

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

2012

**HIGHER SCHOOL CERTIFICATE
EXAMINATION**

Construction

General Instructions

- Reading time – 5 minutes
- Working time – 2 hours
- Write using black or blue pen
Black pen is preferred
- Board-approved calculators may be used
- Write your Centre Number and Student Number at the top of pages 9, 11, 13 and 15

Total marks – 80

Section I Pages 2–5

15 marks

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

Section II Pages 9–16

35 marks

- Attempt Questions 16–20
- Allow about 50 minutes for this section

Section III Page 17

15 marks

- Attempt Question 21
- Allow about 25 minutes for this section

Section IV Page 18

15 marks

- Attempt 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 is a form of non-verbal communication?
 - (A) Signage
 - (B) Telephone
 - (C) Two-way radio
 - (D) On-site meeting

- 2 What is the main use of a sliding bevel?
 - (A) To determine plumb
 - (B) To determine a level surface
 - (C) To transfer angles and draw lines
 - (D) To measure the diameter of a circle

- 3 What term is used to indicate land height on site plans?
 - (A) Datum
 - (B) Contours
 - (C) Land referencing
 - (D) Orientation of structures

- 4 In the construction industry, which type of plan indicates the position of doors and windows?
 - (A) Construction
 - (B) Project
 - (C) Detail
 - (D) Site

- 5 What is the first safety control measure for a risk?
- (A) Work safely
 (B) Eliminate the risk
 (C) Substitute the equipment
 (D) Use Personal Protection Equipment (PPE)
- 6 What would be shown on an electrical safety inspection tag placed on an electric drill?
- (A) Manufacture date of the drill
 (B) Indication of the safe operating voltage of the drill
 (C) Licence number of inspector and date of inspection
 (D) Identification of correct storage procedures for the drill
- 7 Why is it important for an apprentice to have an understanding of recognition of prior learning (RPL)?
- (A) To ensure site safety
 (B) To gain a white card
 (C) To qualify for a first aid certificate
 (D) To provide evidence of qualifications
- 8 A timber platform is to be built. The materials required and their cost are shown in the table.

Description	Size	Cost per lm
Bearers – 12 / 4.2 m	100 × 45	\$5.50
Posts – 4 / 2.4 m	100 × 100	\$12.50
Decking – 75 / 5.0 m	90 × 22	\$6.50

What is the total cost of the materials?

- (A) \$283.46
 (B) \$603.50
 (C) \$2834.70
 (D) \$6035.00

- 9** What is the main consideration for selecting plant and equipment to be used on a construction site?
- (A) The location of storage on site
 - (B) The skill level or training of the employees
 - (C) The consideration of environmental factors on site
 - (D) The effectiveness of the plant or equipment to carry out the operation
- 10** What procedures would minimise the impact on the environment of a construction site?
- (A) Monitoring the number of employees working onsite
 - (B) Monitoring the total volume of emissions from plant and equipment
 - (C) Safe storage of reusable materials in accordance with workplace/company policy
 - (D) Inservicing employees on the roles and responsibilities of the Environmental Protection Authority (EPA)
- 11** How would a measurement of 36 metres be dimensioned on a site plan, where the drawing scale is 1 : 100?
- (A) 3.6
 - (B) 36
 - (C) 360
 - (D) 36000
- 12** What is the purpose of a regulator in the operation of pneumatic tools connected to an air compressor?
- (A) To save power during use
 - (B) To prevent damage to the motor
 - (C) To reduce the noise level of the motor
 - (D) To adjust the air pressure to suit the tool being used
- 13** What is the area of a triangle with a base of 12.2 m and a perpendicular height of 3200 mm?
- (A) 19.52 m²
 - (B) 39.044 m²
 - (C) 195 m²
 - (D) 3904 m²

- 14** What is the first action that management should take after the identification of asbestos containing materials (ACM) on a construction site?
- (A) Notify unions and emergency services
 - (B) Secure the area and place signs to stop entry
 - (C) Distribute appropriate personal protection equipment (PPE) to employees
 - (D) Have trained employees remove materials containing asbestos to designated storage bins
- 15** Why is a licence required to operate some power and pneumatic equipment?
- (A) To ensure efficient use
 - (B) To reduce operating costs of the job
 - (C) To limit the number of workplace injuries
 - (D) To restrict the number of workers able to operate the equipment

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Construction

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Centre Number

Section II

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Student Number

35 marks

Attempt Questions 16–20

Allow about 50 minutes for this section

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

Question 16 (9 marks)

- (a) Outline the benefits of using saw stools to cut lengths of timber. 2



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- (b) Name and outline the function of the tools shown. 3

<i>Tools</i>	<i>Function</i>
 <p>Name</p>	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
 <p>Name</p>	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>

Question 16 continues on page 10

Question 16 (continued)

- (c) Describe the safety and maintenance procedures for using the machine tool shown.

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End of Question 16

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Centre Number

Section II (continued)

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Student Number

Question 17 (4 marks)

- (a) What written information should be recorded at a construction site meeting? **2**

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- (b) Recommend an appropriate method for an employer to communicate information about dangerous goods to employees. **2**

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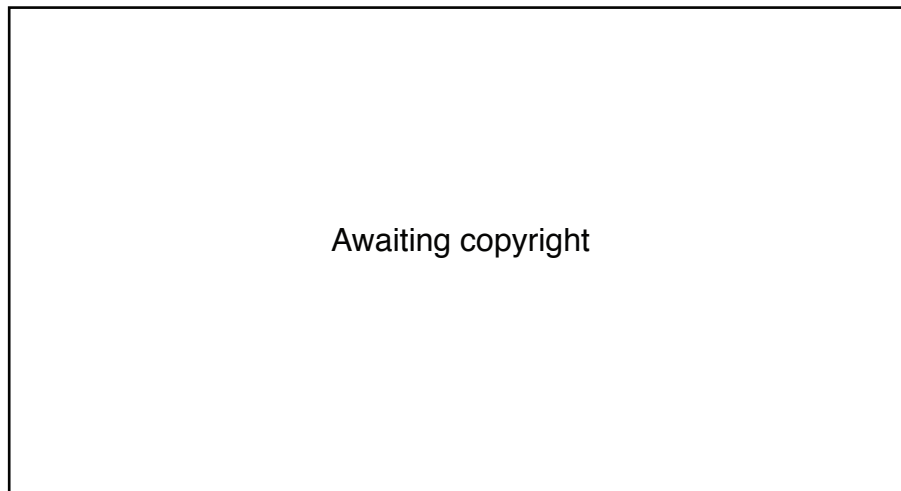
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Question 18 (4 marks)

(a) The diagram shows an extract from a construction schedule.



The site manager has found a problem with the allocation of days in the construction schedule. What is the problem? **1**

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(b) Explain the benefits of using a work schedule for a construction project. **3**

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Centre Number

Section II (continued)

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Student Number

Question 19 (9 marks)

- (a) What features of nails need to be considered when placing an order? 2

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- (b) What safety steps need to be followed when using any type of nail gun? 2

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Question 19 continues on page 14

Question 19 (continued)

- (c) Identify and outline the use of TWO different types of nail guns. **3**

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- (d) Outline the benefits of using a nail gun rather than using traditional fastening/fixing methods. **2**

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End of Question 19

Construction

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Centre Number

Section II (continued)

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Student Number

Question 20 (9 marks)

A playground area is to be redeveloped to include additional decks for seating and for a BBQ. Details of this redevelopment are on pages 19 and 20.

Areas A, B and C are to have timber decking on concrete slabs.

Use the detail drawing and table on page 20 to answer Question 20.

- (a) Calculate the total volume of concrete to be ordered for the slabs in areas A, B and C. **2**

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- (b) Calculate the quantity, in lineal metres, of the 90 × 22 decking timber needed to cover the slab for area A, allowing 10% for wastage. **3**

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Question 20 continues on page 16

Question 20 (continued)

(c) Outline and justify a way of fixing the battens and decking timber.

4

<i>Component</i>	<i>Method of fixing and justification</i>
Battens	
Decking timber	

End of Question 20

Construction

Section III

15 marks

Attempt Question 21

Allow about 25 minutes for this section

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

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 21 (15 marks)

Government legislation requires both the employer and the employee to have responsibilities under *duty of care*.

Explain how both employers and employees meet their responsibilities of *duty of care* on construction sites.

Please turn over

Section IV

15 marks

Attempt Question 22

Allow about 25 minutes for this section

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

Question 22 (15 marks)

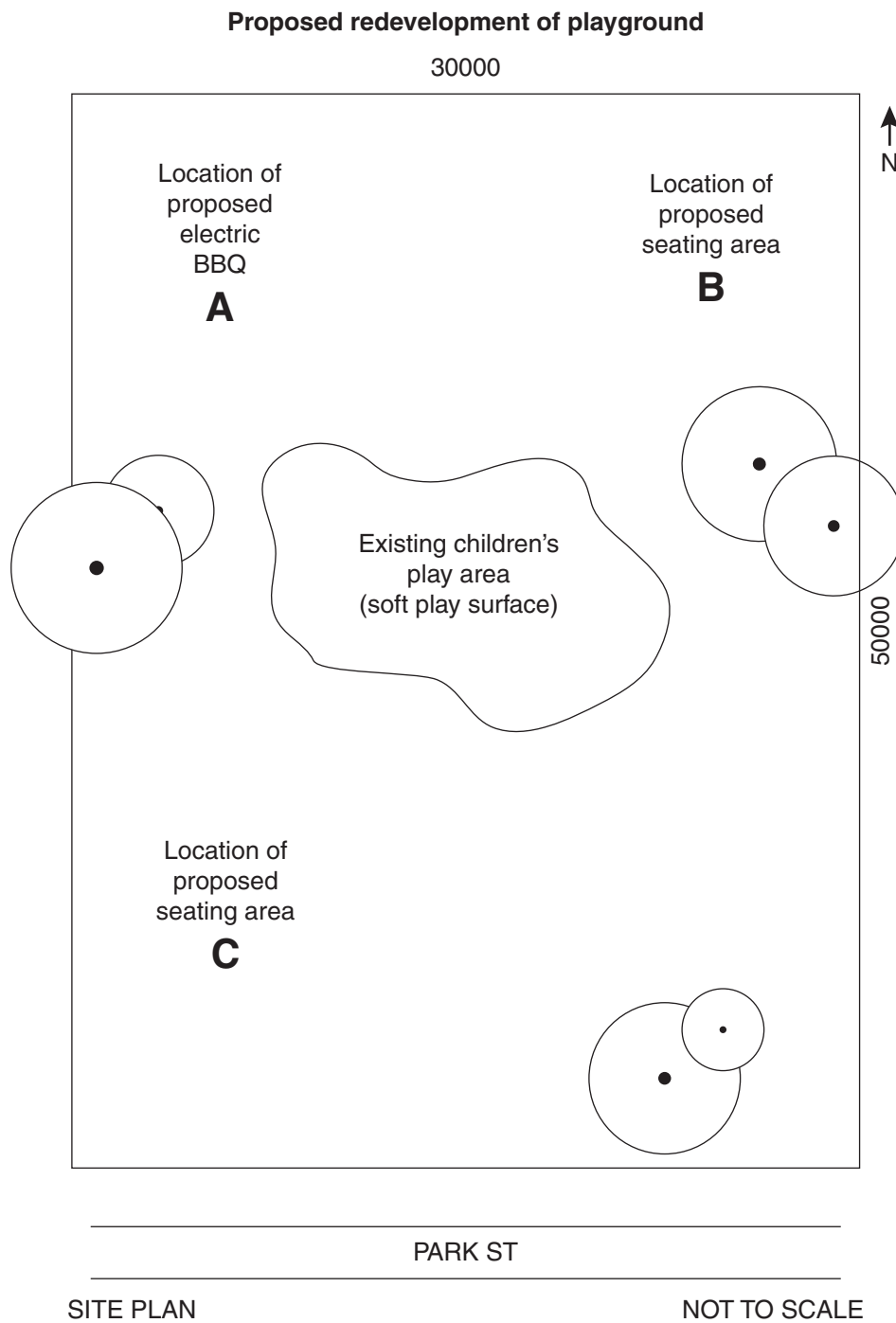
A playground area is to be redeveloped to include additional decks for seating and for a BBQ. Details of this redevelopment are on pages 19 and 20.

- (a) Explain how the site for the proposed redevelopment would be set up for construction to commence. **6**
- (b) Identify and justify the work sequencing for the construction of the seating and BBQ areas for the proposed redevelopment of the playground. **9**

End of paper

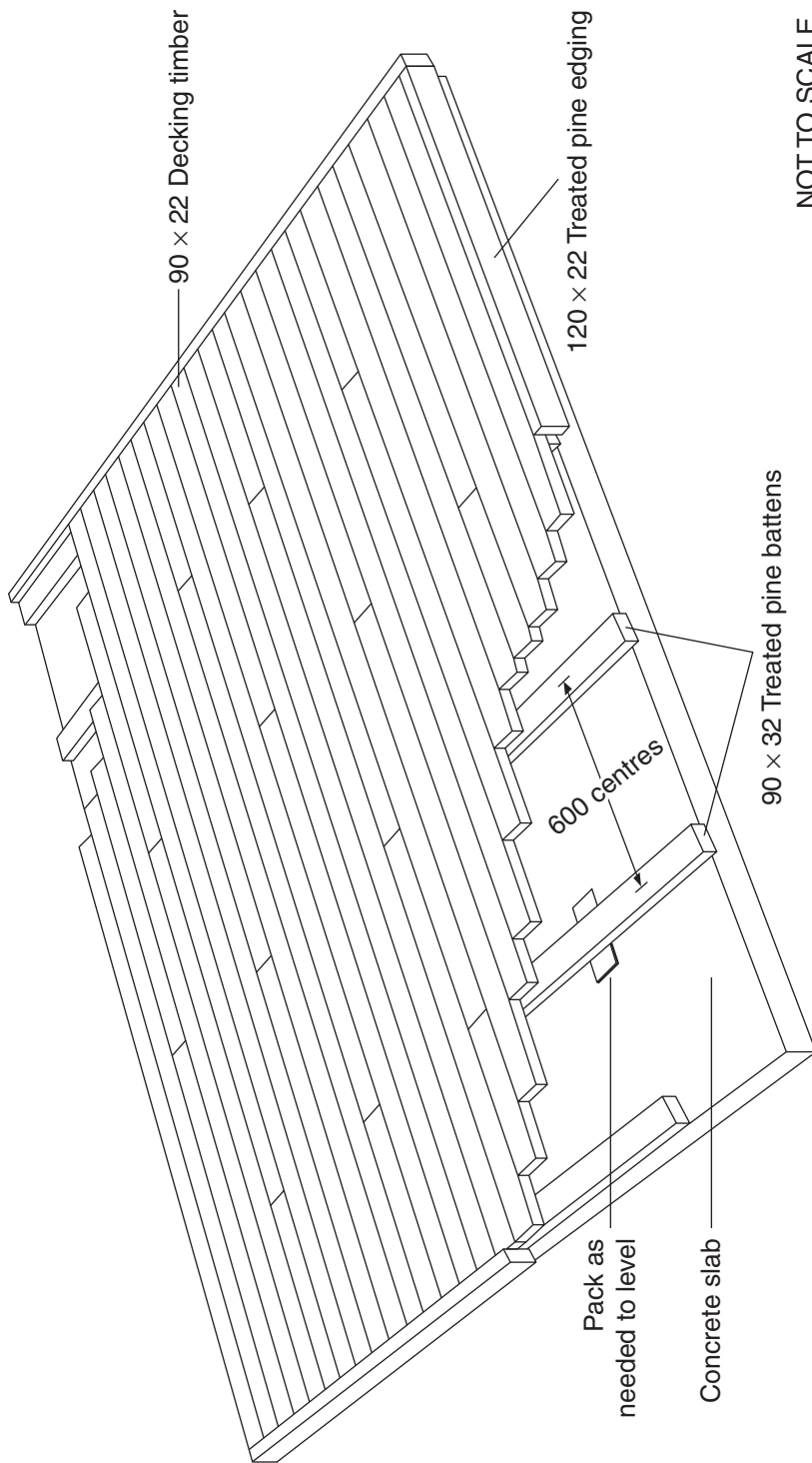
Construction

Detach this sheet and use the information to answer Questions 20 and 22.



Please turn over

Deck structure



Detail of concrete slabs for areas A, B and C

Area	W	L	D
A	2070	3000	125
B	2500	4000	125
C	3000	3500	125