

0171-512 March 2022

Level 3 Advanced Technical Extended Diploma in Agriculture (Arable)

Level 3 Agriculture – Theory exam (2)

Q	Acceptable answer(s)	Guidance	Max marks
1	<p>List four ways to safely dispose of organic farm waste. (4 marks)</p> <p>Answer</p> <ul style="list-style-type: none"> • Stubble/straw /sludge/green waste incorporated into soil • Straw fed/bedded to livestock • Green waste to anaerobic digester • Muck swapped in straw for muck agreement • Crop residues could be incorporated or fed to animals • Dead stock collected by fellmonger (or any other appropriate term/incineration) • Muck/Slurry spread on land • Milk fed to calves 	<p>1 mark each</p> <p>Accept any other relevant and correct answer</p>	4
2	<p>Summarise four ways a farmer must comply with current regulations on waste management. (4 marks)</p> <p>Answer</p> <ul style="list-style-type: none"> • Responsibility of waste produce to ensure they have appropriate storage and handling facilities • Ensuring safe disposal to include a comprehensive audit trail • Improper disposal may lead to pollution penalties • Failure to comply with controls may lead to loss of Single farm payment • Safe disposal of organic farm waste in accordance with a given management plan • Must have sufficient storage for the closed period • Limits of when organic waste can be applied • Distance from water courses • Organic waste can only be stored on land for a specified length of time • Using licenced waste disposal contractors, need licence to move some wastes 	<p>1 mark each</p> <p>Accept any other relevant and correct answer</p>	4

3	<p>Summarise four ways to minimise the impact on the environment when spreading Farmyard manure (FYM). (4 marks)</p> <p>Answer</p> <ul style="list-style-type: none"> • Follow current legislation / Codes of Practice • Check on wind direction • Incorporate as soon as possible • Do not spread on frozen or waterlogged soils • Spread up to crop requirements • Keep away from water features • Do not spread when imminent heavy rain is forecast • Correctly matched tractor to spreader 	<p>1 mark each</p> <p>Accept any other relevant and correct answer</p>	4
4	<p>Explain two roles of the Department for Environment Food & Rural Affairs (DEFRA) on the development of the agricultural landscape.</p> <p>Instead of DEFRA, you may refer to the role of the Welsh Assembly Government in Wales, or the Department of Agriculture, Environment and Rural Affairs (DAERA) in Northern Ireland in your answer.</p> <p>Answer</p> <ul style="list-style-type: none"> • Government departments responsible for safeguarding natural environment (1) as they control licensing for chemicals (1) • Support food and farming industry (1) by encouraging the use of UK produced products (1) • Sustaining thriving rural economy (1) by encouraging farmer markets/diversification (1) • Environment agency protect against floods, which effects as to where to put flood defences (1) • They are the over-riding authority to protect animal and plant diseases (1) by stopping disease from entering/spreading from outside the country (1) • Partnership agreements with Rural Payments Agency/Environment Agency (1) as the payments affect the type of farming carried out /protects the environment (1) • Promotes a cleaner, healthier environment (1) by monitoring rivers and pollution (1) • Protect endangered species (1) which can affect the spread of disease/ways of farming (1) 	<p>Up to 2 marks each, to maximum of 4 marks</p> <p>Accept any other relevant and correct answer</p>	4

5	<p>List four ecological surveys carried out on farm habitats. (4 marks)</p> <p>Answer</p> <ul style="list-style-type: none"> • Whole farm assessments • LEAF audit • Farm Environmental Record • Farm Environmental Plans (Environment Stewardship Schemes) • National Vegetation Classification (NVC) • Hedgerow Survey • Farmland Bird Survey • Arable Plant Survey • Bat survey • Habitat action plan (HAP) • Biodiversity action plan (BAP) • Phase 1 Habitat surveys 	<p>1 mark each</p> <p>Accept any other relevant and correct answer</p>	4
6	<p>Describe two impacts that the Industrial Revolution (from 1760 to 1840) had on the agricultural landscape. (4 marks)</p> <p>Answer</p> <ul style="list-style-type: none"> • The economy changed (1) becoming dominated by industry and machine manufacturing (1) • Larger fields (1) due to invention of seed drill (1) • The introduction of the Norfolk four course rotation (1) led to increased yields (1) • The use of selective breeding (1) reduced the variety of breeds (1) • The Enclosure Act (1) led to the modern field system. (1) • Increased use of machinery meant fewer farm workers were required (1) leading to people leaving the rural areas for cities (1) • Development of national markets (1) increased the size of fields (1) 	<p>Up to 2 marks each, to maximum of 4 marks</p> <p>Accept any other relevant and correct answer</p>	4
7	<p>State four ways that spray drift can be reduced. (4 marks)</p> <p>Answer</p> <ul style="list-style-type: none"> • Keep boom at the correct height • Use low drift/angled nozzles • Keep forward speed down • Ensure equipment is properly maintained • Do not spray if too windy • Ensure equipment is set up properly • Use adjuvant • The bigger the droplets, the less drift there will be 	<p>1 mark each</p> <p>Accept any other relevant and correct answer</p>	4

8	<p>Describe one effect on the accuracy of spread from a fertiliser spreader under each of the following:</p> <p>a) Varying bout width. (2 marks) b) Inaccurate height of spreader. (2 marks) c) Varying forward speed. (2 marks) d) Too low PTO speed. (2 marks)</p> <p>Answer</p> <p>a) Too close/too wide/inaccuracy (1) causes overlapping/missed areas/uneven spread (1) b) Too high/too low/ inaccuracy (1) causes overlapping/missed areas/uneven spread/drift (1) c) Too fast will affect the application rate (1) meaning too little is applied (1) / slower forward speed will affect the application rate (1) meaning too much is applied (1) d) Too much in the middle of the crop (1) and under apply at the edge (1) Spread width/spread pattern/application rate will be affected (1) meaning areas will be missed/overlapped/stripping (1)</p>	Up to 2 marks each	8
9	<p>State four ways that dirty fuel can reach the fuel filter of an ATV. (4 marks)</p> <p>Answer</p> <ul style="list-style-type: none"> • Using dirty cans in the field • Using fuel straight after a bulk delivery • No filters on bulk tank • Using funnel with no filter • Not replacing the filler cap • Tipping the bulk tank up when it is almost empty • By not cleaning filler cap to remove dirt before filling 	1 mark each	4

10	<p>Summarise four safety precautions that should be observed when operating a RTFL on sloping ground. (4 marks)</p> <p>Answer</p> <ul style="list-style-type: none">• Keep boom retracted• Keep boom low• Ensure tyre pressures correct• Keep forward speed low• Do not make any jerky movements• Drive straight up and down slopes where possible• Reverse down a slope if loaded• Wear a seat belt• Turning uphill rather than downhill if possible• Ensure 4 wheel drive and steer is engaged	<p>1 mark each</p> <p>Accept any other relevant and correct answer</p>	4
11	<p>State four methods of improving traction when operating a RTFL in the field. (4 marks)</p> <p>Answer</p> <ul style="list-style-type: none">• Adjust tyre pressures• Ballast tyres• Change steering mode• Distribute weight• Use 4-wheel drive• Use differential lock• Ensure tyres have suitable grip/sufficient tread• Use wider tyres.	<p>1 mark each</p> <p>Accept any other relevant and correct answer</p>	4

<p>12</p>	<p>Discuss the methods of minimising the environmental impact when spraying pesticides to arable crops. (12 marks)</p> <p>Band 1: 1– 4 marks</p> <p>Limited knowledge and discussion of the methods of minimising the environmental impacts. There is a lack of understanding on the environmental impact of spraying pesticides to arable crops. Limited or no discussion of key concepts. The use of technical language is limited and occasionally imprecise. Answer may be disorganised and ambiguous.</p> <p>Band 2: 5 – 8 marks</p> <p>Limited knowledge and discussion of the methods of minimising the environmental impacts with some justification for points made. There is some understanding on the environmental impact of spraying pesticides to arable crops. There is some structure in the answer presented. The use of technical language is mostly accurate and consistent. The information is presented mostly in a structured format.</p> <p>Band 3: 9 – 12 marks</p> <p>Excellent knowledge and discussion of the methods of minimising the environmental impacts with detailed justification for points made. There is substantial understanding on the environmental impact of spraying pesticides to arable crops. The whole answer is coherent and well-structured with relevant use of technical language.</p>	<p>Indicative content</p> <ul style="list-style-type: none"> • Follow current legislation and codes of practice • Calibrate sprayer to avoid waste • Check weather forecast, do not spray if wet and windy conditions are forecasted • Consider use of adjuvant to reduce drift • Ensure operators have correct NPTC certificate • Correct PPE worn • Avoid spillages and overloading of sprayer • Do not exceed recommended application rates • Ensure correct spraying procedures are used • Increased application efficiency • Only spray if essential, consider cultural control • Use of alternative chemicals • Keep accurate store records • Minimise spray drift • Use GPS for accurate application • Triple rinse spray containers • Follow instructions on chemical labels • Safe and efficient disposal • Avoid wastage • Protect field margins • Complete application records <p><i>For no awardable content, award 0 marks.</i></p>	<p>12</p>
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