



NSW Education Standards Authority

2021 HIGHER SCHOOL CERTIFICATE EXAMINATION

Primary Industries

**General
Instructions**

- Reading time – 5 minutes
- Working time – 2 hours
- Write using black pen
- Calculators approved by NESA may be used
- Write your Centre Number and Student Number at the top of pages 9, 11 and 15

**Total marks:
80**

Section I – 15 marks (pages 2–7)

- Attempt Questions 1–15
- Allow about 20 minutes for this section

Section II – 35 marks (pages 9–17)

- Attempt Questions 16–19
- Allow about 50 minutes for this section

Section III – 15 marks (page 19)

- Attempt Question 20
- Allow about 25 minutes for this section

Section IV – 15 marks (page 20)

- Attempt either Question 21 or Question 22
- Allow about 25 minutes for this section

Section I

15 marks

Attempt Questions 1–15

Allow about 20 minutes for this section

Use the multiple-choice answer sheet for Questions 1–15.

1 Which of the following symbols used on weather maps represents a low-pressure trough?

- A. 
- B. 
- C. 
- D. 

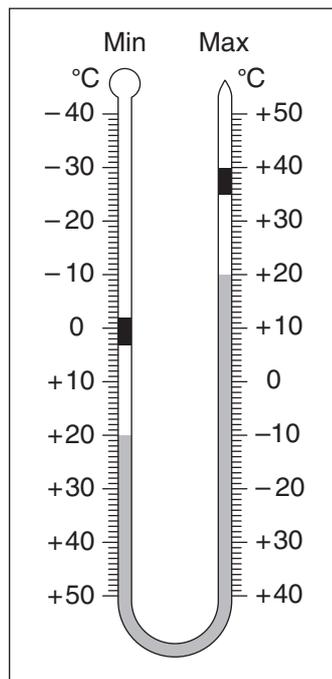
2 Which of the following contains only examples of written communication?

- A. Letter, text message, email, signage
- B. Signage, phone, email, text message
- C. Letter, teleconference, email, signage
- D. Text message, conversation, email, voice mail

3 The access of livestock to water bodies is restricted mainly to reduce

- A. aquatic life.
- B. bank erosion.
- C. injury to livestock.
- D. temperature of the water.

- 4 An image of a minimum–maximum thermometer is shown.



- According to this thermometer, what is the minimum temperature reading?
- A. -2°C
 - B. 3°C
 - C. 20°C
 - D. 35°C
- 5 Which of the following is the LEAST effective strategy in controlling workplace hazards?
- A. Using personal protective equipment (PPE)
 - B. Adopting alternatives that are a less risky option
 - C. Putting safe work practices in place to avoid injury
 - D. Eliminating the source of danger completely from the workplace

- 6** A greenhouse has an automatic watering system installed. It has 10 spray nozzles and each nozzle delivers 20 mL per minute. The system is designed to spray for 5 minutes every 6 hours.

How much water is delivered in a 24-hour period?

- A. 200 mL
 - B. 400 mL
 - C. 2000 mL
 - D. 4000 mL
- 7** The maintenance of a desired level of quality in a service or product is known as
- A. quality assurance.
 - B. quality insurance.
 - C. quality excellence.
 - D. quality requirements.

- 8** An employee notices a leaking valve on a piece of chemical application equipment.

What is the first emergency response that the employee should take?

- A. Turn off the leaking valve
- B. Attempt to repair the leaking valve
- C. Ring 000 and report the leaking valve
- D. Inform the supervisor of the leaking valve

9 On arriving at work at 7.30 am, your supervisor gave you the following list of jobs to complete by the end of the working day.

- Order livestock feed for delivery in two days
- Assess leaking water pipe near greenhouse
- Pack vegetables ready for pick up at 9.00 am
- Start chemical audit

Which priority order column in the table shows the correct work sequence?

<i>Job</i>	<i>Priority order A</i>	<i>Priority order B</i>	<i>Priority order C</i>	<i>Priority order D</i>
Order livestock feed for delivery in two days	2	4	2	3
Assess leaking water pipe near greenhouse	4	2	1	1
Pack vegetables ready for pick up at 9.00 am	1	1	3	2
Start chemical audit	3	3	4	4

- A. Priority order *A*
- B. Priority order *B*
- C. Priority order *C*
- D. Priority order *D*

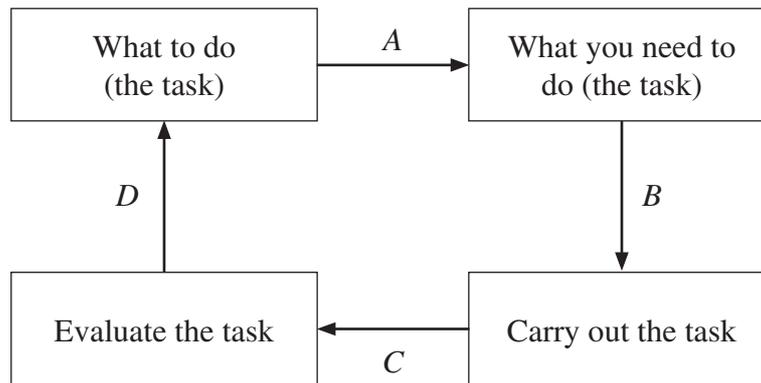
10 The table shows field notes taken during an environmental audit on a local farm.

<i>Trees</i>	<ul style="list-style-type: none"> • Reduced number of trees • Increase in dead trees
<i>Plants</i>	<ul style="list-style-type: none"> • Increase in weed varieties • Decrease in native pasture species • Introduced grasses becoming dominant
<i>Water</i>	<ul style="list-style-type: none"> • Decrease in water quality • Increased sediments in water

According to the report, which environmental problem is occurring on the farm?

- A. Decrease in salinity
- B. Decrease in biodiversity
- C. Decrease in waterlogging
- D. Decrease in waste management

11 A work cycle is shown.



At which point in this cycle would feedback be most effective?

- A. A
- B. B
- C. C
- D. D

12 Which column correctly matches each employment type with its employment conditions?

<i>Employment conditions</i>	<i>Column 1</i>	<i>Column 2</i>	<i>Column 3</i>	<i>Column 4</i>
Usually works 38 hours /week and is entitled to paid leave	Full time	Contract	Full time	Part time
Works less than 38 hours /week but hours are regular and is entitled to paid leave	Contract	Full time	Part time	Casual
Not guaranteed hours of work and is not entitled to paid leave	Casual	Part time	Casual	Contract
Employed for a specific period to complete work and is not entitled to paid leave	Part time	Casual	Contract	Full time

- A. Column 1
- B. Column 2
- C. Column 3
- D. Column 4

13 Weed control is carried out on four different primary industries properties.

	<i>Property 1</i>	<i>Property 2</i>	<i>Property 3</i>	<i>Property 4</i>
<i>Strategy</i>	Weeds controlled by regular use of chemicals and slashing	Weeds controlled by use of another organism and quarantining	Weeds controlled with strategic use of chemicals and use of another organism	Weeds controlled with strategic use of chemicals and quarantining

Which property has the best practices for controlling weeds?

- A. Property 1
- B. Property 2
- C. Property 3
- D. Property 4

14 Which two groups are party to an Enterprise Agreement?

- A. Employers and unions
- B. Employees and unions
- C. Unions and government
- D. Employer and employees

15 Which weather conditions are used to calculate ΔT when deciding to spray a pesticide?

- A. Wind speed and wind direction
- B. Relative humidity and dry temperature
- C. Precipitation forecast and particle count
- D. Atmospheric temperature and water droplet formation

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Centre Number

Primary Industries

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Student Number

Section II

35 marks

Attempt Questions 16–19

Allow about 50 minutes for this section

Answer the questions in the spaces provided. These spaces provide guidance for the expected length of response.

Show all relevant working in questions involving calculations.

Question 16 (7 marks)

- (a) Identify TWO pieces of protective work clothing suitable for a farmhand. 1

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- (b) Outline the personal attributes that an employer would look for in a person applying for a position as a farmhand. 2

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- (c) Explain the impact of a current or emerging technology on daily work practices in a primary industries sector. 4

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Question 17 (9 marks)

The following forecast was issued by the Bureau of Meteorology (BOM) for a region.

‘Sustained gale force winds with gusts up to 100 km per hour or more.
Heavy rains which may lead to flash flooding with temperatures dropping.’

- (a) What effects could the conditions in this forecast have on plants OR animals on farms in this region? **2**

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- (b) Describe the actions that a farmer could take to minimise the immediate effects of this weather forecast. **3**

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- (c) Propose a long-term plan for minimising the impact of future extreme weather events. **4**

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Section II (continued)

Student Number

Question 18 (10 marks)

Please turn over

Question 18 (10 marks)

A farmer needs to drench their sheep using the following chemical drench.

<p style="text-align: center;">Animal Drench Multiple combination drench for sheep Quantity: 1 litre</p> <hr/> <p><u>Dosage and administration</u></p> <p>Shake well before use.</p> <p>Administer orally. Check accuracy of the drench equipment before and during use. A representative sample of animals should be weighed before treatment. Dose the mob to the heaviest animal by liveweight in each group. Do not underdose.</p> <p>Dose: 1 mL per 5 kg bodyweight</p>

The farmer has two groups of sheep:

Group A: 60 sheep with the heaviest weighing 45 kg

Group B: 40 sheep with the heaviest weighing 95 kg.

- (a) Calculate the total amount of drench required to treat both groups. (Show working.)

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Question 18 continues on page 13

Question 18 (continued)

- (b) Outline a procedure used to clean and dispose of empty chemical containers. **3**

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- (c) Explain THREE pieces of information that could be recorded in a chemical inventory. **5**

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End of Question 18

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Centre Number

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Section II (continued)

Student Number

Question 19 (9 marks)

Please turn over

Question 19 (9 marks)

- (a) What consequences may occur if a farmer fails to comply with environmental legislation?

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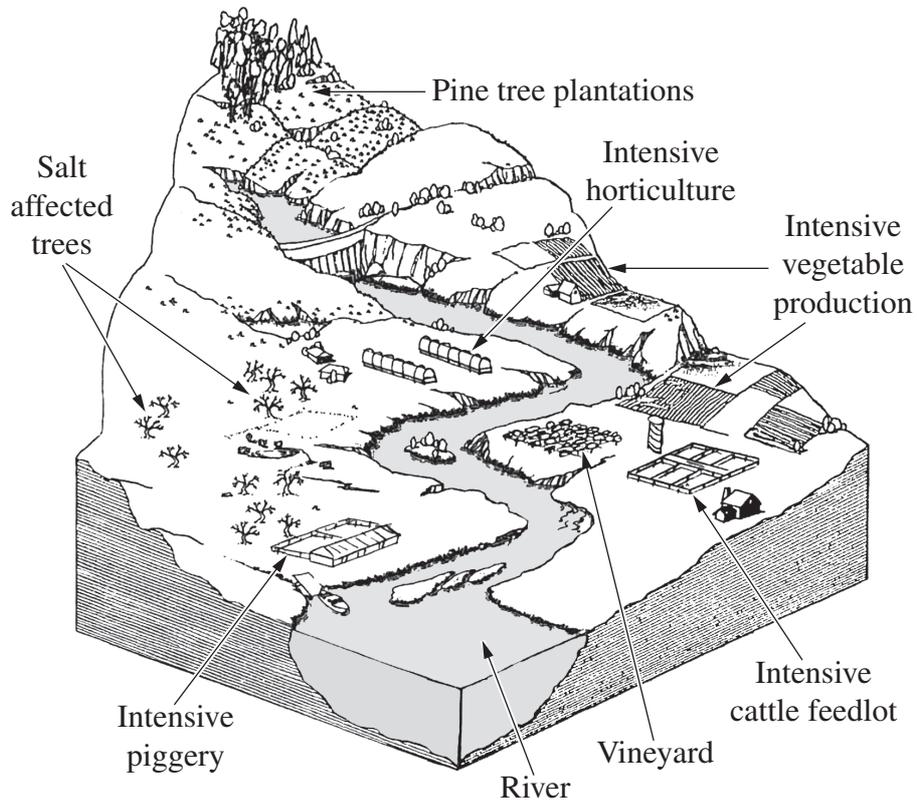
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- (b) A diagram of a local catchment area is shown.

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Question 19 continues on page 17

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Primary Industries

Section III

15 marks

Attempt Question 20

Allow about 25 minutes for this section

Answer the question in a writing booklet. Extra writing booklets are available.

Your answer will be assessed on how well you:

- demonstrate knowledge and understanding relevant to the question
 - communicate ideas and information using relevant workplace examples and industry terminology
 - present a logical and cohesive response
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Question 20 (15 marks)

Explain strategies that can be implemented to reduce workplace accidents and injuries in a primary industries workplace.

Please turn over

Section IV

15 marks

Attempt either Question 21 or Question 22

Allow about 25 minutes for this section

Answer the question in a SEPARATE writing booklet. Extra writing booklets are available.

Question 21 — Livestock Health and Welfare (15 marks)

- (a) What is the purpose of codes of practice in a primary industries workplace? **3**
- (b) Explain why recording AND reporting are important in dealing with the treatment and control of animal pests and diseases. **4**
- (c) Account for different techniques and methods used to handle livestock. **8**

OR

Question 22 — Plant Pests, Diseases and Disorders (15 marks)

- (a) What is the purpose of codes of practice in a primary industries workplace? **3**
- (b) Explain why recording AND reporting are important in dealing with the treatment and control of plant pests, diseases and disorders. **4**
- (c) Account for different methods of treatment and control of plant pests, diseases and disorders. **8**

End of paper