



- (b) Draw a cross-sectional sketch to show all of the requirements for a PE gas pipe laid under a driveway using an open trench method. Operating pressure 7 kPa. Show all depths.

(3 marks)

- (c) State TWO advantages of using PE compared to steel for an underground gas line.

(1) \_\_\_\_\_

\_\_\_\_\_

(2) \_\_\_\_\_

\_\_\_\_\_

(2 marks)

- (d) State THREE factors that need to be known to determine the diameter of a gas pipe.

(1) \_\_\_\_\_

(2) \_\_\_\_\_

(3) \_\_\_\_\_

(3 marks)

(Question 1 Total 14 marks)

**(Turn over**

QUESTION 2

- (a) A bare steel gas pipe is to be buried below ground and protected against corrosion with a tape wrapping system. State what materials should be used, the purpose of the materials, and a suitable process of wrapping.

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(5 marks)

- (b) Give TWO reasons why it is not recommended to lay a steel gas pipe directly on the ground.

- (1) 

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- (2) 

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(2 marks)

(c) State FOUR requirements and the purpose of each that must be met when a gas supply pipe is installed through a foundation wall of a building.

(1) \_\_\_\_\_

\_\_\_\_\_

(2) \_\_\_\_\_

\_\_\_\_\_

(3) \_\_\_\_\_

\_\_\_\_\_

(4) \_\_\_\_\_

\_\_\_\_\_

(4 marks)

(d) State FIVE requirements that must be met when a gas riser pipe is installed in a vertical duct with other services.

(1) \_\_\_\_\_

\_\_\_\_\_

(2) \_\_\_\_\_

\_\_\_\_\_

(3) \_\_\_\_\_

\_\_\_\_\_

(4) \_\_\_\_\_

\_\_\_\_\_

(5) \_\_\_\_\_

\_\_\_\_\_

(5 marks)  
**(Turn over**

(e) State TWO reasons for installing an **insulating joint** in a gas pipe at the point where the pipe comes out of the ground

(1) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

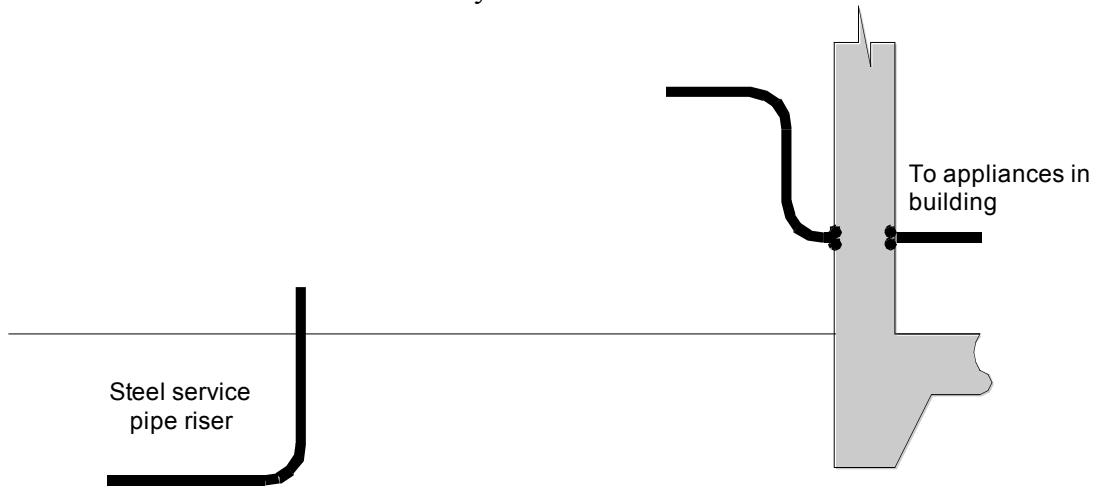
(2) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(2 marks)

(Question 2 Total 18 marks)

## QUESTION 3

- a) Complete the line diagram below to show the gas meter and associated equipment that is required to connect a metal gas service riser pipe to a domestic installation. Name each item. Give correct symbols.



(5 marks)

- b) Give TWO reasons why it is necessary to position the gas meter set clear of openings into the house.

(1) \_\_\_\_\_

\_\_\_\_\_

(2) \_\_\_\_\_

\_\_\_\_\_

(2 marks)

- c) If the gas meter test dial shows an advance of  $0.025 \text{ m}^3$  in 30 seconds calculate the hourly gas rate.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(2 marks)  
**(Turn over)**

d) When removing a gas meter why is it necessary to use a bridging strap?

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(1 mark)

(Question 3 Total 10 marks)

QUESTION 4

(a) When installing a domestic gas fired storage water heater installation state SIX factors that need to be considered in selecting the position for the appliance.

- (1) \_\_\_\_\_  
\_\_\_\_\_
- (2) \_\_\_\_\_  
\_\_\_\_\_
- (3) \_\_\_\_\_  
\_\_\_\_\_
- (4) \_\_\_\_\_  
\_\_\_\_\_
- (5) \_\_\_\_\_  
\_\_\_\_\_
- (6) \_\_\_\_\_  
\_\_\_\_\_

(3 marks)

**(Turn over**



(b) After commissioning a new gas fired water storage heater situated in a cupboard list FIVE points you would identify to the consumer relating to gas safety.

(1) \_\_\_\_\_

\_\_\_\_\_

(2) \_\_\_\_\_

\_\_\_\_\_

(3) \_\_\_\_\_

\_\_\_\_\_

(4) \_\_\_\_\_

\_\_\_\_\_

(5) \_\_\_\_\_

\_\_\_\_\_

(5 marks)

(Question 4 Total 8 marks)

QUESTION 5

- (a) With the aid of a neat diagram, describe the operation of a thermo electric flame failure device suitable for use on a domestic gas appliance.

(4 marks)  
(Includes 1 mark for diagram)

- (b) Explain the operation of a balanced flue gas appliance.

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(3 marks)

**(Turn over**

- (c) State THREE factors to be considered when positioning a wall hung flueless space heater in a hallway.

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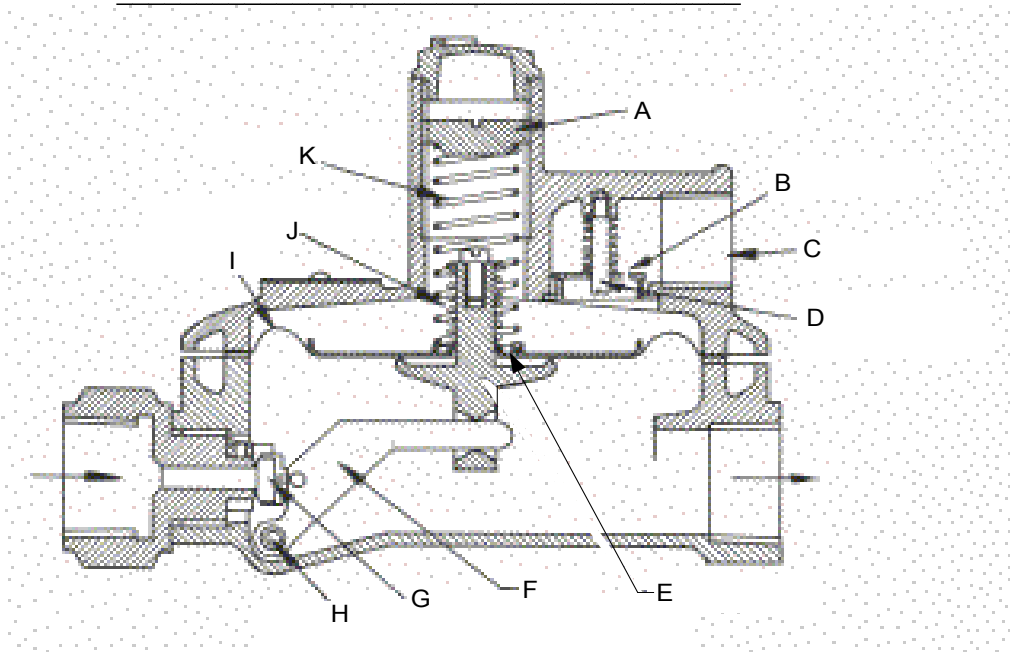
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(3 marks)

(d) Name the regulator type and name the parts A to K shown in the following illustration.

Name: \_\_\_\_\_

- A. \_\_\_\_\_
- B. \_\_\_\_\_
- C. \_\_\_\_\_
- D. \_\_\_\_\_
- E. \_\_\_\_\_
- F. \_\_\_\_\_
- G. \_\_\_\_\_
- H. \_\_\_\_\_
- I. \_\_\_\_\_
- J. \_\_\_\_\_
- K. \_\_\_\_\_



(6 marks)  
 (Question 5 Total 16 marks)  
**(Turn over**



(b) State where this type of radiant tube heater would usually be positioned in a warehouse. Give a reason.

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(2 marks)

(c) How are the products of combustion disposed of in a commercial kitchen which contains several gas-fired cookers and ovens?

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(2 marks)

(d) Name TWO safety devices which must be installed on a direct gas-fired air heater used to heat air in a workshop.

(1) \_\_\_\_\_  
\_\_\_\_\_

(2) \_\_\_\_\_  
\_\_\_\_\_

(2 marks)

**(Turn over**

(e) What is the purpose of the **purge period** for a direct fired gas heater?

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(2 marks)

(Question 6 Total 14 marks)

QUESTION 7

What is the purpose of installing a **vaporiser** on the outlet of an LPG bulk storage tank that supplies a large commercial installation?

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(2 marks)

(Question 7 Total 2 marks)

**(Turn over**



## QUESTION 8

List FOUR characteristics of a pre-aerated natural gas flame operating under good combustion conditions on a gas hob.

- (1) \_\_\_\_\_
- (2) \_\_\_\_\_
- (3) \_\_\_\_\_
- (4) \_\_\_\_\_

(2 marks)

(Question 8 Total 2 marks)

QUESTION 9

(a) State the two principle components of LPG.

(1) \_\_\_\_\_

(2) \_\_\_\_\_

(2 marks)

(b) What is an inert gas? Name one.

\_\_\_\_\_

\_\_\_\_\_

(2 marks)

(c) State two reasons why a gas flame appears yellow and floppy.

(1) \_\_\_\_\_

\_\_\_\_\_

(2) \_\_\_\_\_

\_\_\_\_\_

(2 marks)

(Question 9 Total 6 marks)

**(Turn over**

QUESTION 10

(1) State TWO requirements that must be met when selecting the position of an **open-vented** flue terminal.

(1) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(2) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(2 marks)

(2) What is the **minimum** permitted rise for a lateral run of flue pipe?

\_\_\_\_\_  
\_\_\_\_\_

(1 mark)

(Question 10 Total 3 marks)

QUESTION 11

List FIVE factors to be considered in selecting a suitable position for 2 x 100 kg LPG cylinders used to supply a commercial kitchen.

- (1) \_\_\_\_\_  
\_\_\_\_\_
- (2) \_\_\_\_\_  
\_\_\_\_\_
- (3) \_\_\_\_\_  
\_\_\_\_\_
- (4) \_\_\_\_\_  
\_\_\_\_\_
- (5) \_\_\_\_\_  
\_\_\_\_\_

(5 marks)

(Question 11 Total 5 marks)

**(Turn over**

QUESTION 12

Who, in addition to the gas supplier, must be sent copies of the Gasfitting Certification Certificate?

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(2 marks)

(Question 12 Total 2 marks)

For Candidate's use

Number of EXTRA sheets used (write NIL if none have been used).	
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For Examiner's use only

Questions Answered	Marks
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
Total	