

Plumbing, Gasfitting & Drainlaying Exam Preparation

Workbook 2

Step 1

Reading exam questions

In your study you will need to practise answering exam questions.

You'll notice some questions are long. They give a lot of information which must be considered in your answer.

They use formal language and instead of starting with "What, Why, How" etc they start with an instruction such as "Explain, Describe, Give the reason for" etc.

These instruction verbs tell you what sort of information the marker is looking for.

Browse through the 'Instruction Verb' handout at the end of this workbook. This is an excellent resource. Pin it on the wall where you do your study.

You need effective strategies for accurately reading and understanding exam questions.

Try this one out:

Strategy for "unpacking" exam questions

Take time to read each question. A good rule is to read it at least 3 times before you start to answer.

1. Read it once slowly. Ask yourself: What is the question about? (What are you being tested on?)
2. Read it a second time and do 2 things - **first underline or highlight** the subject (one or two words that the question is about), **then circle** the instruction word/s.
3. Read it again to check you absolutely understand it.



Practise “unpacking” these exam questions

(answers at end of workbook)

1. Describe what can happen to copper products if they are exposed to continual vibration. (1 mark)

2. (a) State the common term used to describe water that has a high calcium carbonate content. (1 mark)

(b) Describe a common complaint that results from the type of water in (a) being supplied to a house, and give a possible remedy. (2 marks)

Complaint:

Remedy:

3. All gas appliances that are intended for installation in New Zealand must meet certain requirements.

Compliance information is available so installers can ensure that the appliances that they are installing meet these requirements.

(a) Name the government agency responsible for managing the database that contains this information. (1 mark)

(b) State where the compliance declarations for appliances can be found. (1 mark)

4. List FOUR types of flame failure devices found in domestic or commercial gas appliances. (2 marks)

- 1.
- 2.
- 3.
- 4.

5. A 110 mm diameter uPVC drain pipe 85 metres long is to be laid. (5 marks)

The pipe is to be laid on 50mm of granular bedding and backfilled to 100mm above the pipe using the same material.

The trench width is to be 450mm.

Allowance is to be made for compaction of 25%.

Calculate in cubic metres (m³) the volume of granular bedding required to complete the job. Show your working.

Formula: Volume of pipe = $L \times D \times D \times 0.7854$

where L = length, D = diameter

Multiple Choice Questions

Answer the following multiple choice questions by writing your answer (A, B, C, D or E) in the box provided after each one of the questions.

Each correct answer in this section of the examination is worth 1 mark.

Note that should your choice of answer be unclear in this section of the examination no marks will be awarded for that question.

6. How many litres of water per person need to be stored in the event that the water supply to a community care facility is interrupted?

- A 20 litres
- B 30 litres
- C 40 litres
- D 50 litres
- E 60 litres

7. Which of the following does NZS 5262 cover?

- A Storage and Handling of Gas
- B Gas Appliance Safety
- C Underground Marking Tape
- D Gas Detection and Odourisation
- E Gas when used as a Propellant

8. What is the minimum allowable capacity of a grease trap?

- A 50 litres
- B 100 litres
- C 125 litres
- D 150 litres
- E 200 litres

Step 2

Answering exam questions

Look at the marks allocated. If it's worth 2 marks, the marker will usually be looking for 2 parts to your answer.

If it's worth 1 mark, but asks for two things (e.g. TWO reasons) each will be worth half a mark.

HINTS

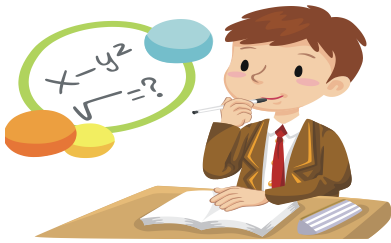
- Draw diagrams or notes alongside to help you 'unpack' a question. Cross these out afterwards so the marker knows not to mark them.
- For longer questions (e.g. 'Describe the sequence...') jot down your memorised notes, then write your answer in full. Cross out your notes afterwards so they're not marked.
- If a question is worth 2 marks, proofread to check you have 2 parts to your answer.
- Proofread to check your answer has clearly used the key words and shown you know the key understandings for this topic.
- Usually the number of lines indicates the length of answer expected.
- Don't write too much. You won't get any more than the possible total marks and you could waste precious time.
- BUT do give enough detail to show you know the answer. Don't assume the marker can read your mind.

Drawings

- Make drawings as large and simple as possible. Label them clearly. Write neatly.
- If you leave a drawing in pencil it will still be marked. Markers will write across it in red pen "PENCIL". If you apply for a re-mark the drawing may not be considered.



Calculations



- Are you going to have to convert?
- Underline the units of measurement in the question (cm /mm/ kJ)
- Which units should you answer in? If it's a quantity calculation (e.g. how many sheets of roofing iron) you'll need to round your answer up to the next whole number. **Highlight this** or note it somewhere on the page so you remember, e.g. at the bottom where you'll write your answer.
- What do you have to find out? What facts do you have? Draw a sketch or table to help you plan your answer. Always show your working! Then the marker can see where you went wrong if you get the wrong answer.
- Use a calculator but show each step of your working. Set it out neatly, so your answers line up under each other (this is so the marker doesn't have to guess where to look for each step).
- If you make a mistake and have to start again, remember you can ask for extra paper. Label this with the question number AND your candidate number.

Take care:

Don't shift the decimal point or copy numbers incorrectly halfway through the calculation.

Do give the answer to the correct decimal place (if specified). Showing each step will show the marker if/where you have rounded.

Do round your final answer to whole units if required in the question (e.g. whole sheets of roofing iron).

Do answer in the units given in the question.

Do use estimation to check your answer.

Step 5

On the day...

How to survive the 3 hours

- 100 marks for 180 mins
- $1\frac{1}{2}$ mins per mark (roughly) = 150 mins, leaving 30 mins checking time
- Check each answer quickly after writing it.
- Even though you've had enough and really want to leave, try to leave time at the end to PROOF READ the whole exam carefully. Read each question carefully again. Check that each answer makes sense AND answers the question.
- Check your calculations.
- Check your drawings are correct and labeled.

How do you avoid panicking and forgetting what you've studied?

- Have key words and phrases memorised.
- Jot down your facts as soon as you start, so you don't have to keep remembering them.
- Remember to breathe, stretch, put down your pen and look up every now and then (even if it's only to look at the clock!)
- Have a plan. Read through the whole exam first. Plan to answer the easy questions first or work through in order or do the calculations questions first.
- Don't spend too much time on one question. If you don't know it, move on and come back to it at the end. Sometimes another question will help you answer the one you were stuck on.
- Keep a look out for open book questions - they will not be labeled as "open book".

Past exam papers and answers are available on the Board website. Do not base all of your study on these, as the questions change from year to year. They do however give you a good idea of how the questions are written and opportunities to practise your exam skills.

Markers' reports are also available on the Board website. These give a good insight into how questions have been answered in the past, including common mistakes.

Instruction verbs in exam questions

The word that tells you what you have to do

The verb in a question is the key word in identifying what you need to do.

Define – give a precise statement of the meaning of a term

Describe – specify the features or characteristics of an object or process; compare with explain (eg describe a process for testing and commissioning a gas appliance).

Explain – state what happens, tell me how/tell me why; involves more than describe (eg explain how a particular type of valve works).

Give – provide; the specific interpretation will depend on what follows, and could range from giving facts to giving a detailed analysis (eg give reasons for the component steps in a particular operation in the required order).

Give examples of – provide specific cases.

List – provide required items with names only.

Name – give actual name(s) but no other details (eg name the legislation containing particular requirements).

Outline – give general ideas only without detail (eg outline how a pump operates).

State – cite without any detail, and normally used in association with clearly identified facts (eg state three requirements that must be met when installing a particular system)

Suggest – propose; provide possibilities not necessarily based on known facts or events; the specific interpretation will depend on what follows (eg suggest reasons for the failure of a device).

Principle = underpinning theory or general law/rule in science

The **purpose** of a piece of equipment is its reason for being, e.g. the main purpose of a ventilation ducting system is to mechanically ventilate a room or house to reduce indoor moisture, odours and pollutants.

The **function** of that piece of equipment is what it does to achieve the **purpose**, e.g. the function of a ventilation ducting system is to draw air from the outside and remove stale internal air. By doing this function the ducting system achieves its purpose which is to mechanically ventilate...

Practise “unpacking” these exam questions
ANSWERS and EXPLANATION

People will highlight more or fewer words and that's OK. In going through the process you've been made to slow down and read the whole question really carefully, 3 times.

2. Describe what can happen to **copper products** if they are exposed to continual **vibration**. (1 mark)

Answer: The copper can become fatigued/work hardened causing it to fracture or split

What's the question about? (What are they testing you on?) Your knowledge of copper products - when exposed to vibration.

What do you have to do? See "Instruction Verbs" - describe means *specify the features or characteristics of an object or process* - I think of it in everyday terms - i.e. describe it to me, tell me what it looks like

Only worth 1 mark. The number of lines indicate the length of answer required.

3. (a) State the common term used to describe **water** that has a **high calcium carbonate** content. (1 mark) **Hard water**

(b) Describe a **common complaint** that results from the type of water in (a) being **supplied to a house**, and give a **possible remedy**. (2 marks)

Complaint: (1 mark for any one) Soap not lathering, staining, calcium deposits

Remedy: (1 mark for any one) Water conditioner, water softener, ion exchangers, heating water above 70 degrees C

What's the question about? Water with high calcium carbonate

What do you have to do? See the "Instruction Verb" handout for "state" (*cite without any detail*).

Note the answer is set out in 2 parts for you to give the 1) complaint and 2)remedy.

1 mark for each answer.

3. All gas appliances that are intended for installation in New Zealand must meet certain requirements.

Compliance information is available so installers can ensure that the appliances that they are installing meet these requirements.

- (c) Name the government agency responsible for managing the database that contains this information. (1 mark) **Ministry of Economic Development**
- (d) State where the compliance declarations for appliances can be found. (1 mark) **Either Energy Safety or ES**

Here there's important info in each line. Remember to read the whole question first, then highlight on the second reading. Do one sentence at a time. So what's important/what are you highlighting in the first sentence? What are they testing you on?

What do you have to do? Name... and State...

1 mark for each answer.

4. List FOUR types of flame failure devices found in domestic or commercial gas appliances. (2 marks)

Thermo Electric Flame Failure Device (TEFFD)
Flame Rectification
Mercury Vapour Valve/Liquid Expansion
Ultra Violet Photo Sensitive Cell
Infrared Sensing

What is the question about? Flame failure devices

What do you have to do? List 4.

I'm being selective with my highlighting here. I've noted to myself that it's domestic or commercial appliances so chose not to highlight those, but thought I should remember the OR is important.

People will highlight more or fewer words and that's OK. In going through the process you've been made to slow down and read the whole question really carefully, 3 times.

5. A 110 mm diameter uPVC drain pipe 85 metres long is to be laid.

The pipe is to be laid on 50mm of granular bedding and backfilled to 100mm above the pipe using the same material.

The trench width is to be 450mm.

Allowance is to be made for compaction of 25%.

Calculate in cubic metres (m^3) the volume of granular bedding required to complete the job. Show your working.

Formula: Volume of pipe = $L \times D \times D \times 0.7854$ where L = length, D = diameter

Remember to show all working. In the exams, all calculations questions have the instruction SHOW YOUR WORKING. Always show your working as there will be marks allocated for each step of the calculation.

Even if you have the wrong answer at the end you may pick up 3 marks for getting the first 3 steps correct. Showing your working helps the marker see how you've worked it out, where you've rounded etc, and helps you proof read your work, especially if your answer seems unreasonable. (You should also always use estimation to check your answer is reasonable.)

Take care when you set out your answer. Show each step, directly underneath the next, not all over the page, or the marker won't be able to follow it. If you have lots of crossings out and it is hard to follow, write it out again neatly if need be. See the exam answers for setting out.

**Highlight *cubic meters* and note this at the bottom of the page before you start the calculation. Then you'll remember if you have to convert at the end.

See November 2010 Exam Answers on PGDB website for the working and how the 5 marks are allocated for each step of the calculation.

The final answer is 11.4 m^3

Multiple Choice Questions

Reading the instructions to the multichoice questions is so important!!! If you put the answer in the wrong place, e.g. circle the letter, it won't be marked.

Multichoice questions can be long and complex. Take time to practise reading and highlighting November 2010 and multichoice questions.

Use all six November 2010 and June 2011 (PGD + Certifying) exams just to get more practice on multichoice.

There is always a choice of 5 answers. If you're not sure of the answer usually you will be able to narrow it down to 2 most realistic answers. But there's also often 1 answer that you'd pick on your first 'guess' if you haven't read the question correctly. (sort of the 'literal' answer)

Answer the following multiple choice questions by writing your answer (A, B, C, D or E) in the box provided after each one of the questions.

Each correct answer is worth 1 mark. Note that should your choice of answer be unclear in this section no marks will be awarded for that question.

6. How many litres of water per person need to be stored in the event that the water supply to a community care facility is interrupted?

D 50 litres

7. Which of the following does NZS 5262 cover?

B – Gas Appliance Safety

8. What is the minimum allowable capacity of a grease trap?

B 100 litres