrients are passed through the colon too quickly and are not absorbed by the body, providing less nutritional value and resulting in watery stools. These stools are high in salts and minerals and weigh more than solid stools. Weight loss and lethargy occurs due to loss of fluids and/or lack of nutrient absorption.
- Toxins released by salmonella also result in intestinal and gastric cramp (pain), which results in vomiting which is the body's way of getting rid of toxins. Vomiting results in fluid and salt (electrolyte) loss which contributes to lethargy and weight loss. Vomiting and nausea result in a negative effect on the animal's appetite resulting in anorexia.
- Salmonella is a pathogen which disrupts the normal gut microbiome. This results in a surge of pathogenic (gram negative anaerobic) bacteria which affects the balance of beneficial bacteria. This impacts the intestine's ability to digest and absorb nutrients / and results in diarrhoea and weight loss.

Justification of proposed actions to maintain dog health:

- The rescue centre must ensure adequate staff training is provided to ensure staff are capable of working in isolation, administering medication prescribed by the veterinary surgeon and be able to accurately monitor the dog's progress and response to treatment. This is so that the dog's health can be successfully monitored whilst in isolation to ensure it is improving whilst under treatment for bacterial infection.
- Staff nursing the dog with a bacterial infection need to apply suitable nursing care to encourage it to eat, and will need to groom the dog and to clean/bath the contaminated areas of its body (e.g. if diarrhoea is covering the dog's legs this area will need to be washed) as this nursing care will improve the dog's mental health.
- A bandage can be put on the dog's tail to prevent the tail becoming covered in diarrhoea. This would be to improve hygiene and make it easier for staff to clean and decrease contamination and prevent continued infection.
- Human-animal interaction should continue whilst the dog is in isolation to prevent stress, separation/isolation anxiety and improve the dog's mental health. This would

	also have a positive effect on the dog's response to treatment and attitude to eating and drinking. • The rescue centre should provide the dog with an easily digestible/bland diet this ensures the animal acquires energy and nutrients to support recovery from disease. • The rescue centre staff need to ensure the dog receives sufficient oral fluids/water to prevent dehydration/maintain hydration as the dog is losing an increased amount of fluid through both vomiting and diarrhoea. Hydration is required to support the dog's circulatory system and organ function and will influence the dog's mentation and ability to recover. • Rescue centre staff will need to monitor the dog's response to prescribed veterinary treatment (including regular body weight checks) to ensure that the animal is improving in relation to the diarrhoea, hydration, mentation and health status (e.g. simple observations) as alternative measures or repeated veterinary examinations/ investigation / treatment may be required if the animal is deteriorating or is experiencing additional symptoms (e.g. dehydration, anaemia)
Total marks	12
AO	AO2 = 4 AO3a = 4 AO3b = 4
Qual Spec Ref	6.1 The structure and function of the digestive system in relation to animal physiology 7.2 Diseases, disorders, parasites and notifiable diseases that can affect animals.

Q16

A farm adventure park that offers bird of prey flying demonstrations and small mammal handling, has a confirmed case of the notifiable disease, avian influenza. The aviaries are located in a separate area at the back of the park.

Analyse the implications of an outbreak of avian influenza on the business. Justify the control measures needed to prevent the spread of disease to maintain the health of all other animals on the premises.

(12 marks)

Mark Scheme

Band	Marks	Descriptor
4	**10-12**	Demonstrates comprehensive application of knowledge and understanding of the implications of an outbreak of avian influenza on the business and of the preventative measures needed to control the spread of avian influenza. Demonstrates comprehensive use of analysis of the implications to the business in relation to the outbreak of avian influenza. Demonstrates comprehensive evaluative skills by justifying an excellent range of preventive measures to control the spread of avian influenza. Justifications are supported with highly detailed and relevant reasoning.
3	**7-9**	Demonstrates thorough application of knowledge and understanding of the implications of an outbreak of avian influenza on the business and of the preventative measures needed to control the spread of avian influenza. Demonstrates thorough use of analysis of the implications to the business in relation to the outbreak of avian influenza. Demonstrates thorough evaluative skills by justifying a good range of preventative measures to control the spread of avian influenza. Justifications are supported with mostly detailed and relevant reasoning.
2	**4-6**	Demonstrates good application of knowledge and understanding of the implications of an outbreak of avian influenza on the business and of the preventative measures needed to control the spread of avian influenza. Demonstrates good use of analysis of the implications to the business in relation to the outbreak of avian influenza. Demonstrates good evaluative skills by justifying a moderate range of preventative measures to prevent the spread of avian influenza. Justifications are supported with some detail and relevant reasoning.
1	**1-3**	Demonstrates basic application of knowledge and understanding of the implications of an outbreak of avian influenza on the business and of the preventative measures needed to control the spread of avian influenza.

		Demonstrates basic use of analysis of the implications to the business in relation to the outbreak of avian influenza. Demonstrates basic evaluative skills by justifying a limited range of preventative measures to prevent the spread of avian influenza. Justifications are supported with minimal detail and relevant reasoning.
	0	**No relevant material**

Indicative content
Analysis

- Reduced overall enterprise income due to
  - reduced visitor numbers because of perceived public health concerns and reduced attractions (bird of prey demonstrations not going ahead due to avian influenza).
  - restricted visitor numbers to control the spread of disease and ensure animal welfare in the small mammal handling areas that remain open.
  - potential temporary closure of the park
- Potential negative publicity from social media or local media impacting current and future visitor numbers.
- Potential reputational damage from culling animals, perceived reduction in animal welfare and visitor interpretation of animal health and biosecurity conditions.
- Increased costs such as for veterinary medicines, additional PPE etc. to control and treat animal health issues caused by the disease. With a possibility of recouping some money for euthanised animals through a Government compensation scheme.
- Potential impact on the financial viability of the business as a whole and therefore potential staff redundancies.
- Euthanasia of diseased animals would result in reduced stock which may result in reduced public appeal.
- Welfare issues for staff – mental health / wellbeing issues due to increased work pressure caused by the disease outbreak such as longer hours, additional work tasks caused by disease, working with animals that are deteriorating in health status and the potential loss of animals. This may have an impact on staff absence caused by work-related stress, which in turn may impact remaining staff by increasing workloads and increasing stress levels.

Control measures

- The infected animal should be immediately isolated in isolation facilities to prevent the spread of avian influenza to other animals or humans.
- Access to the bird enclosures should be restricted with no access to the public and limited access for staff in order to prevent avian influenza being spread.
- The case must be reported to APHA/DEFRA as this is a legal requirement under the Animal Health Act 1981.
- Any guidance/restrictions put in place by APHA/DEFRA must be followed to remain compliant with the Animal Health Act and APHA/DEFRA. For example:
  - temporary control zones to restrict the movement of animals or limiting activities that could spread disease, including having the public onsite.
  - culling of diseased animals
  - not restocking until approved by APHA in order to ensure the premises are free from avian influenza before more animals are brought onsite.
  - review of a health plan with a vet to prevent further outbreaks.
- Cleaning and disinfecting of accommodation, carry cages, equipment and PPE will be required to kill pathogens and maintain biosecurity.

	• APHA/DEFRA approved products must be used due to the confirmed avian influenza case as this is a legal requirement (Diseases of Animals (Approved Disinfectants) Order 1978). • Disinfectants must be diluted and used to the correct ratio as per APHA/DEFRA recommendations to ensure safety of the user, the animals and the environment and to ensure that the business remains compliant with guidelines. • Increased cleaning and disinfecting should be undertaken on all areas of the park (not just the aviary) to reduce the risk of disease spreading to other animals, including accommodation, fixtures and fittings and food and water receptacles. • Animal waste products from cleaning should be disposed of as per APHA/DEFRA recommendations as it would be classified as infectious waste. • Footbaths, disposable PPE and personal disinfection procedures should be introduced at the entrances and exits of all buildings that house birds in order to prevent the disease from spreading outside of this area and to promote biosecurity. • Disinfectant mats can be used in areas that are not targeted by footbaths for use by the public as it would not be practical for footbaths to be used by these visitors. • Public interactions with the small mammals should be limited to prevent spread of disease from animals to humans and to promote biosecurity. • Signage should be provided throughout the park to make the public visitors aware of the outbreak so that they can take appropriate measures. • Hand washing facilities with warm water, soap and paper towels should be provided for visitors to use to reduce the risk of avian influenza spread and staff should be provided with training to inform visitors of the importance of handwashing. • Movement of staff and animals in and out of enclosures should be minimised to prevent the spread of disease to humans and other animals. • Husbandry tasks undertaken with infected animals should be done at the end of the day to prevent cross contamination to other animals. • Regular health checks on all animals should be completed to highlight any signs of avian influenza and ensure that any potential spread of disease is identified as soon as possible.
Total marks	12
AO	AO2 = 4 AO3a = 4 AO3b = 4
Qual Spec Ref	3.1 Biosecurity control measures in the animal management sector to prevent the spread of disease

Q17

A severe thunderstorm has been forecasted to arrive in the next three days, bringing a risk of strong winds and flooding to both a donkey sanctuary and the surrounding area. This means that the sanctuary may be inaccessible for staff, deliveries and collections for the duration of the storm and the following days. The storm may also cause disruptions to the sanctuary's power supply. There is no suitable transport available to move the donkeys offsite, therefore, a minimal number of staff will be required to stay in onsite accommodation during the storm due to the predicted inaccessibility of the sanctuary.

Analyse the hazards to the staff remaining onsite throughout the storm. Justify recommended measures to ensure the ongoing care of the donkeys during the period of inaccessibility.

(12 marks)

Mark Scheme

Band	Marks	Descriptor
4	**10-12**	Demonstrates comprehensive application of knowledge and understanding of hazards and of measures to ensure ongoing care of animals in relation to emergency situations. Demonstrates comprehensive use of analysis of hazards in relation to an emergency situation. Demonstrates comprehensive evaluative skills by justifying an excellent range of measures to ensure the ongoing care of animals in an emergency situation. Justifications are supported with highly detailed and relevant reasoning.
3	**7-9**	Demonstrates thorough application of knowledge and understanding of hazards and of measures to ensure ongoing care of animals in relation to emergency situations. Demonstrates thorough use of analysis of a range of hazards in relation to an emergency situation. Demonstrates thorough evaluative skills by justifying a good range of measures to ensure the ongoing care of animals in an emergency situation. Justifications are supported with mostly detailed and relevant reasoning.
2	**4-6**	Demonstrates good application of knowledge and understanding of hazards and of measures to ensure ongoing care of animals in relation to emergency situations. Demonstrates good use of analysis of a range of hazards in relation to an emergency situation. Demonstrates good evaluative skills by justifying a moderate range of measures to ensure the ongoing care of animals in an emergency situation. Justifications are supported with some detail and relevant reasoning.

1	**1-3**	Demonstrates basic application of knowledge and understanding of hazards and of measures to ensure ongoing care of animals in relation to emergency situations. Demonstrates basic use of analysis of a range of hazards in relation to an emergency situation. Demonstrates basic evaluative skills by justifying a limited range measures to ensure the ongoing care of animals in an emergency situation. Justifications are supported with minimal detail and relevant reasoning.
	0	**No relevant material**

Indicative content
Analysis of hazards to staff

- Reduced staff numbers may result in lone working which poses a number of risks including being unable to access help if an accident or injury occurs, having to carry out physically demanding tasks individually and the effect of isolation on mental health.
- Lack of staff increases the pressure on remaining staff, where the animal husbandry tasks must still be completed to ensure animal welfare standards are maintained.
- The poor weather may make the ground difficult to walk on increasing the risk of slips and falls.
- The donkeys may be difficult to lead as the high winds and change of routine could result in flighty / unpredictable behaviour, increasing the risk of injury to the handler from being pulled over, bitten or kicked.
- Storm damage to enclosures could result in the donkeys escaping. If animals escape, they are likely to display unpredictable behaviour. This increases the risk of injury to handlers when trying to catch and return them.
- The isolated location of the sanctuary will make it more difficult to access help should an accident or emergency occur. As an isolated location, it could easily be cut off due to fallen trees / flooded roads.
- The storm may result in damage to trees and buildings, posing an additional risk to health from falling debris.
- Flooding / rain may make some areas of the sanctuary impassable or difficult to reach increasing the risks of slips, trips and falls. This includes wet floors, uneven surfaces and muddy fields.
- The storm could damage power lines, resulting in a power cut. Working in darkness creates additional risk of injury through slips, trips and falls as well as injury through walking into objects.
- Lightning or power surges may pose a fire risk. The donkey sanctuary stores hay / straw which would easily ignite.

Justification of recommended measures

- Carry out a risk assessment to identify the potential hazards and risks of the storm and flooding and to identify areas where the hazard/risk factors can be reduced.
- Identify procedures should the building flood:
    - Switch off mains electricity to remove risk of electrocution.
    - Provide an area where a dry surface is available as stagnant water on the floor could cause problems with the donkeys' hoof care and general health should they be housed indoors.

	• Provide training to the staff remaining onsite on storm-related hazards, animal handling and restraint during storms, and animal first aid to ensure that they are prepared for emergencies. • Ensure evacuation plans are in place for staff should the situation escalate and pose a risk to life so that, if necessary, evacuations can take place quickly and orderly. • Compile a list of the staff remaining on site so that check-ins can be undertaken regularly to ensure that all staff are accounted for. • Ensure records of the donkeys onsite are current so that any animal escape can be identified. • Control measures related to inclement weather should be in place e.g. use of correct PPE, maintaining flood defences, moving everything from floor level and laying sandbags around the sanctuary to protect supplies and equipment that will be needed to maintain the health and welfare of the animals. • When safe to do so, check the donkeys for signs of injury and stress and take remedial action where appropriate to ensure any first aid required can be administered. Additional PPE may be required as animals may be stressed / fearful. • Plan for short term disruption to supplies after being cut off from deliveries: o Ensure there is sufficient stock of medications and first aid equipment so that animals can continue to be treated during the period of isolation and so that emergency situations can be dealt with o Ensure sufficient supply of food, water and bedding for animals so that the animals can continue to be fed and watered throughout the storm to maintain animal health and welfare. o Ensure sufficient supplies of food and water for staff to be able to maintain the welfare of staff so that they can continue to care for the donkeys. o Ensure sufficient supply of torches and batteries. Test batteries (or generator operated equipment) to ensure they are in working order so that they can used in the event of a power cut. o A generator could be acquired to ensure heating, lighting and refrigeration can be maintained in the case of a power cut. • Plan for storage of stock during isolation to ensure that the storage area is safe and not vulnerable to potential flooding so that supplies are available for the period of isolation and do not run out. • Extra bedding and food and water provisions should be prepared prior to the storm while more staff are present. As only minimal husbandry tasks will be able to be performed when fewer staff are onsite during the storm. • Establish a reliable communication system among onsite staff and have a backup communication plan in case of network outages to ensure that staff are able to remain in contact with each other where help is needed in handling the donkeys. • Compile an updated list of emergency contacts, including local authorities, emergency services and veterinarians so that staff are able to attempt to make contact and request emergency help if needed. • Charge phones and other emergency equipment prior to the storm so that the staff are still able to communicate with contacts outside of the sanctuary in the case of a power cut. • Set up regular check-ins and updates to ensure the wellbeing of staff and animals. • Install security cameras and/or weather monitoring devices so that animal conditions and sanctuary integrity can be remotely assessed by the staff who are not onsite so that they can notify emergency services of any issues if needed. • Secure the building and animal enclosures prior to the storm when a higher number of staff are onsite, to ensure that appropriate animal handling

	techniques can be utilised to keep animals safe during movement. This will also reduce the risk of animal escape or injury to handlers. • Ensure enclosures are able to withstand a storm/ flooding e.g. check structures, roof etc. so that the risk of injury to animals and of animal escape is minimised. • Consider keeping the donkeys in outside shelters rather than inside shelters as this may be better suited to the donkey's fight or flight instincts. This would allow them to react to the storm in a natural way which would reduce the likelihood of animal injury. • No access to or from the sanctuary will mean there is no access to waste removal. Therefore, any clinical waste should be double-bagged and stored safely away from animals and food until collection can be made in order to prevent cross contamination. • Ensure the muck heap, with waste material from cleaning out the donkeys, is stored in a dry area away from potential flooding to prevent contamination of the water source which would contravene the Environmental Protection Act.
Total marks	12
AO	AO2 = 4 AO3a = 4 AO3b = 4
Qual Spec Ref	1.1 Hazards, risks and control measures associated with working in the animal management sector 1.2 Procedures and contingency and emergency plans to follow when dealing with emergency situations in animal management sector 2.1 Waste management principles in the animal management sector 4.2 Principles of consumables and stock management in the animal management sector

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