

**B O A R D O F S T U D I E S**  
NEW SOUTH WALES

**2010**

**HIGHER SCHOOL CERTIFICATE  
EXAMINATION**

# Construction

## General Instructions

- Reading time – 5 minutes
- Working time – 2 hours
- Write using black or blue pen
- Board-approved calculators may be used
- Write your Centre Number and Student Number at the top of pages 9 and 13

**Total marks – 80**

**Section I** Pages 2–6

**15 marks**

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

**Section II** Pages 9–16

**35 marks**

- Attempt Questions 16–23
- Allow about 50 minutes for this section

**Section III** Page 17

**15 marks**

- Attempt Question 24
- Allow about 25 minutes for this section

**Section IV** Page 18

**15 marks**

- Attempt Question 25
- 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.

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- 1** What is the best way to determine how a delivery of hazardous material should be stored on site?

  - (A) Check the delivery docket.
  - (B) Check the chemical register.
  - (C) Check if it is a liquid, solid or gas.
  - (D) Refer to the Material Safety Data Sheet.
  
- 2** What type of insurance would an employer require on a building site?

  - (A) Income Protection and Public Liability
  - (B) Public Liability and Third Party Property
  - (C) Occupational Health and Safety and Income Protection
  - (D) Third Party Property and Occupational Health and Safety
  
- 3** A person working on their own is using a levelling device over a distance of 30 m.

Which level would give the most accurate reading?

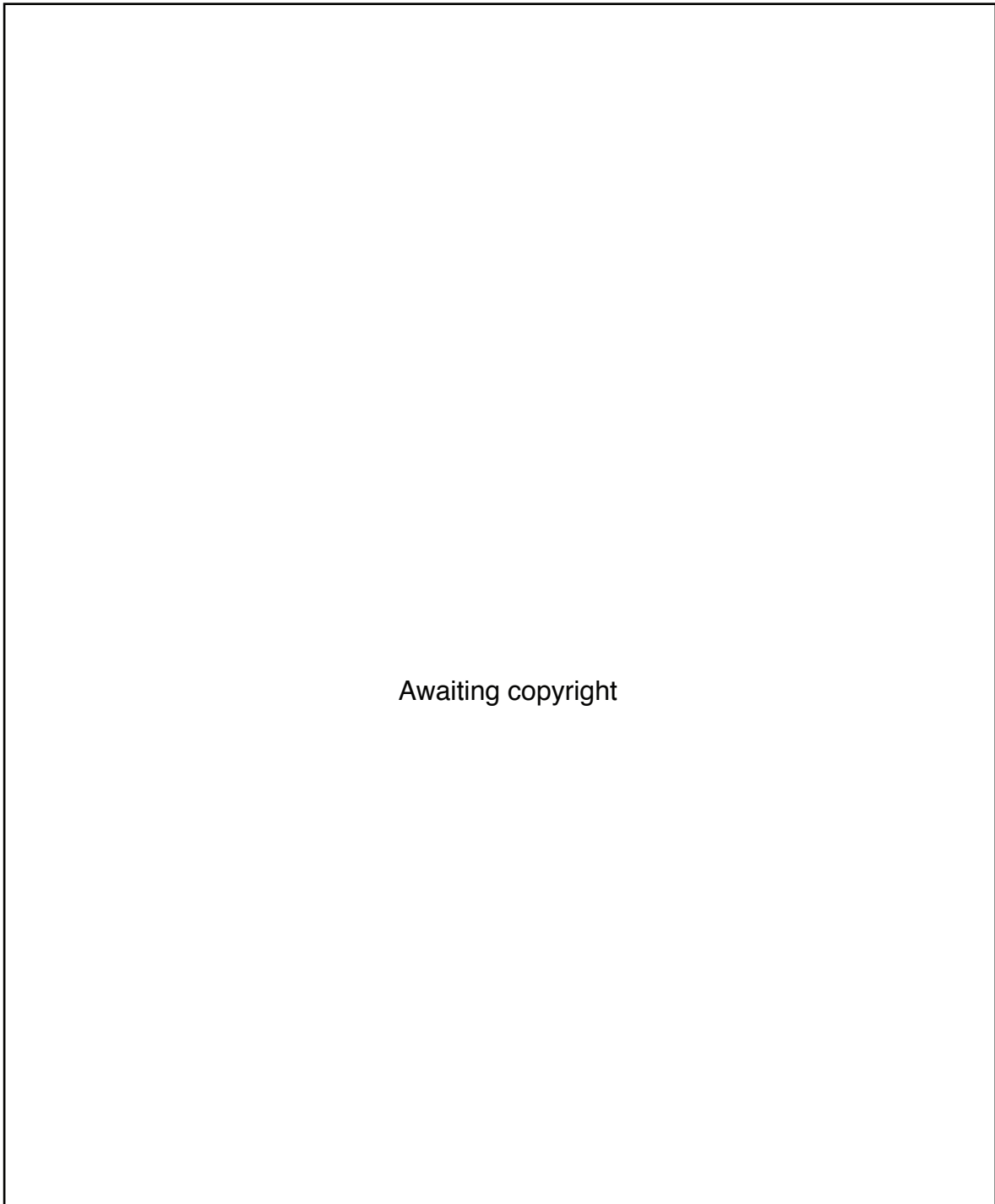
  - (A) Laser level
  - (B) Water level
  - (C) Spirit level
  - (D) Automatic level
  
- 4** How should plywood and particle board be stacked?

  - (A) On edge
  - (B) In pyramid stacks
  - (C) Separated by packers
  - (D) Flat on top of each board

- 5** What is the best method to minimise the potential hazards of noise and dust on a work site?
- (A) Erect screens and covers
  - (B) Use water suppression
  - (C) Utilise good housekeeping procedures
  - (D) Use Personal Protective Equipment (PPE)
- 6** Who is responsible for ensuring that first aid is available on site?
- (A) Worksite managers
  - (B) Worksite employees
  - (C) Trained first aid support personnel
  - (D) The Occupational Health and Safety Officer
- 7** What is an employer legally obliged to provide for their employees?
- (A) Safe movement around the site
  - (B) A safe and healthy work environment
  - (C) A voluntary training and supervision scheme
  - (D) Safety and research information on an annual basis
- 8** A first year apprentice is concerned about a safety issue.  
Who should they speak to first?
- (A) Site manager
  - (B) Project manager
  - (C) First Aid Officer
  - (D) Supervising tradesperson
- 9** What does a good industrial relations process help to facilitate?
- (A) Employees' access to trade unions
  - (B) Employers' access to trade unions
  - (C) Employers meeting building costs
  - (D) Employer and employee negotiations

- 10** What is the main purpose of planning and organising work?
- (A) To work efficiently and safely
  - (B) To make important decisions later
  - (C) To create a less stressful workplace
  - (D) To order materials only when required
- 11** What best describes a safe work method statement?
- (A) Instructions for contractors
  - (B) A sequence of first aid and safe work instructions
  - (C) The procedures, hazards and controls of construction tasks
  - (D) The construction of an entire project broken down into stages

- 12 What is the total floor area of Bedroom 1, Bedroom 2 and Bedroom 3 in the floor plan shown?



- (A)  $29.15 \text{ m}^2$
- (B)  $10500 \times 8300$
- (C)  $6000 \times 7400$
- (D)  $11.7 \text{ m}^2$

- 13** What is the standard increment of length used when purchasing timber?
- (A) 250 mm
  - (B) 300 mm
  - (C) 500 mm
  - (D) 1000 mm
- 14** What does maintenance of Personal Protection Equipment (PPE) involve?
- (A) Use of the PPE continually
  - (B) Regular checks for damage
  - (C) Consideration of its correct use
  - (D) Purchase, correct use and disposal
- 15** What is the total quantity in lineal metres of  $90 \times 35$  radiata pine for the following order: quantities 21/4.8, 12/2.4 and 10/2.1?
- (A) 14.135 lm
  - (B) 141.35 lm
  - (C) 150.60 lm
  - (D) 1506.00 lm

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# Construction

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Centre Number

## Section II

35 marks

Attempt Questions 16–23

Allow about 50 minutes for this section

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Student Number

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

### Question 16 (1 mark)

When should safety/lockout tagging be used?

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### Question 17 (1 mark)

What is the purpose of an earth leakage circuit breaker?

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### Question 18 (2 marks)

Using examples, explain why colour and symbols are used in workplace signage.

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**Question 19** (6 marks)

(a) Outline strategies that may be used to minimise waste in the construction industry. **2**

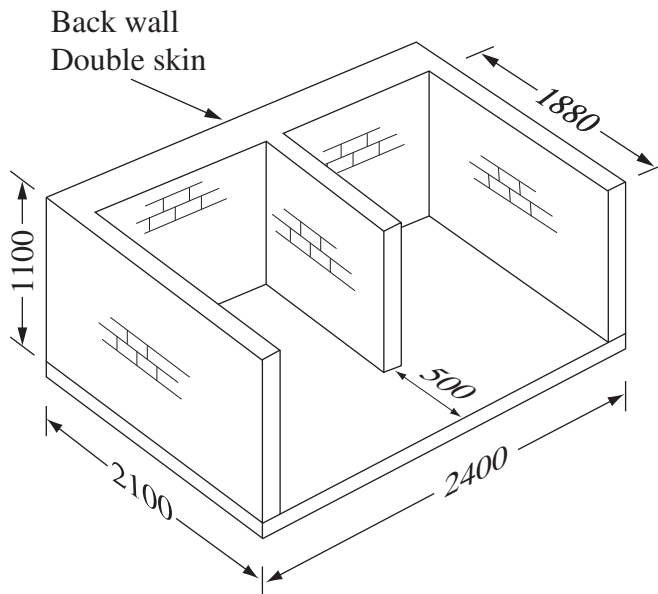
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(b) For the construction industry, what are the negative short and long-term environmental impacts of waste? **4**

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**Question 20** (7 marks)

A storage area for fine and coarse aggregate is shown in the diagram below.



Specification	
Concrete Slab	
Thickness	125 mm
Wastage	10%
Concrete	\$220/m <sup>3</sup>
Brickworks	
Quantity	50/m <sup>2</sup> per skin
Wastage	5%
Bricks	\$900 per 1000

- (a) Using the specifications given, calculate the quantities of material and costs to build the storage area. Show working. **5**

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Question 20 (continued)

(b) What factors need to be considered when storing aggregate?

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**End of Question 20**

Construction

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Centre Number

Section II (continued)

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Student Number

Question 21 (9 marks)

- (a) Describe a physical hazard in the construction industry. **2**

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- (b) How should an employer safely manage chemicals in the workplace? **3**

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Question 21 continues on page 14

Question 21 (continued)

(c) Identify ONE hazardous process and describe how an employer would apply the Hierarchy of Risk Control measures.

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Specific hazardous process: .....

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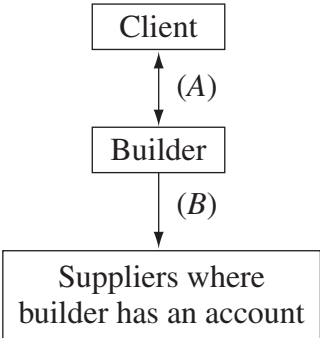
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**End of Question 21**

**Question 22** (4 marks)

The flowchart shows the lines of communication between people involved in a construction project.

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Describe appropriate methods of communication between the people shown for points (A) and (B) on the chart.

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**Question 23** (5 marks)

Considering EITHER a 240 v impact power drill OR a 240 v electric plane, outline its:

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- use
- training required
- limitations.

Tool selected: .....

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## Construction

### Section III

**15 marks**

**Attempt Question 24**

**Allow about 25 minutes for this section**

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

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In your answer you 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 24** (15 marks)

The construction industry has reduced the incidence of workplace injuries since 2000.

Explain, using specific examples, how this has been achieved.

In your answer, you may consider:

- legislation and workplace practices
- construction procedures and techniques
- materials and equipment.

**Please turn over**

## Section IV

15 marks

Attempt Question 25

Allow about 25 minutes for this section

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

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### Question 25 (15 marks)

The diagram shows a proposed excavation.

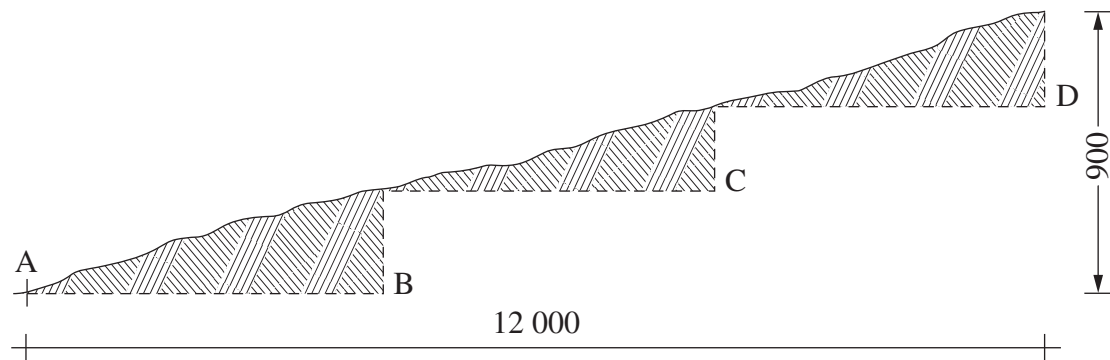


Figure 1 – Proposed excavation

- (a) Outline the required maintenance, safe use and storage of a levelling device that could be used in preparing the excavation. **3**
- (b) Compare and contrast TWO levelling devices that could be used to determine the levels in the proposed excavation. **4**
- (c) Select ONE of the levelling devices used in (b), and describe the process to be followed when setting out the excavation as shown in Figure 1. **8**

**End of paper**