

Affix label with Candidate Code
Number here.
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Number if known

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No. 9194



Plumbers,
Gasfitters and
Drainlayers Board

REGISTRATION EXAMINATION, JUNE 2010

CERTIFYING COMMON

QUESTION AND ANSWER BOOKLET

Time allowed **THREE** hours

INSTRUCTIONS

Check that the Candidate Code Number on your admission slip is the same as the number on the label at the top of this page.

Do not start writing until you are told to do so by the Supervisor.

Total marks for this examination: 100.

Write your answers and draw your sketches in this booklet. If you need more paper, use pages 13–17 at the back of this booklet. Clearly write the question number(s) if any of these pages are used.

All working in calculations must be shown.

Candidates are permitted to use the following in this examination:

Drawing instruments, approved calculators.

The following are NOT permitted in the examination room:

Any publications, Acts, Regulations, Codes of Practice, or Standards

Check that this booklet has all of 17 pages in the correct order and that none of these pages is blank.

YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION

QUESTION 1

Give the meaning of the following terms.

(a) Fire resistance rating

(2 marks)

(b) Fire collars

(2 marks)

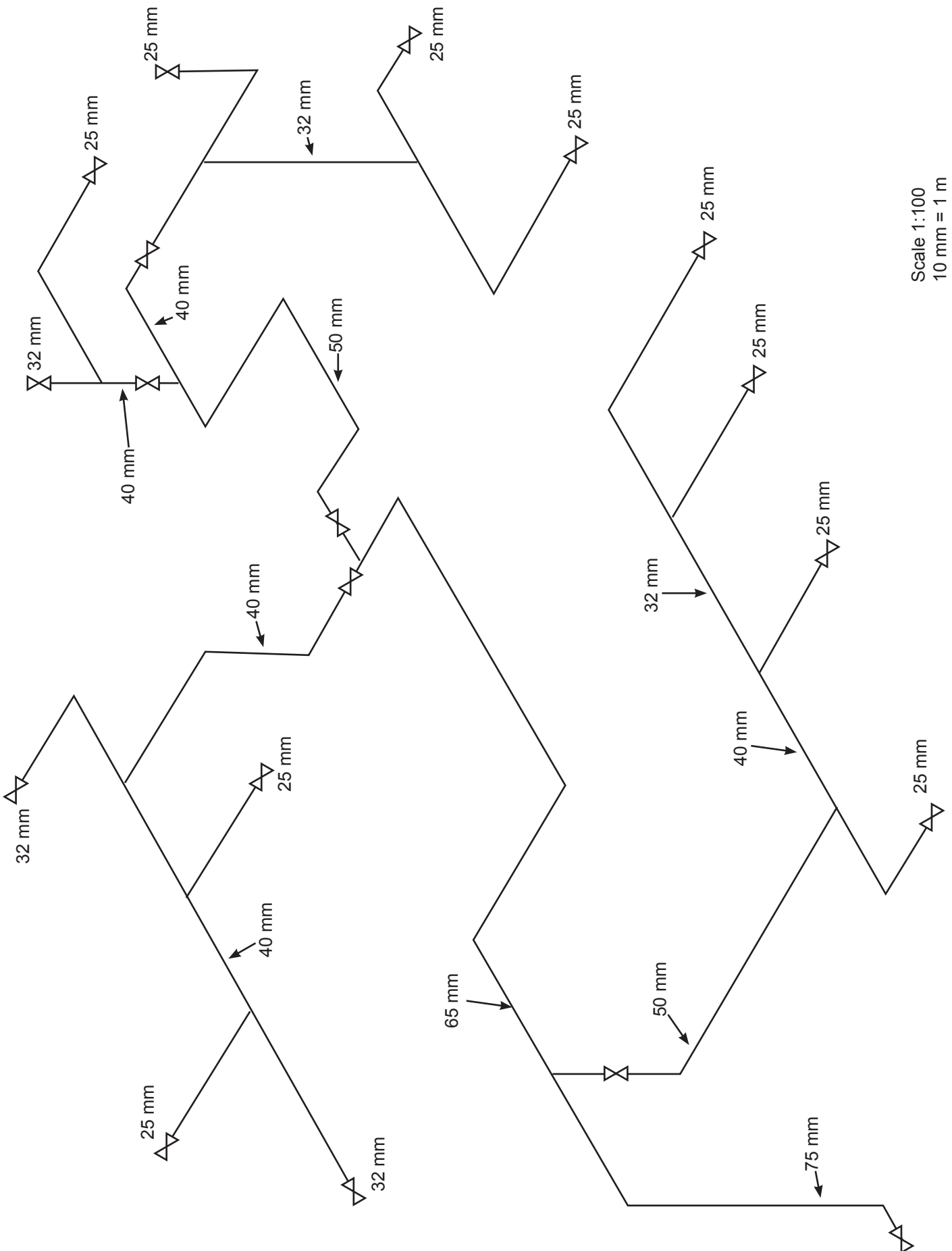
(c) Fire cell

(2 marks)

Total 6 marks

QUESTION 2

The following diagram shows an isometric view of a pipe layout.



Scale 1:100
10 mm = 1 m

QUESTION 2 (cont'd)

Using the diagram on page 2, measure the lengths and determine the quantities of materials required to complete the following schedule of quantities and prices.

Materials	Quantity	Unit	Rate \$	Net cost \$
75mm copper pipe		m	73.20	
65mm copper pipe		m	48.60	
50mm copper pipe		m	46.70	
40mm copper pipe		m	34.70	
32mm copper pipe		m	26.80	
25mm copper pipe		m	15.65	
75mm copper bends		Number	88.70	
65mm copper bends		Number	39.45	
50mm copper bends		Number	14.20	
40mm copper bends		Number	9.50	
32mm copper bends		Number	7.00	
25mm copper bends		Number	6.80	
Total number of copper tees		Number	30.20	
75mm valves		Number	333.10	
65mm valves		Number	207.30	
50mm valves		Number	81.80	
40mm valves		Number	51.30	
32mm valves		Number	34.20	
25mm valves		Number	22.90	
		SUBTOTAL		
		Add 12.5% GST		
		TOTAL		

Total 25 marks



QUESTION 3

- (a) A rectangular dormitory block has rooms each side of a central corridor. The block is heated by a hot air furnace located at one end. Additional rooms are to be added at the opposite end but are to be heated from the same source,

Give THREE design features of the heating and ventilation system that should be confirmed before work commences.

- 1 _____
- 2 _____
- 3 _____

(3 marks)

- (b) State the objective set out in the New Zealand Building Code Clause G4 Ventilation.

(1 mark)

- (c) State the performance requirements set out in the New Zealand Building Code Clause G4 Ventilation.

(2 marks)

- (d) A room measures 12.000 m long, 6.400 m wide and 2.900 m high. The room requires 2.5 air changes per hour and the temperature rise required is from 4°C to 21°C.

Calculate the heat energy in MJ/hr needed to heat the room.

Specific heat of air = 1.2 kJ/m³.

Formula:

Heat energy = Volume × specific heat of air × number of air changes × temperature difference.

(3 marks)

Total 9 marks

QUESTION 4

(a) A piping system is to be designed for an apartment block.

List SIX key design factors that should be considered when sizing the pipework for each part of the system.

- 1 _____
- 2 _____
- 3 _____
- 4 _____
- 5 _____
- 6 _____

(6 marks)

(b) Fluid is discharged from a 50 mm ID pipe at a velocity of 15 metres per second.

Calculate the volume of fluid discharged per second. Give your answer in litres/second. Show all working.

Formula:

$$Q = V \times A$$

where

Q = quantity of fluid in m³/second

V = velocity in m/second

A = area in m²

(3 marks)

Total 9 marks

QUESTION 5

Answer the following in relation to the Health and Safety in Employment Act.

- (a) State an employer's general obligations regarding employee participation in workplace health and safety.

(1 mark)

- (b) List the THREE parties involved in the setting up and maintenance of an employee participation system.

1 _____

2 _____

3 _____

(2 marks)

- (c) Explain when an employee participation system must be developed.

(2 marks)

- (d) Give TWO examples of the functions of an employee participation system.

1 _____

2 _____

(2 marks)

- (e) State who assumes the responsibility for organising the election of a health and safety representative.

(1 mark)

Total 8 marks

QUESTION 6

The Health and Safety in Employment Act requires that, when an employee agrees, his/her health may be monitored.

- (a) For the employee to give informed consent for his/her health to be monitored, certain criteria must be met.

Give TWO of these criteria.

1 _____

2 _____

(2 marks)

- (b) Give TWO reasons for monitoring an employee's health.

1 _____

2 _____

(2 marks)

- (c) If an employee needs to have his/her health monitored, he/she should be given specific information.

Give FOUR of the pieces of information he/she needs to be given.

1 _____

2 _____

3 _____

4 _____

(4 marks)

Total 8 marks

QUESTION 7

A sub-contractor has secured a contract for an apartment building comprising 70 apartment units. Each unit has two appliances each weighing 300 kilograms.

One morning, the site foreman tells the sub-contractor that all of the appliances are to be altered from floor mounted to wall mounted. He tells the sub-contractor that he will authorise the variation and the work can be done on a cost-plus basis. He asks the sub-contractor to begin the work immediately.

In answering the following questions, consider ONLY contract and consent implications.

- (a) Detail what implications the variation raises in terms of the existing plan and consent.

(2 marks)

- (b) Explain how the sub-contractor should respond to the foreman.

(2 marks)

- (c) Give the consent and contractual processes that are required.

(6 marks)

Total 10 marks

QUESTION 8

(a) Give SEVEN important factors other than legislative requirements that should be considered before submitting a tender for a contract.

- 1 _____
- 2 _____
- 3 _____
- 4 _____
- 5 _____
- 6 _____
- 7 _____

(7 marks)

(b) Give THREE advantages of keeping up-to-date and accurate records of creditor and debtor transactions in a cash book.

- 1 _____
- 2 _____
- 3 _____

(3 marks)

Total 10 marks

QUESTION 9

- (a) Companies are required to pay Fringe Benefit Tax (FBT) on any payments to employees that are made in kind rather than in cash.

List FOUR parties who are regarded as employees for the purposes of FBT.

- 1 _____
- 2 _____
- 3 _____
- 4 _____

(4 marks)

- (b) (i) State whether or not partners in a partnership are liable for FBT.

- (ii) State whether or not sole traders are liable for FBT.

(1 mark)

- (c) A plumber and gasfitter is supplied with a company vehicle. The vehicle is available for private use on seventy six days of a ninety day period. The purchase price of the vehicle, including GST, was \$38 750.00

Calculate the value of the benefit.

Formula:

$$\text{Value of benefit} = \frac{Y \times Z}{90}$$

where

Y = the number of days the vehicle is available for private use

Z = 6% of the GST inclusive purchase price of the vehicle.

(3 marks)

Total 8 marks

QUESTION 10

(a) There are several grounds on which employers cannot discriminate against current or prospective employees.

Give SIX of these grounds.

- 1 _____
- 2 _____
- 3 _____
- 4 _____
- 5 _____
- 6 _____

(3 marks)

(b) Give FOUR different examples of business activities that would be in breach of the Fair Trading Act.

- 1 _____
- 2 _____
- 3 _____
- 4 _____

(4 marks)

Total 7 marks

For Examiner's use only

Question number	Marks	Marks
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
Total		