

**Qualification: 0172-545 Level 3 Advanced Technical Extended  
Diploma in Animal Management (1080) – Theory Exam (2)**

**2019 (March)**

1	State the <b>two</b> types of cell division and their role in the body.			(4 marks)
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>	
	<ul style="list-style-type: none"> <li>• Mitosis (1) is used for growth/repair (1)</li> <li>• Meiosis (1) is used for sexual reproduction (1)</li> </ul> Accept any other appropriate answer.		<b>4</b>	
2	Define the following terms in relation to chemical reactions :			(1 mark)
	a) Accuracy			(1 mark)
	b) Precision			(1 mark)
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>	
	1 mark for either, maximum 1 mark <ul style="list-style-type: none"> <li>• Accurate means               <ul style="list-style-type: none"> <li>• capable of providing a correct reading/measurement. (1)</li> </ul> </li> <li>• Precise means               <ul style="list-style-type: none"> <li>• Replicable/ reliable/ getting the same measurement each time. (1)</li> </ul> </li> </ul> Accept any other appropriate answer.	All definitions must relate to chemical reactions.	<b>2</b>	

3	Name the bases in DNA (Deoxyribonucleic acid). (4 marks)		
	<b>Acceptable answer(s)</b>  Adenine (1) Thymine (1) Cytosine (1) Guanine (1)	<b>Guidance</b>	<b>Max mks</b>  4
4	Define the term 'compound' when used in chemistry. (2 marks)		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
	I mark for either, maximum 1 mark  A compound has two or more elements that are chemically bound together (1) and can't be separated by physical means. (1)  Accept any other appropriate answer.		2
5	Identify the structure and function of Lamellae in compact bone. (2 marks)		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
	Structure - Layers of (concentric) rings of connective tissue (between layers of osteocytes) (1) Function - gives the bone strength (1)		2
6	Explain the difference between the equilibrium constant and the reaction quotient. (4 marks)		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
	The equilibrium constant shows the proportions of the reactants and products (1) once the equilibrium has been achieved. (1) The reaction quotient shows the proportions of reactions and products (1) before the equilibrium has been achieved. (1)  Accept any other appropriate answer.		4

7	Explain why cytotoxic waste <b>must</b> be segregated from other clinical waste. (4 marks)		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
	Cytotoxic waste has to be put in a separate bin because it has cancer forming properties (1), can be toxic to the body (1), can cause reproductive issues (eg infertility) (1) and cause mutation (in foetus) (1) in humans/animals (1).		4
8	a) State <b>four</b> symptoms of diabetes mellitus. (4 marks) b) Why does diabetes mellitus occur? (2 marks)		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
	Answer: Max. 4 marks for symptoms. a) <u>Symptoms</u> <ul style="list-style-type: none"> <li>• Increased thirst. (polydipsia) (1)</li> <li>• Sudden weight loss (1)</li> <li>• Increased urination. (Polyuria) (1)</li> <li>• Increased lethargy. (1)</li> </ul> b) Max. 2 marks.  When glucose is prevented from entering the cells due to insufficient insulin in the body (1), it builds up high levels in the blood/causes hyperglycaemia (1).  Accept any other appropriate answer.		6

9	Explain <b>two</b> properties of compounds with ionic bonds.		(4 marks)
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
	High melting/boiling points (1) as they are held together by strong (electrostatic) forces (1) Conduct electricity (1) as they produce charged ions (in all states) (1) Produce ions (1) as electrons have been transferred (1)  Accept any other appropriate answer.		4

10 In guinea pigs, black hair (B) is dominant to brown hair (b) and short hair (S) is dominant to long hair (s). These traits are independent of each other.  
A male guinea pig with genotype Bbss is crossed with a female guinea pig with genotype bbSs

- a) Using the provided information, complete the Punnet Square below. (2 marks)
- b) Explain which **two** genotypes would be crossed to produce offspring with only long brown hair. (4 marks)


Acceptable answer(s)

Guidance

Max mks

	<u>Bs</u>	<u>Bs</u>	<u>bs</u>	<u>bs</u>
<u>bS</u>	<u>BbSs</u>	<u>BbSs</u>	<u>bbSb</u>	<u>bbSb</u>
<u>bS</u>	<u>BbSs</u>	<u>BbSs</u>	<u>bbSs</u>	<u>bbSs</u>
<u>bs</u>	<u>Bbss</u>	<u>Bbss</u>	<u>bbss</u>	<u>bbss</u>
<u>bs</u>	<u>Bbss</u>	<u>Bbss</u>	<u>bbss</u>	<u>bbss</u>

a)

- bbss (1) X bbss (1)
- Both male and female have recessive alleles (1) so only recessive traits would show in offspring (1).

6

11	<p>Explain the function of <b>each</b> of the following organelles in an animal cell.</p> <p>a) Cell membrane (2 marks)</p> <p>b) Nucleus (2 marks)</p> <p>c) Rough Endoplasmic Reticulum (RER) (2 marks)</p>		
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
	<p><b>1 mark each, maximum 2 marks per organelle.</b></p> <p>a) Cell membrane</p> <ul style="list-style-type: none"> <li>- Selectively permeable (1)</li> <li>- controls what is allowed in/out of the cell (1)</li> <li>- protects the cell (1)</li> </ul> <p>B) Nucleus</p> <ul style="list-style-type: none"> <li>- controls the cell activity (1)</li> <li>- controls cell division (1)</li> <li>- stores the genetic material/DNA (1)</li> <li>- nucleolus produces mRNA/ribosomes (1)</li> </ul> <p>C) RER</p> <ul style="list-style-type: none"> <li>- synthesis of proteins (1)</li> <li>- distribution of proteins (1)</li> </ul> <p>Accept any other appropriate answer.</p>		6

12	Explain the procedures for post-surgical wound management.		(4 marks)
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
	<ul style="list-style-type: none"> <li>• Checking for signs of infection (1) (e.g discharge, smell, heat, swelling, redness, vital signs)</li> <li>• Check stitches/sutures (1) for correct healing/production of new tissue (1)</li> <li>• Check any wound drains (1) to ensure they are not blocked/draining efficiently (1)</li> <li>• Cleaning/dressing and re-dressing the wound (1) to prevent infection/promote healing (1)</li> <li>• Preventative measures to prevent further injury (e.g. collars to prevent scratching/biting) (1)</li> <li>• Treatment of infected wounds (1) to prevent further health complications (e.g. flushing, antibiotics.) (1)</li> <li>• Check wound is correctly covered (1) to prevent parasites (e.g. flystrike) (1)</li> </ul> <p>Accept any other appropriate answer.</p>		4

13	There has been an outbreak of kennel cough at a local kennel. A vet has given a report that the disease has caused an upper respiratory tract infection, which has affected the underlying tissue.		
	Discuss the possible control and management measures.		(12 marks)
	<b>Acceptable answer(s)</b>	<b>Guidance</b>	<b>Max mks</b>
	<p><b>Band 1 (1-4 marks):</b> The candidate briefly described the actions to deal with the infectious disease, with some omissions or inaccuracies. The candidate briefly discussed the animal tissue with limited or no links between the structure/function of the animal tissue and the role it plays in combatting the disease. Technical terminology is used infrequently or inaccurately.</p> <p>To access the higher marks within the band, the candidate will have attempted to justify their suggestions for either disease control or the role of the tissues, but these may not all be valid.</p> <p><b>Band 2 (5-8 marks):</b> The candidate considered in detail actions that should be taken when dealing with an outbreak of the infectious disease. The candidate gave detailed suggestions for the management of the disease. The candidate made links between the structure/function of the animal tissue and</p>	<p><b>Indicative content</b></p> <p>Identification of disease Isolation procedures Bio security Treatments Prevention</p> <p><u>Ciliated Pseudo Stratified Epithelial Tissue</u></p> <p>Function/structure of tissue Tissue type</p>	12

	<p>the role it plays in combatting the disease. The candidate will have provided some justifications their suggestions for disease control and the role of the tissues, and these are mostly valid. Technical terminology is used and mostly accurately.</p> <p>To access the higher marks within the band, the candidate provided detailed justifications throughout, which are mostly valid.</p> <p><b>Band 3 (9-12 marks):</b>  The candidate comprehensively discussed actions that should be taken when dealing with an outbreak of the infectious disease. The candidate gave comprehensive suggestions for the management of the disease. The candidate made detailed links between the structure/function of the animal tissue and the role it plays in combatting the disease. The candidate will have provided detailed justifications their suggestions for disease control and the role of the tissues which are valid. Technical terminology is used frequently and accurately.</p> <p>To access the higher marks within the band, the candidate provided a comprehensive range of valid justifications throughout.</p>		
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