

2022 HSC Primary Industries Marking Guidelines

Section I

Multiple-choice Answer Key

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

Section II

Question 16 (a)

Criteria	Marks
<ul style="list-style-type: none"> • Correctly identifies a hazard 	1

Sample answer:

Chemical spillage

Question 16 (b)

Criteria	Marks
<ul style="list-style-type: none"> • Outlines TWO risks associated with a hazard 	2
<ul style="list-style-type: none"> • Identifies a relevant risk 	1

Sample answer:

A risk associated with a chemical spill is inhalation of the chemical. Another risk is the spilled chemical contaminating the ground.

Question 16 (c)

Criteria	Marks
<ul style="list-style-type: none"> • Clearly explains control measures that can minimise the risks 	3
<ul style="list-style-type: none"> • Outlines some control measures that can minimise the risks or clearly explains one 	2
<ul style="list-style-type: none"> • Provides some relevant information 	1

Sample answer:

The person should wear an approved face mask that prevents inhalation of the chemical. This prevents possible poisoning. A step ladder or a stable platform should be used to prevent possible slips and falls.

Question 16 (d)

Criteria	Marks
• Explains the importance of safe work procedures and work practices	3
• Outlines safe work procedures and work practices	2
• Identifies a safe work procedure or practice OR • Provides some relevant information	1

Sample answer:

Safe work procedures and practices are important to ensure the health and wellbeing of workers. This would mean that there are fewer workplace injuries, absenteeism and workers compensation claims.

Question 17 (a)

Criteria	Marks
• Outlines the difference between weather and climate	2
• Provides some relevant information	1

Sample answer:

Weather refers to short-term atmospheric conditions while climate is the weather averaged over a long period of time.

Question 17 (b)

Criteria	Marks
• Describes TWO sources of weather and climate information that can be used to forecast weather events	3
• Outlines TWO sources of weather and climate information that can be used to forecast weather events OR • Describes ONE in detail	2
• Identifies sources of weather and climate information OR • Outlines ONE source of weather and climate information that can be used to forecast weather events	1

Sample answer:

The BOM (Bureau of Meteorology) provides detailed information on all aspects of weather for locations in Australia which is continually updated. It is a government website that can also be used as an app on your phone. Another source is the local radio network which gives current weather conditions for a region.

Question 17 (c)

Criteria	Marks
<ul style="list-style-type: none"> Describes in detail the workplace preventative actions that minimise loss, damage or harm to a primary industries enterprise as a result of a named extreme weather event 	4
<ul style="list-style-type: none"> Describes a workplace preventative action to minimise loss, damage or harm to a primary industries enterprise as a result of a named extreme weather event and outlines another action 	3
<ul style="list-style-type: none"> Outlines how the workplace uses preventative actions to minimise loss, damage or harm to a primary industries enterprise as a result of a named extreme weather event 	2
<ul style="list-style-type: none"> Provides some relevant information 	1

Sample answer:

An evacuation plan (in the case of a flood) ensures the safety of workers and livestock. It can be displayed as signage so that everyone in the workplace has access to the information and procedures that are in place in case of a weather emergency. This includes 'muster points', who to contact and exit routes out of buildings and properties.

In situations where blackouts may occur, a portable generator is essential as it ensures that electricity can still be supplied to buildings and water supplies where pumps are used.

Livestock emergency contingency plans are essential. Plans for movement of livestock off the property involve accessing transport vehicles and alternative areas for holding livestock. Properties could also have areas where the animals can move to higher ground during flooding conditions.

Question 18 (a)

Criteria	Marks
<ul style="list-style-type: none"> Describes the benefits of resource efficiency 	2
<ul style="list-style-type: none"> Identifies an example of resource efficiency 	1

Sample answer:

Resource efficiency is the use of resources (such as electricity) in a sustainable manner. May have financial and/or environmental benefits.

Question 18 (b)

Criteria	Marks
<ul style="list-style-type: none"> Provides clear and detailed links of a primary industries work practice and the impacts it has on the natural environment. 	6
<ul style="list-style-type: none"> Provides some links of a primary industries work practice and the impacts it has on the natural environment 	4–5
<ul style="list-style-type: none"> Provides a link of a primary industries work practice and an impact it has on the natural environment 	3
<ul style="list-style-type: none"> Outlines an impact of a primary industries work practice on the natural environment 	2
<ul style="list-style-type: none"> Provides some relevant information 	1

Sample answer:

Land clearing involves removing trees and other vegetation to develop areas such as pastures and cropping areas. The impacts of this practice reduce biodiversity as natural habitats are damaged therefore breeding areas are destroyed. It can also lead to salinity which is the rising of dissolved salts from the water table to the surface, reducing the ability of the plants to grow. Soil erosion can also occur due to the breakdown of soil structure, leading to adverse water quality and movement of topsoil which contains essential nutrients.

Question 19 (a)

Criteria	Marks
<ul style="list-style-type: none"> Outlines the potential hazardous effects associated with the use of chemicals in a primary industries workplace 	3
<ul style="list-style-type: none"> Demonstrates some understanding of the potential hazardous effect(s) associated with the use of chemicals in a primary industries workplace 	2
<ul style="list-style-type: none"> Provides some relevant information 	1

Sample answer:

A chemical spill may result in absorption of the chemical onto the skin. This may cause the skin to be irritated. The chemical may also enter a waterway, causing death to aquatic organisms.

Question 19 (b)

Criteria	Marks
<ul style="list-style-type: none"> Thoroughly justifies the strategies used in an IPM program to minimise the chemical resistance of the pest population 	6
<ul style="list-style-type: none"> Provides some justification of the strategies used in an IPM program to minimise the chemical resistance of the pest population 	4–5
<ul style="list-style-type: none"> Provides an outline of the strategies used in an IPM program to minimise the chemical resistance of the pest population <p>OR</p> <ul style="list-style-type: none"> Describes a strategy and mentions another strategy 	2–3
<ul style="list-style-type: none"> Provides information relating to a strategy used in an IPM program to minimise the chemical resistance of the pest population 	1

Sample answer:

- Using correct dosage according to the label – underdosing can cause some pathogens to survive, with future generations building up a resistance to future applications.
- Using superior genes – reduces the necessity to rely on chemical use – minimising resistance.
- Monitoring the pathogen in the environment – for example, by using traps the pest population is recorded. Only use the chemicals when the economic/biological threshold is reached.

Section III

Question 20

Criteria	Marks
<ul style="list-style-type: none"> • Demonstrates extensive knowledge and understanding of how technology, including current or emerging technologies, improves primary industries workplace efficiency • Communicates in a clear, logical and coherent manner • Uses industry terminology, accurately and appropriately 	13–15
<ul style="list-style-type: none"> • Demonstrates thorough knowledge and understanding of how technology, including current or emerging technologies, improves primary industries workplace efficiency • Communicates in a clear and coherent manner • Uses industry terminology appropriately 	10–12
<ul style="list-style-type: none"> • Demonstrates sound knowledge and understanding of how technology, including current or emerging technologies, improves primary industries workplace efficiency • Communicates in a clear and coherent manner • Uses some industry terminology appropriately 	7–9
<ul style="list-style-type: none"> • Demonstrates some knowledge and understanding of how technology, including current or emerging technologies, improves primary industries workplace efficiency • Uses some industry terminology 	4–6
<ul style="list-style-type: none"> • Demonstrates a basic knowledge and understanding of how technology, including current or emerging technologies, improves primary industries workplace efficiency 	1–3

Sample answer:

Current and new technologies can increase workplace and resource efficiency in the primary industries workplace. This improves time and resource management such as:

- Drones – cover large areas in a short time, can reach areas where vehicles can't, reduction in fuel costs, identify diseases/nutrient deficiencies/yields in individual plants, can observe and move livestock, used as mapping tools.
- Virtual fencing – no need for permanent fencing, reduction in cost for fencing material, contains stock in required areas, easy movement of equipment and vehicles without the fences, flexible software for boundaries/restrictions to be imposed.
- Smart apps for managing irrigation – monitoring/managing from home environment, cost efficient, accessible at all times of the day/night, can automate eg amount of water according to soil moisture content. Can use a mobile phone therefore 'handy'.

Section IV

Question 21 (a)

Criteria	Marks
<ul style="list-style-type: none"> • Outlines the importance of one piece of legislation regarding the management of livestock 	2
<ul style="list-style-type: none"> • Provides some relevant information 	1

Sample answer:

The *Pesticides Act 1999* is used to ensure that managers comply with the guidelines relating to withholding period to ensure human safety.

Question 21 (b)

Criteria	Marks
<ul style="list-style-type: none"> • Explains the difference between preventing and controlling a disease in livestock 	3
<ul style="list-style-type: none"> • Outlines the difference between preventing and controlling a disease in livestock 	2
<ul style="list-style-type: none"> • Provides some relevant information 	1

Sample answer:

Prevention measures are put in place before the disease occurs, such as grass tetany requiring a vaccination of 7 in 1. Controlling a disease in livestock means that the disease is already present and will require some form of treatment, such as mastitis requiring antibiotic treatment.

Question 21 (c)

Criteria	Marks
<ul style="list-style-type: none"> Provides a comprehensive assessment of a range of biosecurity measures used to minimise disease introduction in a livestock industry Includes specific references to the potential impacts of the disease on humans, livestock and the environment Presents a logical and cohesive response using industry terminology, accurately and appropriately 	9–10
<ul style="list-style-type: none"> Provides some assessment of biosecurity measures used to minimise disease introduction in a livestock industry Includes specific references to the potential impacts of the disease on humans, livestock and the environment Presents a clear response using industry terminology, accurately and appropriately 	7–8
<ul style="list-style-type: none"> Describes biosecurity measures used to minimise disease introduction in a livestock industry Includes references to the potential impacts of the disease on humans and/or livestock and/or the environment Provides some appropriate industry terminology 	5–6
<ul style="list-style-type: none"> Outlines biosecurity measures used to minimise disease introduction in a livestock industry Includes references to the potential impacts of the disease on humans or livestock or the environment Provides some industry terminology 	3–4
<ul style="list-style-type: none"> Demonstrates some elementary knowledge of a biosecurity measure to minimise a disease in a livestock industry 	1–2

Answers could include:

Anthrax is an infectious bacterial disease that affects a wide range of animals as well as humans.

Biosecurity is made up of three separate but often blended sets of actions and overlapping components. These are bio-exclusion, bio-containment and bio-management. Examples are:

- Quarantining livestock before entry into the country – large cost factor but ensures animals are disease-free.
- On-farm – isolation of newly introduced livestock for a period of time to prevent disease introduction. Testing introduced livestock is also essential as well as vaccination.
- MAP – Market Assurance Program for traceability of diseases such as Johne’s, soil-borne diseases can persist in the environment for long periods of time and treatment/control can be complicated.
- Biosecurity plans that include the movement of stock, introduction of stock. NLIS requirements = requires time, training, filing system.
- Cleaning of equipment and machinery between specific zones to prevent the spread of diseases = reduces spread of significant pests and diseases.

Question 22 (a)

Criteria	Marks
• Outlines one piece of legislation that affects the management of plants	2
• Provides some relevant information	1

Sample answer:

The *Pesticides Act 1999* is used to ensure that managers comply with the guidelines relating to withholding period to ensure human safety.

Question 22 (b)

Criteria	Marks
• Explains clearly the difference between preventing and controlling a disease in plants	3
• Outlines the difference between preventing and controlling a disease in plants	2
• Provides some relevant information	1

Sample answer:

Prevention measures are put in place before the disease occurs, such as crop rotations to prevent rust presence in soil. Controlling a disease in plants means that the disease is already present and will require some form of treatment, such as a fungicide to control rust in wheat crop.

Question 22 (c)

Criteria	Marks
<ul style="list-style-type: none"> Provides a comprehensive assessment of measures used to minimise the environmental impacts of the treatment and control of plant diseases and disorders Includes specific references to codes of practice and biosecurity Presents a logical and cohesive response using industry terminology, accurately and appropriately 	9–10
<ul style="list-style-type: none"> Provides some assessment of measures used to minimise the environmental impacts of the treatment and control of plant diseases and disorders Includes specific references to codes of practice and biosecurity Presents a clear response using industry terminology, accurately and appropriately 	7–8
<ul style="list-style-type: none"> Describes the measures used to minimise the environmental impacts of the treatment and control of plant diseases and disorders Includes references to codes of practice and/or biosecurity Provides some appropriate industry terminology 	5–6
<ul style="list-style-type: none"> Outlines the measures used to minimise the environmental impacts of the treatment and control of plant diseases and disorders Includes references to codes of practice or biosecurity Provides some industry terminology 	3–4
<ul style="list-style-type: none"> Demonstrates some elementary knowledge of the measures used to minimise the environmental impacts of the treatment and control of plant diseases and disorders 	1–2

Answers could include:

Measures to minimise environmental impacts

- Checking the weather forecast prior to chemical application to minimise spray drift
- Appropriate selection and chemical application rate for the specific purpose (fertilisers or chemicals)
- Adherence to buffer zones when applying chemicals
- The use of integrated pest management instead of chemicals to limit damage to the environment
- Cleaning of equipment and machinery between specific zones to prevent the spread of diseases.

Requirements of treatment

- Codes of practice – eg WHS, handling and using hazardous materials. These are not bound by law but useful as a guideline to establish best practices.
- Biosecurity – types are national, State, regional, on-farm. Identification and appropriate response to a declared noxious weed or notifiable plant pest/disease.

2022 HSC Primary Industries Mapping Grid

Section I

Question	Marks	HSC content – focus area
1	1	Weather — weather climate – p39
2	1	Weather — monitoring condition – p38
3	1	Safety — risk management – p31
4	1	Chemicals — equipment – p26
5	1	Sustainability — resources – p36
6	1	Chemicals — working with chemicals – p26
7	1	Sustainability — environment – p34
8	1	Safety — safe work procedures and practices – p31/32
9	1	Safety — WHS compliance – p29/30
10	1	Weather — weather climate – p38
11	1	Chemicals — working with chemicals – p27
12	1	Sustainability — resources – p35/36
13	1	Chemicals — working with chemicals – p26/27
14	1	Safety — incidents, accidents, and emergencies – p32
15	1	Sustainability — environmental compliance – p35

Section II

Question	Marks	HSC content – focus area
16 (a)	1	Safety — risk management – p31
16 (b)	2	Safety — risk management – p31
16 (c)	3	Safety — risk management – p31
16 (d)	3	Safety — safe work procedures and practices – p32
17 (a)	2	Weather — weather and climate – p38
17 (b)	3	Weather — monitoring conditions – p38
17 (c)	4	Weather — managing conditions – p39
18 (a)	2	Sustainability — resources – p35
18 (b)	6	Sustainability — environment – p34
19 (a)	3	Chemicals — work health safety – p26
19 (b)	6	Chemicals — integrated pest/resistance management – p27

Section III

Question	Marks	HSC content – focus area
20	15	Working in the industry — technology – p44

Section IV

Question	Marks	HSC content – focus area
21 (a)	2	Livestock health and welfare — working with livestock – p47
21 (b)	3	Livestock health and welfare — health – p49
21 (c)	10	Livestock health and welfare — working with livestock – p47
22 (a)	2	Plant pest, diseases and disorders — management – p53
22 (b)	3	Plant pest, diseases and disorders — management – p52
22 (c)	10	Plant pest, diseases and disorders — management – p53