0171-502/002 Level 3 Technicals in Agriculture – March 2019

0171-30/31/32/33 Level 3 Technicals in Agriculture

1	State **five** husbandry tasks that should be undertaken on new born lambs in the first week of their life. (5 marks)		
	Acceptable answer(s)	**Guidance**	**Max mks**
	• Ensure they receive colostrum as soon as possible • Treat navel • Ensure bonding • Castrate male lambs • Identification	1 mark for each, up to 5 marks Accept any other relevant answers	**5**
2	Give **two** advantages for **each** of the following cutting mechanisms. a) Finger bar. (2 marks) b) Disc mower. (2 marks)		
	Acceptable answer(s)	**Guidance**	**Max mks**
	a) Precise height and clean cut (1) and easy to maintain (1) b) Bruising of grass allows quicker drying (1) and more resistant to stones and earth blunting blades (1)	2 marks for each advantage, up to 4 marks Accept any other relevant answer	**4**

3	How can a farmer reduce the machinery costs when growing a crop of wheat? (4 marks)		
	Acceptable answer(s)	**Guidance**	**Max mks**
	By sharing machines with other farmers (1) or using contractors (1). Operating less but larger machines (1). Hiring in machine for short term. (1). Reducing machinery operations (1), Precision farming (1)	1 mark each, up to 4 marks Accept any other relevant answer	**4**
4	State **four** reasons why weeds are becoming resistant to herbicides. (4 marks)		
	Acceptable answer(s)	**Guidance**	**Max mks**
	• Incorrect application rate • Incorrect application method • Incorrect timing • Poor choice of chemicals • Incorrect mixing • Biological resistance	1 mark each, up to 4 marks Accept any other relevant answer	**4**
5	State **two** types of plant reproduction. (2 marks)		
	Acceptable answer(s)	**Guidance**	**Max mks**
	• Sexual • Asexual	1 mark each, up to 2 marks Accept any other relevant answer	**2**
6	State **two** functions of guard cells. (2 marks)		
	Acceptable answer(s)	**Guidance**	**Max mks**
	To regulate the opening and closing of the stomata (1) To control/regulate the rate of gaseous exchange (1) to regulate moisture exchange (1)	1 mark each, up to 2 marks Do not accept answers that only refer to opening **or** closing. Accept any other relevant wording	**2**

	Explain how the following factors affect the rate of plant transpiration. a) High temperature (2 marks) b) High humidity (2 marks) c) Increased water supply (2 marks) d) Increased light. (2 marks)		
	Acceptable answer(s)	**Guidance**	**Max mks**
7	a) Higher temperature means higher rate of evaporation through the leaves (1) which leads to greater water loss /increased transpiration rate (1) b) High humidity leads to less water loss through the leaves, from evaporation (1) and therefore a lower transpiration rate (1) c) Greater water supply through the roots means there is more water available to evaporate through the leaves (1) and a higher transpiration rate (1) d) More light means increased water intake as the stoma opens which is used for photosynthesis (1) and transpiration rate is increased(1)	2 marks each, up to 8 marks Accept any other relevant answers	**8**
8	Explain how the following soil characteristics affect plant growth and development. a) Organic matter (3 marks) b) Poor drainage. (3 marks)		
	Acceptable answer(s)	**Guidance**	**Max mks**
	a) Organic matter improves soil structure (1), encourages beneficial flora (1) water holding capacity (1) increase in nutrients supply (1) which improve the plant growth and final yield (1) b) Water logged soils are cold, delaying growth in the spring (1). Water logging limits healthy root growth (1) reduces oxygen availability in the soil (1) and kills beneficial soil flora (1) which the plant needs to grow to its optimum (1)	3 marks each up to 6 marks Accept any other relevant answers	**6**

	Give **three** potential consequences of soil erosion to agriculture. (3 marks)		
	Acceptable answer(s)	**Guidance**	**Max mks**
9	• Loss of top soil • Loss of crop • Loss of land area • Environmental impact • Loss of nutrients • Exposure of roots • Reduced anchorage	1 mark each, up to 3 marks Accept any other relevant answers	**3**
10	A farmer wishes to increase the efficiency of the sow breeding cycle. a) Which **four** actions should the farmer take to achieve this? (4 marks) b) Give **four** ways to reduce piglet mortality between birth and weaning. (4 marks)		
	Acceptable answer(s)	**Guidance**	**Max mks**
	a) 1 mark each, up to 4 marks • Wean at correct stage to achieve the maximum number of cycles (1) • Ensure sow is in correct condition at weaning (1) • House sows in a pen adjacent to a boar (1) • Regularly check for signs of oestrus (1) • Serve sow at least twice (1) • Monitor health and promptly treat any diseases (1) • Cool sows and boars in summer (1) **b) 1 mark each, up to 4 marks** • Vaccinate the sows • Correct injections for piglet health • Ensure piglets receive adequate colostrum • Cross foster • Monitor piglet health • Maintain adequate environmental conditions	Accept any other relevant answers	**8**

11 Give **two** examples of later maturing beef breeds. (2 marks)

Acceptable answer(s)	Guidance	Max mks
• Limousin • Charolais • Belgian Blue/British blue • Piedmontese • Simmental • Gelbveih • South Devon	1 mark for each, up to 2 marks: Accept any other relevant answers	**2**

12 A farmer wishes to increase their efficiency in controlling the pests, diseases and weeds on the arable crops.

Discuss the different methods the farmer can use to achieve this. (12 marks)

Acceptable answer(s)	Guidance	Max mks
Band 1 (1 – 4 marks) Limited understanding of key topics. Answer is mainly descriptive with little evidence of discussion, mostly lacking in detail. Few or no specialist terms are used. Answer may be disorganised or ambiguous. Little evidence of interrelationship between factors. To access the higher marks in the band, discussion is supported with limited examples. **Band 2 (5 – 8 marks)** Good understanding of key topics and interrelationship between the factors. Evidence of developed discussion but may be lacking in some detail. There will be some use of specialist terms, although they may not always be used correctly. The information is presented mostly in a structured format. To access the higher marks in the band, discussion is supported with a range of relevant examples with clear links to the topic. **Band 3 (9 – 12 marks)** Thorough and consistent understanding of key aspects and interrelationship between the factors. Evidence of well-developed discussion. Specialist terms are used correctly and appropriately. Information is presented in a logical and structured format. To access the higher marks in the band, a broad range of examples are used with clear and highly relevant links to the topic.	**INDICATIVE CONTENT** • Advantages and disadvantages of different types of cultivations • Cultural control • Environmental impact (e.g chemical, cultivation, legislation) • Resistance • Crop rotation • Timing and life cycles • Crop spraying ***For no awardable content, award 0 marks.***	**12**