BOARD OF STUDIES
NEW SOUTH WALES

2003

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 15 minutes for this section

Section II Pages 9–16

35 marks

- Attempt Questions 16–25
- Allow about 45 minutes for this section

Section III Page 17

30 marks

- Attempt TWO questions from Questions 26–28
- Allow about 1 hour for this section

Section I

15 marks
Attempt Questions 1–15
Allow about 15 minutes for this section

Use the multiple-choice answer sheet.

Select the alternative A, B, C or D that best answers the question. Fill in the response oval completely.

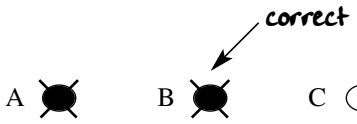
Sample: 2 + 4 = (A) 2 (B) 6 (C) 8 (D) 9

A ○ B ● C ○ D ○

If you think you have made a mistake, put a cross through the incorrect answer and fill in the new answer.

A ● B ⊗ C ○ D ○

If you change your mind and have crossed out what you consider to be the correct answer, then indicate the correct answer by writing the word **correct** and drawing an arrow as follows.



A ⊗ B ⊗ C ○ D ○

1 What does it mean when an installed temporary electrical pole is plumb?

(A) It is in use.

(B) It is vertical.

(C) It is certified safe.

(D) It is anchored safely.

2 Which of the following would be the most appropriate way to determine the flammability of a material on site?

(A) Check vapours.

(B) Refer to its MSDS.

(C) Measure its specific gravity.

(D) Set fire to a small portion of the material.

3 Which of the following would NOT be available from a floor plan?

(A) Roof pitch

(B) Roof outline

(C) Dimensions of individual rooms

(D) Thickness of external and internal walls

4 What is the volume of concrete required to construct a column 6 m high with a diameter of 750 mm?

(A) 14.14 m^3

(B) 10.60 m^3

(C) 4.50 m^3

(D) 2.65 m^3

5 Which of the following tools would be most suitable for producing a neat ∅200 mm hole in 20 mm form plywood on site?

(A) Jig saw

(B) Circular saw

(C) ∅200 mm twist drill

(D) ∅200 mm pneumatic hole punch

6 Which of the following activities requires a WorkCover inspector to visit a building site?

(A) Investigation of a serious accident

(B) Overseeing the removal of asbestos

(C) Certification of scaffolding above four metres

(D) Inspection of steelwork prior to a concrete pour

7 What is the main purpose of a 'safe work method statement'?

(A) To manage project hazards

(B) To control production costs

(C) To allow scheduling of work

(D) To document personnel qualifications and management

8 Which of the following tools would be most appropriate to set out level and square on a construction site?

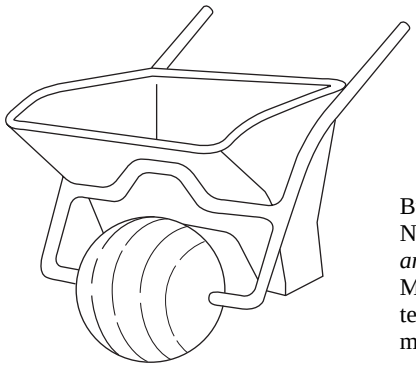
(A) Water level

(B) 1200 mm spirit level

(C) Automatic telescopic level

(D) Self-retracting measuring level

9 For what purpose might a builder choose the barrow shown in place of a standard builder's barrow?



Building and Construction Training Division, NSW TAFE Commission, 1996, *Basic Building and Construction Skills*, Longman Australia, Melbourne (internet reproduction limited to teachers and students; otherwise permission must be sought from Pearson Education Australia).

(A) Moving bulky materials

(B) Moving a light load up stairs

(C) Moving materials along planks

(D) Moving materials over soft ground

10 A construction worker on a large construction site has a safety concern. To whom should the concern be initially reported?

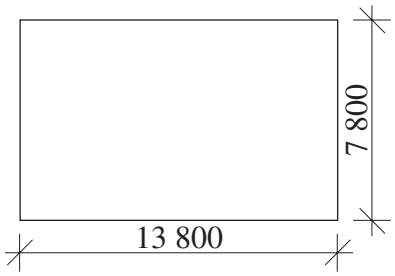
(A) The supervisor

(B) The site manager

(C) The union representative

(D) The WorkCover inspector

11 Which of the following would be the best method for a builder to check the set-out for 'square' when constructing the concrete slab shown in the floor plan?



Floor plan

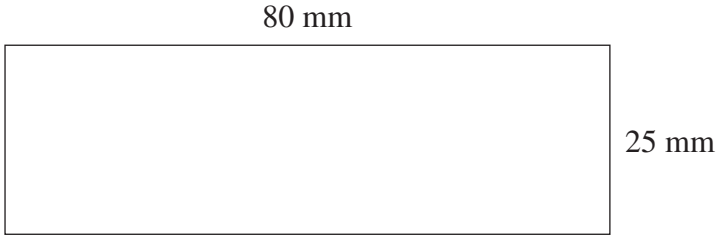
(A) Check that the floor is 'in wind'.

(B) Check that at least two angles are right angles.

(C) Confirm that the diagonals are the same length.

(D) Confirm that two edges are the same length.

12 The shape below represents an area of land drawn to a scale of 1 : 200. What is the area of land represented by the shape?



(A) 0.4 m^2

(B) 80 m^2

(C) 400 m^2

(D) 8 000 m^2

13 What would be the best method of noise management on a construction site?

(A) Use PPE.

(B) Restrict the noise at the source.

(C) Pay workers above-award rates.

(D) Rotate the workers to different tasks.

14 What is the correct symbol for 'infectious substance'?

(A) 

(B) 

(C) 

(D) 

15 Which of the following requires particular preparation before disposal as landfill?

(A) Broken sheets of glass

(B) Empty paint containers

(C) Broken fibrous cement sheeting

(D) Off-cuts of plasterboard sheeting

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Construction

Centre Number

Section II

Student Number

35 marks
Attempt Questions 16–25
Allow about 45 minutes for this section

Answer the questions in the spaces provided.

Marks

Question 16 (2 marks)

For the power supply types in the table below, list ONE major advantage and ONE major disadvantage. **2**

Power supply	*Major advantage*	*Major disadvantage*
Electric battery		
Pneumatic		

Question 17 (2 marks)

Outline the correct procedure for cleaning and storing paint brushes. **2**

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Question 18 (3 marks)

For each item of information in the table below, choose the drawing type that would be the most likely source of that information. **3**

Drawing types
Site plan
Floor plan
Elevation
Sectional elevation

Information	*Drawing type*
Depth of footings	
Stormwater drainage	
Room dimensions	
External cladding type	

Question 19 (1 mark)

What is the staff reading (in metres) as seen through the eyepiece of the level shown below? **1**

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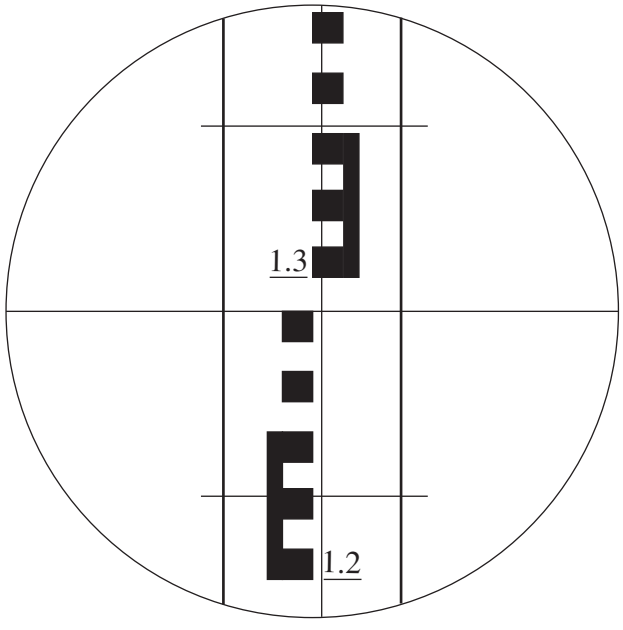
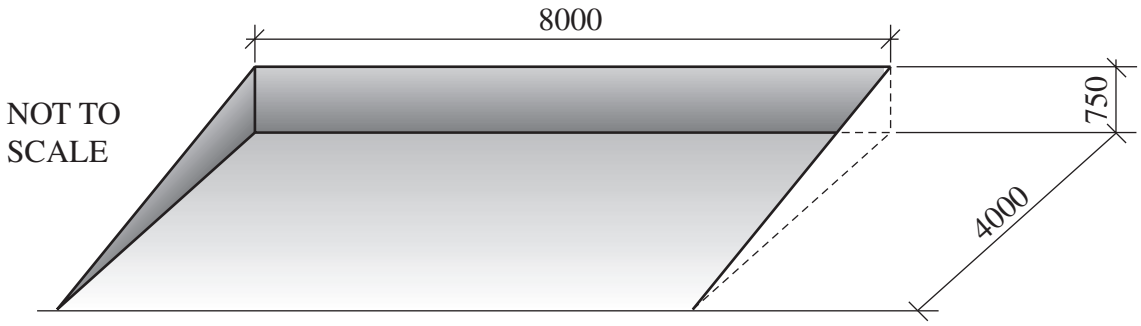


Marks

Question 20 (3 marks)

The diagram shows an excavation.



Measurements in mm

Excavated material bulks (increases in volume) by 15% once removed from its original position. Transportation skips hold 6 m^3 and cost $275.50 each to remove off-site. **3**

For the situation shown, calculate the cost of moving the excavated material off-site. (Show all working.)

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Marks

Question 21 (2 marks)

The construction industry uses many forms of communication to suit particular circumstances. **2**

Complete the table below by identifying the most appropriate method and its major advantage.

Circumstance	*Method*	*Major advantage*
To convey information about a site evacuation plan		
To establish an agreement to change working hours		

Construction

Centre Number

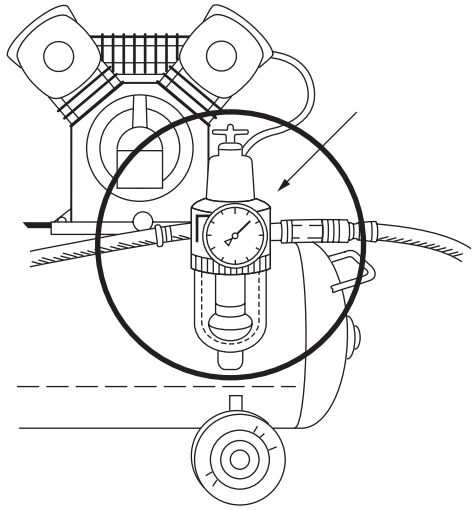
Student Number

Section II (continued)

Marks

Question 22 (4 marks)

Refer to the diagram of the machine shown below to answer parts (a) and (b).



(a) Outline TWO important functions of the component highlighted in the diagram. **2**

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(b) Describe ONE daily maintenance check that should be carried out, and explain its importance. **2**

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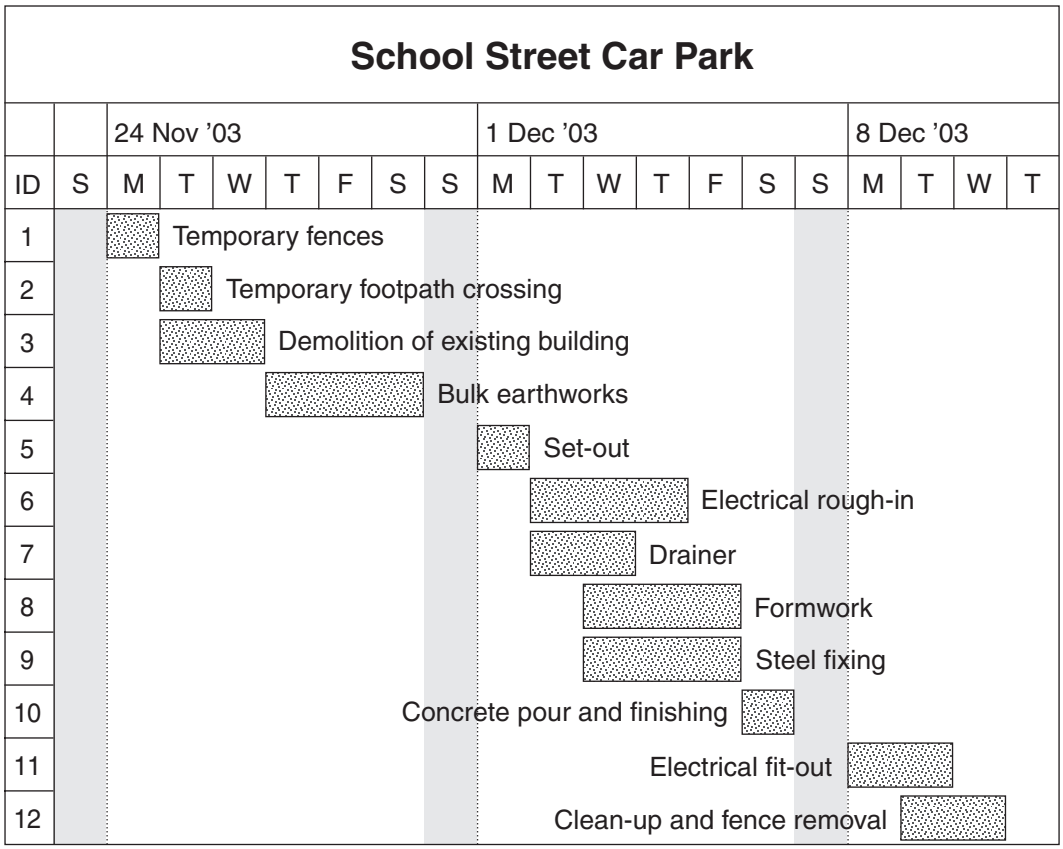
Marks

Question 23 (10 marks)

The diagram shows a work plan for a construction. Refer to the work plan to answer parts (a) to (d).



(a) What is the number of days the electrician is expected to be on site? **1**

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(b) List TWO primary considerations that should be taken into account by the site manager when developing the work plan. **2**

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Question 23 continues on page 15

Marks

Question 23 (continued)

(c) Give THREE examples of circumstances that could cause alteration to the work plan during construction. **2**

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(d) The work plan shows that Wednesday 3 December has significant management requirements. Explain the considerations the site manager would need to take into account for Wednesday 3 December. **5**

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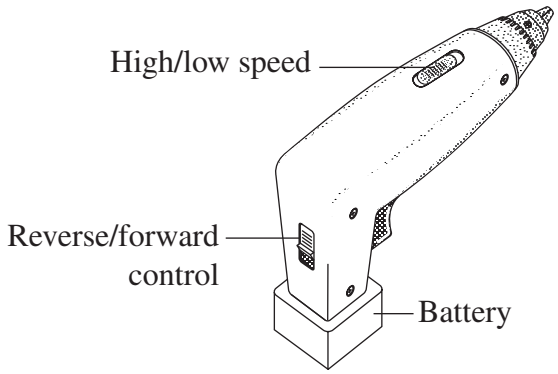
End of Question 23

Marks

Question 24 (2 marks)



List TWO important technical aspects of the battery that should be considered when purchasing a tool such as the one shown. **2**

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Question 25 (6 marks)

On construction sites, dust is an important environmental and OHS consideration. Identify and describe a range of measures that can be used to minimise the problem of dust. **6**

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Construction

Section III

30 marks
Attempt TWO questions from Questions 26–28
Allow about 1 hour for this section

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

In your answers you will be assessed on how well you:

- demonstrate relevant knowledge and understanding
- communicate ideas and information, using precise industry terminology and appropriate workplace examples
- organise information in a well-reasoned and cohesive response
- solve proposed issues or problems

Question 26 (15 marks)

Analyse issues that would need to be considered by management in the development and implementation of an emergency plan for a large construction site.

Question 27 (15 marks)

To be effective, construction firms need personnel who can measure and calculate accurately.

Justify this statement, using examples of different forms of measurement and calculation used by various industry personnel.

Question 28 (15 marks)

Constant change in materials and processes in the construction industry affects costs, tools, equipment, safety requirements, material handling techniques and skills.

Analyse the impact of these changes with the use of examples.

End of paper

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