

2020 HSC Primary Industries Marking Guidelines

Section I

Multiple-choice Answer Key

Question	Answer
1	B
2	B
3	C
4	A
5	D
6	D
7	D
8	B
9	B
10	B
11	A
12	D
13	A
14	D
15	C

Section II

Question 16 (a) (i)

Criteria	Marks
<ul style="list-style-type: none"> Provides correct working and calculations 	2
<ul style="list-style-type: none"> Provides some correct working and/or calculations, or correct answer 	1

Sample answer:

$$750 \times 350 = 262\,500$$

$$1000 \times 325 = 325\,000$$

$$262\,500 + 325\,000 = 587\,500$$

$$587\,500 \div 10\,000 = 58.75 \text{ hectares (ha)}$$

Question 16 (a) (ii)

Criteria	Marks
<ul style="list-style-type: none"> Shows correct calculation and correct answer 	1

Sample answer:

$$1515 \times 7 = 10\,605 \text{ L}$$

Question 16 (a) (iii)

Criteria	Marks
<ul style="list-style-type: none"> Shows correct calculation and correct answer 	2
<ul style="list-style-type: none"> Shows partially correct calculation OR <ul style="list-style-type: none"> Shows the correct answer for the calculation OR <ul style="list-style-type: none"> Shows the correct answer 	1

Sample answer:

$$10\,605 + 1515 = 12\,120$$

$$12\,120 \div 500 = 24.24$$

25 full tank loads will be needed.

Question 16 (b)

Criteria	Marks
<ul style="list-style-type: none"> Explains how calibration is used when using chemical application equipment 	2
<ul style="list-style-type: none"> Provides some relevant information 	1

Sample answer:

Calibration of chemical application equipment. From this we can work out how much chemical should be administered/applied to achieve the correct rate of chemical treatment.

Question 16 (c)

Criteria	Marks
<ul style="list-style-type: none"> Distinguishes between the terms <i>legal</i> and <i>ethical</i>, and provides an example for each 	4
<ul style="list-style-type: none"> Distinguishes between the terms <i>legal</i> and <i>ethical</i>, and provides one example <p>OR</p> <ul style="list-style-type: none"> Defines one term AND provides one relevant example for each term 	3
<ul style="list-style-type: none"> Distinguishes between the terms <i>legal</i> and <i>ethical</i> <p>OR</p> <ul style="list-style-type: none"> Provides an example for each <p>OR</p> <ul style="list-style-type: none"> Defines one term and provides one example 	2
<ul style="list-style-type: none"> Provides some relevant information 	1

Sample answer:

A legal obligation is related to or permitted by the law. For example carrying out chemical applications according to the label. Ethical obligation relates to moral principles. For example, using pain relief for conducting animal management activities, such as castrating lambs.

Question 17 (a)

Criteria	Marks
<ul style="list-style-type: none"> Predicts a weather condition that would be occurring at the current location and justifies the prediction 	2
<ul style="list-style-type: none"> Identifies a weather condition 	1

Answers could include:

The predicted weather event would be strong winds. The closeness of the isobars indicates increasing wind speeds associated with a decreasing atmospheric pressure as we move towards the centre of the low weather system.

Question 17 (b)

Criteria	Marks
<ul style="list-style-type: none"> Describes TWO communication methods by which information may be conveyed to farmers in the region and justifies why those methods may be appropriate 	4
<ul style="list-style-type: none"> Identifies TWO communication methods by which information may be conveyed Outlines ONE method in detail and suggests why it may be appropriate 	3
<ul style="list-style-type: none"> Identifies TWO communication methods by which information may be conveyed OR	2
<ul style="list-style-type: none"> Outlines one communication method in detail 	
<ul style="list-style-type: none"> Provides some relevant information 	1

Answers could include:

Broadcast via ABC national radio as this is widespread and most farmers listen to the radio.

SMS alerts via relevant apps using mobile phones as most farmers would carry their mobile phone with them.

Question 18 (a)

Criteria	Marks
<ul style="list-style-type: none"> Identifies a hazard AND one risk associated with the employee 	2
<ul style="list-style-type: none"> Identifies one hazard OR one risk associated with the employee 	1

Sample answer:

The risk of an accident occurring to the employee is high, due to the hazard of fumes by the diesel pump operating in an enclosed shed.

Question 18 (b)

Criteria	Marks
<ul style="list-style-type: none"> Describes TWO or more control measures that could prevent this situation from recurring 	4
<ul style="list-style-type: none"> Outlines a TWO or more control measures that could prevent this situation from recurring 	3
<ul style="list-style-type: none"> States TWO control measures that could prevent this situation from recurring OR <ul style="list-style-type: none"> Outlines ONE control measure that could prevent this situation from recurring 	2
<ul style="list-style-type: none"> States ONE control measure 	1

Answers could include:

- Elimination — Remove the diesel pump, which will remove the fumes in the shed.
- Substitute — Replace the diesel pump with an electric pump or solar pump.
- Isolate — Place a barricade around the pump shed not allowing unauthorised people into the area.
- Engineer — Modify the shed to allow more ventilation, or place the starter of the motor on the outside of the shed, or pipe the exhaust to outside the shed.
- Administration — Put up signage on the shed stating that chemical/smoke inhalation could occur, working in confined spaces, fumes are present, warn workers at regular meetings, induct workers on the safe use of the diesel pump.
- PPE — Wear breathing apparatus when entering the pump shed.

Question 18 (c)

Criteria	Marks
<ul style="list-style-type: none"> Outlines information relating to both monitoring and reporting workplace incident 	3
<ul style="list-style-type: none"> Outlines information related to monitoring or reporting workplace incident 	2
<ul style="list-style-type: none"> Provides information related to monitoring or reporting a workplace incident 	1

Sample answer:

Review the number of prior workplace incidents involving the shed, provide details on incident including who the incident was reported to, the location, the date and the name of the employee involved. Monitor any changes that occurred to the site after the incident and the affected worker and their return to work.

Question 19 (a)

Criteria	Marks
• Explain the advantage of using product A or product B	3
• Outlines the advantage of using product A or product B	2
• Provides some relevant information	1

Sample answer:

Product A has a much shorter withholding period which means that the product can be sold earlier. The residue levels for product A are much lower than for product B which might be an advantage in relation to health when marketing this product.

Question 19 (b)

Criteria	Marks
• Identifies the correct day	1

Sample answer:

8 days

Question 19 (c)

Criteria	Marks
• Explains implications of selling prior to the withholding period elapsing	5
• Describes implications of selling prior to the withholding period elapsing	4
• Outlines implications of selling prior to withholding period elapsing OR	3
• Explains an implication of selling prior to the withholding period elapsing	
• Identifies implications of selling prior to withholding period elapsing	2
• Provides some relevant information	1

Sample answer:

If the withholding period is not followed, the farmer's product may be withdrawn or restricted from supplying to the market. The farmer may also incur fines as a result, and further lose income from products not being sold. The consumer may lose confidence in the reliability of the product and it may affect their health. Thus this may affect the consumer, the farmer, and the whole industry.

Section III

Question 20

Criteria	Marks
<ul style="list-style-type: none"> • Demonstrates extensive knowledge and understanding of the potential impacts of primary industries workplace practices on the environment • Comprehensively discusses the positives AND negatives of the potential impacts on the environment AND clearly links them to identified relevant primary industries work practices • Communicates in a coherent, succinct, logical and cohesive manner • Uses industry terminology, accurately and appropriately 	13–15
<ul style="list-style-type: none"> • Demonstrates thorough knowledge and understanding of the potential impacts of primary industries workplace practices on the environment • Discusses the positives AND negatives of the potential impacts on the environment AND links them to identified relevant primary industries work practices • Communicates in a clear and orderly manner • Uses industry terminology appropriately 	10–12
<ul style="list-style-type: none"> • Demonstrates sound knowledge and understanding of the potential impacts of primary industries workplace practices on the environment • Describes the positives AND/OR negatives of the potential impacts on the environment AND links them to relevant primary industries work practices • Uses some industry terminology appropriately 	7–9
<ul style="list-style-type: none"> • Demonstrates basic knowledge and understanding of the potential impacts of primary industries workplace practices on the environment • Outlines some positives OR negatives of the potential impacts on the environment OR links them to relevant primary industries work practices • Uses some industry terminology 	4–6
<ul style="list-style-type: none"> • Demonstrates elementary knowledge and understanding of the potential impact of primary industries workplace practice(s) on the environment <p>OR</p> <ul style="list-style-type: none"> • Identifies an environmental impact or a work practice 	1–3

Answers could include:

- Spraying chemicals:
 - Negatives: + hit non-targeted organisms + flow into waterways + accumulation in soils
 - Positives: + reduces the number of introduced pest species in the area, therefore allowing the increase of native species to thrive + it can assist in increasing the growth and productivity of flora and fauna species in the area.
- Ploughing:
 - Negatives: + increases erosion + decrease in soil structure + possible soil compaction
 - Positives: + increases aeration and infiltration rates + increases root penetration + aids in incorporating organic matter.
- Fertilisers:

- Negatives: run off into waterways + water resource management + increase in toxicity of soils + increase in the acidity of soils + decrease in microorganisms present in the soil
- Positives: enriches the soil with nutrients + increases the nutrient uptake + can increase microorganisms and biodiversity.

Section IV

Question 21 (a)

Criteria	Marks
<ul style="list-style-type: none"> Demonstrates extensive understanding of the methods used to identify livestock and indicate the main features of each method 	5
<ul style="list-style-type: none"> Demonstrates thorough understanding of the methods used to identify livestock and indicate the main features of each method 	4
<ul style="list-style-type: none"> Demonstrates sound understanding of method(s) used to identify livestock and indicate the main features of each method 	3
<ul style="list-style-type: none"> Demonstrates basic understanding of a method used to identify livestock and indicate the main feature(s) <p>OR</p> <ul style="list-style-type: none"> List two methods used to identify livestock 	2
<ul style="list-style-type: none"> Name a method used to identify livestock 	1

Answers could include:

Ear notch, Ear tags, NLIS tags, Brands, Tattoos, Paint, Breed, Production type.

NLIS – electronic identification tag or rumen bolus for cattle, sheep and goats to enable the traceability of the stock. Each animal has its own tag, with individual number.

Ear tags – plastic or metal tags that are usually attached to the animal’s ear. They can include the livestock’s individual number, date they were purchased or born, and even the producer’s number.

Ear notch – various shaped notches taken out of the livestock’s ear. Can be a complete animal identifier or common differentiation of the year or birth and sex. Can be on left or right side.

Tattoos – an animal identifier is permanently marked on the animal in an area such as the ears in sheep or cattle, or the loin on pigs.

Branding – the placement of a permanent identification mark on the hind of an animal. Usually conducted by using a hot iron brand or freeze branding.

Paint – paint is used when marking sheep. It is usually sprayed on the rear of the animal to determine a range of things, such as ready for slaughter, pregnant, or a procedure has or has not been carried out on it, such as drenching etc.

Question 21 (b)

Criteria	Marks
<ul style="list-style-type: none"> • Demonstrates extensive knowledge and understanding in describing the steps in a procedure to treat a sick or diseased animal AND states the reason for EACH of the steps identified • Must identify a specific chemical name and the equipment used to administer it correctly • Presents a logical and cohesive response using industry terminology, accurately and appropriately 	9–10
<ul style="list-style-type: none"> • Demonstrates thorough knowledge and understanding in describing the steps in the procedure to treat a sick or diseased animal AND states the reasons for some steps • Presents a clear response using industry terminology 	7–8
<ul style="list-style-type: none"> • Demonstrates sound knowledge and understanding in describing steps in the procedure to treat a sick or diseased animal 	5–6
<ul style="list-style-type: none"> • Demonstrates basic knowledge and understanding in outlining steps in the procedure to treat a sick or diseased animal 	3–4
<ul style="list-style-type: none"> • Identifies step(s) in the procedure OR names a specific chemical OR names a piece of equipment in the treatment of a sick or diseased animal 	1–2

Answers could include:

- Quarantine/isolate the animal to prevent the spread of the disease
- Identify the disease of the animal to be able to select the appropriate treatment and chemical
- Select the specific chemical to treat the disease, for example to treat barber's pole worm in sheep use the chemical Q-Drench
- Read the chemical label/SDS to identify the dosage rates, equipment required, PPE, and relevant restrictions
- Select and don the appropriate PPE to prevent chemical contamination of the user
- Select the correct piece of application equipment for the task according to the chemical label, for example a drench gun to administer the Q-Drench to the sheep
- Check the equipment for chemical residues, breakages and leaks, and wash out or fix if required to ensure the safety of the user and the correct application rates are being administered
- Explain the calibration of the equipment to ensure the correct dosage is being applied
- Effectively administer the dosage to the animal to ensure that the chemical can be effective
- Monitor the animal for any adverse effects
- Dispose/recycle any excess chemical appropriately to reduce environmental damage and economic losses
- Thoroughly clean out the equipment according to the label/SDS so there is no residue, is ready for the next user, and equipment does not deteriorate
- Check for any maintenance issues and repair them so the equipment is ready for the next user
- Store the equipment in the appropriate facility so that it is safe and easily accessible for the next use
- Record all relevant information (animal, weather, applicator, date etc) to comply with the Pesticides Act 1999.

Question 22 (a)

Criteria	Marks
<ul style="list-style-type: none"> Demonstrates extensive understanding of methods by which plants are identified and indicate the main features of each 	5
<ul style="list-style-type: none"> Demonstrates thorough understanding of methods by which plants are identified and indicate the main features of each 	4
<ul style="list-style-type: none"> Demonstrates sound understanding of method(s) by which plants are identified and indicate the main features of each 	3
<ul style="list-style-type: none"> Demonstrates basic understanding of a method by which plants are identified and indicate the main feature(s) <p>OR</p> <ul style="list-style-type: none"> List two methods used to identify plants 	2
<ul style="list-style-type: none"> Name a method used to identify plants 	1

Answers could include:

Characteristics that can be used to identify plants.

Roots can be used to distinguish between monocots and dicots, eg tap root (dicot) and fibrous (monocot). Tap roots have one long main root with many secondary roots coming off the main tap root. The fibrous root system has numerous roots all of the same length and diameter that spread shallowly across the media/soil.

Distinguishing between the flowers' different colours, sizes and shapes can help identify the type of plant it is. Dicot flowers have sepals and petals usually in numbers of 4 or 5 or multiples of 4 or 5. Monocot flowers are usually 3 or multiples of three.

When identifying grass species, the shape of the stem can assist in determining whether the grass is a native or introduced species. For example, rounded stems are usually native and triangle shaped stems are introduced. Monocot stems are usually herbaceous (soft stemmed) while dicot stems are usually hard and woody.

Seeds: Monocots have only 1 seed leaf inside the seed coat – this leaf is thin because the endosperm to feed the new plant is not inside the seed leaf. Dicots have two seed leaves inside the seed coat – they are usually rounded and fat because they contain the endosperm to feed the embryo plant.

Leaf shape, size, arrangement on the stem and colour can assist in the classification of the plant. Some leaves are long and thin, others could be thick, hairy/furry, waxy or shiny.

Question 22 (b)

Criteria	Marks
<ul style="list-style-type: none"> • Demonstrates extensive knowledge and understanding in describing the steps in a procedure to treat an affected plant AND states the reason for EACH of the steps identified • Must identify a specific chemical name and the equipment used to administer it correctly • Presents a logical and cohesive response using industry terminology, accurately and appropriately 	9–10
<ul style="list-style-type: none"> • Demonstrates thorough knowledge and understanding in describing the steps in the procedure to treat an affected plant AND states the reasons for some steps • Presents a clear response using industry terminology 	7–8
<ul style="list-style-type: none"> • Demonstrates sound knowledge and understanding in describing steps in the procedure to treat an affected plant 	5–6
<ul style="list-style-type: none"> • Demonstrates basic knowledge and understanding in outlining step(s) in the procedure to treat an affected plant 	3–4
<ul style="list-style-type: none"> • Identifies step(s) in the procedure OR names a specific chemical OR names a piece of equipment in the treatment of an affected plant 	1–2

Answers could include:

- Quarantine/isolate the plant to prevent the spread of the plant pest, disease or disorder
- Identify the plant pest, disease or disorder to be able to select the appropriate treatment and chemical
- Select the specific chemical to treat the plant pest, disease or disorder, for example to treat aphids in citrus use the chemical Fortune 500 (or a specific insecticide)
- Read the chemical label/SDS to identify the dosage rate, equipment required, PPE and relevant restrictions
- Select and don the appropriate PPE to prevent chemical contamination of the user
- Select the correct piece of application equipment for the task according to the chemical label, for example a knapsack sprayer to spray the chemical onto the plant
- Check the equipment for chemical residues, breakages and leaks, and wash out or fix if required to ensure the safety of the user and the correct application rate is being administered
- Explain the calibration of the equipment to ensure the correct dosage is being applied
- Effectively administer the dosage to the plant to ensure that the chemical can be effective
- Monitor the plant pest, disease or disorder for any further infestations
- Dispose/recycle any excess chemical appropriately to reduce environmental damage and economic losses
- Thoroughly clean out the equipment according to the label/SDS so there is no residue, is ready for the next user, and equipment does not deteriorate
- Check for any maintenance issues and repair them so the equipment is ready for the next user
- Store the equipment in the appropriate facility so that it is safe and easily accessible for the next use
- Record all relevant information (plant, pest, disease or disorder, weather, applicator, date etc) to comply with the Pesticides Act 1999.

2020 HSC Primary Industries Mapping Grid

Section I

Question	Marks	HSC content – focus area
1	1	Weather — weather and climate – page 45
2	1	Chemicals — work health and safety – page 30
3	1	Safety — WHS compliance – page 35
4	1	Chemicals — work health and safety – page 31
5	1	Weather — monitoring conditions – page 45
6	1	Working in the industry — primary industries worker – page 50
7	1	Working in the industry — anti-discrimination – page 52
8	1	Working in the industry — primary industries worker – page 50
9	1	Weather — weather and climate – page 45
10	1	Safety — WHS compliance – page 34
11	1	Sustainability — environmental compliance – page 40 and 41
12	1	Sustainability — environment – page 40
13	1	Working in the industry — employment – page 49
14	1	Safety — WHS compliance – page 34
15	1	Sustainability — environmental compliance – page 41

Section II

Question	Marks	HSC content – focus area
16 (a) (i)	2	Chemicals — working with chemicals – page 31
16 (a) (ii)	1	Chemicals — working with chemicals – page 31
16 (a) (iii)	2	Chemicals — working with chemicals – page 31
16 (b)	2	Chemicals — working with chemicals – page 31
16 (c)	4	Working in the industry — working in the industry – page 49
17 (a)	2	Weather — weather and climate – page 45
17 (b)	4	Weather — monitoring conditions – page 45
18 (a)	2	Safety — risk management – page 36
18 (b)	4	Safety — risk management – page 36
18 (c)	3	Safety — WHS consultation and participation – page 35
19 (a)	3	Chemicals — working with chemicals – page 31
19 (b)	1	Chemicals — working with chemicals – page 31
19 (c)	5	Chemicals — chemical compliance – page 31

Section III

Question	Marks	HSC content – focus area
20	15	Sustainability — environment – page 40 Working in the industry — nature of the industry – page 48 Working in the industry — work practices – page 50

Section IV

Question	Marks	HSC content – focus area
21 (a)	5	Livestock, health and welfare — working with livestock – page 55
21 (b)	10	Livestock, health and welfare — treatment – pages 57 and 58
22 (a)	5	Plant pests, diseases and disorders — range of plants – page 60
22 (b)	10	Plant pests, diseases and disorders — management – page 60 and 61