2017 HSC Primary Industries Marking Guidelines

Section I

Multiple-choice Answer Key

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

Section II

Question 16 (a)

Criteria	Marks
• Correctly calculates required quantity of chemical	2
• Shows working with incorrect answer	1

Sample answer:

Number of containers required to spray 1000 m^2:

$$\frac{1000\ m^2}{150\ m^2} = 6\frac{2}{3}$$

Volume of chemical required to spray area:

$$6\frac{2}{3} \times 100\ mL = 667\ mL$$

Question 16 (b)

Criteria	Marks
• Provides correct reason for using selective herbicide including defining features of selective herbicide	2
• Gives piece of relevant information about use of herbicides	1

Sample answer:

You would use a selective herbicide on the turf because it only targets specific weeds rather than killing all of the turf. Thus it could be used to remove clover from turf.

Question 16 (c)

Criteria	Marks
• Clearly outlines the steps that should be followed to appropriately dispose of surplus mixture and clean the spray pack	4
• Outlines some steps which should be followed to appropriately dispose of surplus mixture and clean the spray pack	3
• Outlines a limited range of steps for either safe disposal or cleaning	2
• Provides a piece of relevant information on disposal of mixture or cleaning of the spray pack	1

Sample answer:

The steps that should be followed could include:

1. Ask supervisor what to do with surplus mixture
2. Read the MSDS to see what it states about safe disposal
3. Follow instructions on MSDS
4. Clean spray pack according to MSDS instructions

Question 17 (a)

Criteria	Marks
• Provides an explanation of environmental sustainability	2
• Provides some relevant information on environmental sustainability	1

Sample answer:

Environmental sustainability is the practice of not harming the environment or depleting the quality of natural resources, therefore supporting long-term ecological balance and productivity.

Question 17 (b)

Criteria	Marks
• Provides three detailed relevant impacts and related actions to reduce each impact	5–6
• Provides two relevant impacts and related actions OR three impacts and one related action OR one impact and three relevant actions	3–4
• Provides limited number of relevant impacts and actions	2
• Provides some relevant information	1

Sample answer:

Negative potential environmental impact of building the dam	*Action to reduce the environmental impact*
1. Disturbance to run-off patterns for properties downstream of the farm	• Correctly site the dam to minimise run-off
2. Potential destruction of wildlife habitats	• Appropriate site assessment of potential site to ensure minimal disturbance to wildlife habitats and corridors
3. Impact on neighbouring properties	• Plan water flow to ensure that their water supply not affected

Answers could include:

- Build contour banks to control water flow
- Incorporate a spillway in the dam wall
- Ensure any machinery used causes minimal disruption to habitats and soil
- Excess water will not flow onto neighbouring land.

Question 18

Criteria	Marks
• Provides four appropriate resources with appropriate explanations	8
• Provides at least THREE appropriate resources and corresponding explanations	6–7
• Provides at least TWO appropriate resources and corresponding explanations	4–5
• Provides at least ONE resource and corresponding reason OR at least two explanations with relevant information	2–3
• Provides a piece of relevant information	1

Sample answer:

Resource	*Importance*
Human – primary industry workers	Carry out work tasks
Infrastructure: outbuildings, sheds, fences, irrigation	Essential facilities in good working order
Materials: chemicals, machinery and equipment	Increase efficiency and productivity
Technology – computers, calibrators	Records management

Question 19 (a)

Criteria	Marks
• Correctly identifies the cold front	1

Sample answer:

The weather condition represented by the symbol is a cold front.

Question 19 (b)

Criteria	Marks
• Correctly provides three risks and corresponding actions to reduce the risk related to the nominated weather condition	6
• Correctly provides at least two risks and corresponding actions to reduce the risk related to the nominated weather condition OR three risks/actions and some relevant information	4–5
• Correctly provides at least one risk and action to reduce the risk related to the nominated weather condition OR two risks/actions with minimal or no information	2–3
• Provides a piece of relevant information	1

Sample answer:

Weather condition: cold front

Risk	*Action*
1. Effect of wind chill on newborn animals	Move stock to protected paddocks to provide protection for newborn animals
2. Heavy rain causing flash flooding	Move stock to higher ground, move pumps to higher ground, put equipment under cover
3. Frost damage	Activate frost-inhibiting measures if available, cover crops if appropriate, move stock to sheltered areas

Answers could include:

Other potential weather conditions could include: drought, floods, heatwave, cyclone.

Question 20 (a)

Criteria	Marks
• Provides a description of how a primary industries workplace ensures the production of high quality outputs	2
• Provides some relevant information	1

Sample answer:

Farmers follow legislative requirements and codes of practice to plan, monitor and record production data to highlight continuous improvement.

Question 20 (b)

Criteria	Marks
• Provides some benefits for a primary industries workplace resulting from implementation of quality systems	2
• Provides some relevant information	1

Sample answer:

Some benefits of following quality systems in a primary industries workplace are:

1. Increase in the value of products and services
2. Productivity levels raised
3. Enhanced opportunities for new markets
4. Products are of a consistent standard
5. Worker pride in producing quality product
6. Product is safe for human consumption
7. Product has a sound reputation.

Section III

Question 21

Criteria	Marks
• Provides a detailed evaluation of environmentally sustainable workplace practices to manage current environmental issues affecting primary industries showing extensive understanding	13–15
• Provides an evaluation of environmentally sustainable workplace practices to manage current environmental issues affecting primary industries showing some reasoning	10–12
• Describes environmentally sustainable workplace practices to manage current environmental issues affecting primary industries	7–9
• Outlines in general terms environmentally sustainable workplace practices to manage current environmental issues affecting primary industries	4–6
• Demonstrates a limited knowledge and understanding of environmentally sustainable workplace practice/s	1–3

Answers could include:

Answers should include a range of current environmental issues affecting primary industries.

1. Some of these issues could include:
   - energy use and efficiency, recycle/reuse, sustainability
   - salinity
   - erosion
   - loss of biodiversity
   - lack of focus on conservation
   - water management
   - waste management
   - fire management
   - natural resource management.
2. For each issue mentioned a description of that issue should be given in the context of its effect on primary industries.
3. For each issue mentioned one or more environmentally sustainable work practices must be evaluated for its ability to effectively manage that issue.
4. Evaluation can be holistic.

An example of one of the above issues is salinity:

- there are two types – dry and wet land salinity
- causes of salinity include the removal of vegetation, replacement of deep-rooted perennials with shallow-rooted annuals and over-irrigation of land
- environmentally sustainable work practices which can be used to manage this issue include:
  - planting appropriate trees and vegetation
  - planting appropriate vegetation in selected sites
  - restrictions on allocation of water for irrigation
  - reduced irrigation; use of water management techniques
- The most effective of these is tree planting because
  - it is a long-term solution compared to altering irrigation patterns
  - trees are deep-rooted perennials and take up large amounts of water whereas altering irrigation patterns may only be a short-term solution.

Section IV

Question 22 (a)

Criteria	Marks
• Correctly outlines the purpose of the named piece of equipment for treatment	2
• Names a purpose of the named piece of equipment	1

Sample answer:

The purpose of a drench gun is to orally apply liquid drench to the intestinal systems of livestock to eradicate internal parasites.

Question 22 (b)

Criteria	Marks
• Explains in detail the importance of safe work practices when working with livestock	5
• Explains generally the importance of safe work practices when working with livestock	4
• Describes the importance of safe work practices when working with livestock	3
• Describes some relevant safe work practices when working with livestock	2
• Provides a piece of relevant information	1

Sample answer:

Safe work practices are important when working with livestock because they protect both the livestock and the worker from potential harm or injury. Livestock are often large and sometimes unpredictable in their actions. They can be easily startled which can lead to injury to both the worker and the animal. Bruising to the animal can result from poor or incorrect handling and can result in a lower value product. When administering treatments and vaccinations ensure that there is minimal impact on the animal and minimal risk of harm to the worker such as needle stick injury or inhalation of chemicals.

Question 22 (c)

Criteria	Marks
• Provides a detailed evaluation of methods to reduce stress and discomfort to livestock when handling	7–8
• Provides an evaluation of methods to reduce stress and discomfort to livestock when handling	5–6
• Explains methods to reduce stress and discomfort to livestock when handling	3–4
• Describes a method to reduce stress and discomfort to livestock when handling	2
• Provides a piece of relevant information	1

Answers could include:

Some of the methods used to reduce stress and discomfort to livestock when handling are:

- Move livestock calmly, at a pace appropriate to their life stage
- Be aware of their flight zone
- Be aware of where you stand in relation to the livestock
- Restrain livestock effectively in a race or crush
- Move livestock as a mob
- Provide food, water and shelter when livestock are restrained in yards
- Move livestock at appropriate time of the day
- Ensure yards are appropriately designed.

Question 23 (a)

Criteria	Marks
• Correctly outlines the purpose of the named piece of equipment for treatment and control	2
• Names a purpose of the named piece of equipment	1

Sample answer:

The purpose of a hand-operated spray pack is to apply a liquid chemical mixture to plants and crops to prevent or eradicate plant pests and diseases.

Question 23 (b)

Criteria	Marks
• Demonstrates comprehensive understanding of the importance of safe work practices when treating and controlling plant pests, diseases and disorders	5
• Demonstrates thorough understanding of the importance of safe work practices when treating and controlling plant pests, diseases and disorders	4
• Demonstrates general understanding of the importance of safe work practices when treating and controlling plant pests, diseases and disorders	3
• Demonstrates a limited understanding of the importance of safe work practices when treating and controlling plant pests, diseases and disorders	2
• Provides a piece of relevant information	1

Sample answer:

Safe work practices are important when treating or controlling plant pests, diseases and disorders because they help to protect the worker from the risk of injury or harm. It is important to use safe practices to avoid cross-contamination and spread of diseases between plants. Safe practices are important to avoid the risk of injury to the worker from trips, spills, lifting heavy loads and ingestion of chemicals. Safe work practices are also important in relation to withholding periods and re-entry periods for crops.

Question 23 (c)

Criteria	Marks
• Provides a detailed evaluation of methods used for treating and controlling plant pests, diseases and disorders	7–8
• Provides an evaluation of methods used for treating and controlling plant pests, diseases and disorders	5–6
• Explains methods used for treating and controlling plant pests, diseases and disorders	3–4
• Describes a method used for treating and controlling plant pests, diseases and disorders	2
• Provides a piece of relevant information	1

Answers could include:

Some of the methods used when treating and controlling plant pests, diseases and disorders are:

- Biological – predatory mites can be used to control aphids
- Chemical – chemicals can be used to eradicate worms
- Cultural – farming techniques such as mowing between rows removes alternative breeding sites for insect pests
- Physical – removal of limbs affected by powdery mildew or fly traps to reduce number of insect pests.

2017 HSC Primary Industries
Mapping Grid

Section I

Question	Marks	HSC content – focus area	Employability skills (Please put an X where appropriate)							
			Communication	Teamwork	Problem-solving	Initiative and enterprise	Planning and organising	Self-management	Learning	Technology
1	1	Chemicals — chemicals – WHS – personal protective equipment (PPE) used when handling chemicals: importance of correct fitting – p31								
2	1	Weather — weather – managing conditions – primary industries workplace/enterprise planning (long-term and contingency) for climate and weather conditions: schedule of work tasks – p48					x			
3	1	Sustainability — environmentally sustainable work practices – avoidance or minimisation strategies – p43								
4	1	Working in the industry — requirements that apply to working in the industry – p51/52	x					x		
5	1	Safety — WHS compliance – safety signs, symbols and barricades used in primary industries and their use in the workplace: meaning of colour and shape – p36	x					x		
6	1	Safety — risk management – difference between a hazard and a risk – p38			x					
7	1	Weather — monitoring conditions – forecasting techniques for monitoring weather conditions: interpreting weather maps – p47								
8	1	Weather — monitoring conditions – forecasting techniques for monitoring weather conditions: interpreting weather maps – p47								
9	1	Working in the industry — sources of information – strategies for understanding and clarifying work instructions – p51	x	x						
10	1	Working in the industry — working in the industry – ethical considerations – p52						x		
11	1	Chemicals — integrated pest/resistance management – p33								
12	1	Working in the industry — primary industries worker – quality assurance – p53								
13	1	Safety — risk management – risk control – p38						x		

Question	Marks	HSC content – focus area	Employability skills (Please put an X where appropriate)							
			Communication	Teamwork	Problem-solving	Initiative and enterprise	Planning and organising	Self-management	Learning	Technology
14	1	Chemicals — working with chemicals – use and interpret chemical labels and Material Safety Data Sheets (MSDS): the information provided – p32								
15	1	Chemicals — working with chemicals – calculations – addition, subtraction, division, multiplication, percentages, ratios, volume – p32			x					

Section II

Question	Marks	HSC content – focus area	Employability skills (Please put an X where appropriate)							
			Communication	Teamwork	Problem-solving	Initiative and enterprise	Planning and organising	Self-management	Learning	Technology
16 (a)	2	Chemicals — Methods and techniques for measuring and calculating chemical use: importance of accuracy – units of measurement – measuring equipment used when handling chemicals – the calculations performed: addition, subtraction, division, multiplication, percentages, ratios, volume – an understanding of: calibration, decimal points, estimations, 'rounding off' – mixing chemicals – p33 Use and interpret chemical labels and Material Safety Data Sheets (MSDS): the information provided – p32			x				x	
16 (b)	2	Chemicals — A range of types of chemicals commonly used and their mode of action – p31 Use and interpret chemical labels and Material Safety Data Sheets (MSDS): the information provided – p32								
16 (c)	4	Chemicals — the handling and use of chemicals in a primary industries environment: the purpose and intent of related legislative requirements – in accordance with workplace/enterprise policy and procedures and manufacturer's instructions – with consideration of safe work practices and the environment – p32 Clean up procedures related to working with chemicals – p33							x	

Question	Marks	HSC content – focus area	Employability skills (Please put an X where appropriate)							
			Communication	Teamwork	Problem-solving	Initiative and enterprise	Planning and organising	Self-management	Learning	Technology
17 (a)	2	Sustainability — concept of sustainability and environmental work practices – p41 – environmentally sustainable work practices – p43				x				
17 (b)	6	Consequences of poor environmental planning on: – waterways – wildlife habitats – neighbouring properties – p41 Environmentally sustainable work practices – p43			x					
18	8	Sustainability — resources – p41 Working in the industry — worker – p52 Working in the industry — quality – p53	x					x	x	x
19 (a)	1	Weather — monitoring conditions – forecasting techniques for monitoring conditions – p47								
19 (b)	6	Weather — managing conditions – p48					x			
20 (a)	2	Working in the industry — quality assurance in the primary industries – p53					x			
20 (b)	2	Working in the industry — quality assurance in the primary industries – p53					x			

Section III

Question	Marks	HSC content – focus area	Employability skills (Please put an X where appropriate)							
			Communication	Teamwork	Problem-solving	Initiative and enterprise	Planning and organising	Self-management	Learning	Technology
21	15	Sustainability — current environmental issues affecting primary industries – p41 Concept of sustainability in the workplace/enterprise and environmentally sustainable work practices – p41 Environmentally sustainable work practices – p43			x		x			

Section IV

Question	Marks	HSC content – focus area	Employability skills (Please put an X where appropriate)							
			Communication	Teamwork	Problem-solving	Initiative and enterprise	Planning and organising	Self-management	Learning	Technology
22 (a)	2	Livestock health and welfare — treatment – p60, common treatment procedures to maintain livestock health and welfare – p60					x		x	
22 (b)	5	Importance of safe work practices when working with livestock – p58						x		
22 (c)	8	Handling — principles and procedures for handling livestock – p59					x			
23 (a)	2	Plant pests, diseases and disorders — management – methods for the treatment and control of plant pests, diseases and disorders – p64			x					
23 (b)	5	Management — importance of safe work practices in treatment and control of plant pests, diseases and disorders – p64			x					x
23 (c)	8	Management — range of equipment used in treatment and control of plant pests, diseases and disorders – p65						x		