ENERGY & UTILITY SKILLS

Skills for a greener world

Supporting Documents for

Level 3
Gas Engineering Operative
QAN 610/0233/1

EUSR

ENERGY & UTILITIES INDEPENDENT ASSESSMENT SERVICE

ENERGY & UTILITIES jobs

ENERGY & UTILITY SKILLS PARTNERSHIP

NSAP

Supporting Documents for

Level 3 Gas Engineering Operative

QAN 610/0233/1

Updates to the supporting documents

Since the first publication of the EUIAS Gas Engineering Operative supporting documents, the following updates have been made.

Version	Date first published	Section updated	Page(s)
V5.0	July 2024	Appendix C: Revised Practice Paper – Domestic. Added Practice Paper Non-Domestic and Practice Answer Sheet	9 - 42
V4.2	July 2023	Revised Practice Paper	8 - 26
V4.1	June 2023	Reference to TS7a and TS7b removed. Replaced with TS7	44
		Appendix G: Removed ‘C’ from ‘CK’ and ‘CS’	42 - 44
		Appendix H: Removed ‘C’ from ‘CK’ and ‘CS’	47 - 48
		Appendix I: Removed ‘C’ from ‘CS’	55 - 58
V4.0	May 2023	Rebranding supporting documents	All
V3.0	February 2023	Revised using new EUIAS supporting documents template	All
V2.0	June 2022	Revised supporting documents	All
V1.0	October 2021	First published	All

Appendix A: Glossary

Amplification – provides more detail on how individual knowledge, skills or behaviours statements should be interpreted. Where the KSB statements, themselves are deemed self-explanatory, no amplification is provided. Assessment may include questions on anything identified in the amplification

Behaviours –mindsets, attitudes or approaches needed for competence. Whilst these can be innate or instinctive, they can also be learnt. Behaviours tend to be very transferable. They may be more similar across occupations than knowledge and skills. For example, team worker, adaptable and professional

Elements – are the knowledge, skills and behaviours and what is needed to competently undertake the duties required for an occupational standard

Guidance – is only provided where it is required to support interpretation of the KSB statements

Gateway - the stage of the apprenticeship where the apprentice, employer and training provider determine whether the apprentice is ready to undertake End-Point Assessment

Knowledge – the information, technical detail, and 'know-how' that someone needs to have and understand to successfully carry out the duties. Some knowledge will be occupation-specific, whereas some may be more generic

Options / Pathways – a specialist route within an occupational standard that builds on the occupational competence for a new entrant to the occupation

Skills – the practical application of knowledge needed to successfully undertake the duties. They are learnt through on- and/or off-the-job training or experience

Standard – An occupational standard is a description of an occupation. It contains occupational profile, and describes KSBs needed for someone to be competent in the occupation's duties. The occupational standards are developed by employers for occupations that meet the Institute for Apprenticeships and Technical Education's current occupation criteria

Topic - is a collection of elements grouped into a theme e.g. Health and Safety

Appendix B: Gateway Eligibility Form

(Standard Version: ST0155 version 1.1; Assessment Plan Version: ST0155AP02)

Apprentice's name:	Apprentice's job title:
Name of Employer:	Name of Training provider:
Employer representatives present:	Training provider representatives present:
Apprenticeship start date:	Apprenticeship on-programme end date:
Gateway meeting date:	
Has the apprentice taken any part of the end-point assessment for this apprenticeship standard with any other End Point Assessment Organisation?	Y / N
If "Yes" please give details:	

Apprentice's details

Eligibility requirements:

The apprentice must confirm their achievement of the following:

Eligibility requirement	Achieved by the apprentice? Y/N	Evidence (Scans of certificates MUST be included)
Achieved Level 2 English		

Achieved Level 2 Maths		
Proof of Gas Safe® registration certification for a minimum of four appliances		
Work Log with mapping document		

Gateway Eligibility Declaration

The apprentice, the employer and the training provider must sign this form to confirm that they understand and agree to the following:

1. The apprentice has completed the required on-programme elements of the apprenticeship and is ready for end-point assessment with EUIAS.
2. The apprentice will only submit their own work as part of end-point assessment.
3. All parties agree that end-point assessment evidence may be recorded and stored by EUIAS for quality assurance purposes.
4. The apprentice has been on-programme for a minimum duration of 365 days.
5. The apprentice has achieved English and maths Level 2 as detailed in this document.
6. The apprentice has proof of Gas Safe® registration certification for a minimum of four appliances (the setting specialism and each appliance in which they are demonstrating competence in either natural Gas or Liquid Petroleum (LPG).
7. The apprentice has produced a work log which includes a mapping document. The mapping document has been placed at the front of the work log and submitted to EUIAS.
8. The apprentice, if successful, gives permission for EUIAS to request the apprenticeship. certificate from the ESFA who issue the certificate on behalf of the Secretary of State.
9. The apprentice has been directed to the EUIAS Appeals Policy and Complaints Policy.
10. The employer/training provider has given the EUIAS at least three months' notice of requesting this EPA for this apprentice.
11. If the Gateway Eligibility Report is not completed in full, meeting all requirements, and submitted to EUIAS, the end-point assessment cannot take place.

Signed on behalf of the employer (print name):	Signature:	Date:
Signed on behalf of the training provider (print name):	Signature:	Date:
Apprentice's name (print):	Signature:	Date:

EUIAS use only:	
EUIAS Sign off:	
Comments/actions:	

Appendix C: Practice Knowledge Tests

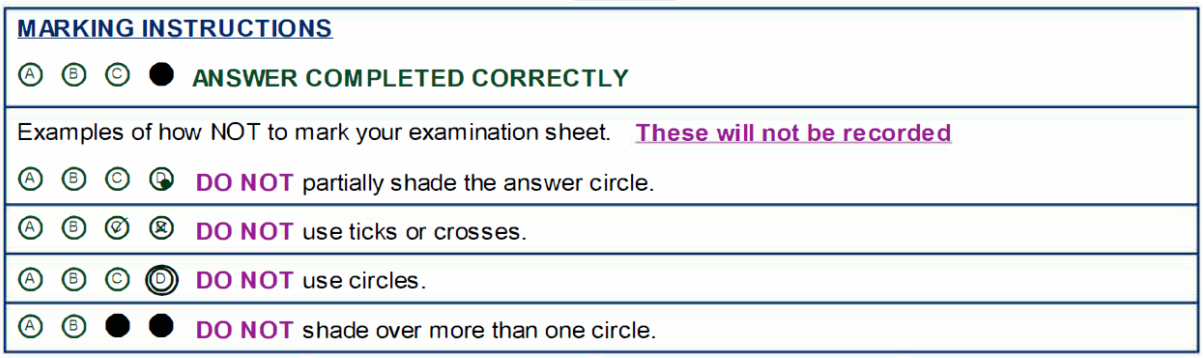
Level: 3

Gas Engineering Operative – Domestic

Paper Code: Practice Paper

This examination consists of 40 multiple-choice questions.
The Pass mark is 32 correct answers.
The Distinction mark is 36 correct answers
The duration of this examination is 60 minutes.
You must use a **pencil** to complete the answer sheet - pens must NOT be used.
When completed, please leave the examination answer sheet and question paper on the desk.

For each question, fill in ONE answer ONLY.
If you make a mistake, ensure you erase it thoroughly.
You must mark your choice of answer by shading in ONE answer circle only. Please mark each choice like this:



You may use this page for rough work. This page must not be removed.

Question 1	
According to the Health and Safety Executive (HSE), all workers must take care of their own Health and Safety as well as:	
Possible answers	
a)	take charge of first-aid arrangements in the workplace
b)	provide the necessary protection such as boots or gloves
c)	have a duty of care for those who may be affected by their actions
d)	work with a safety representative to ensure everyone is protected from harm in the workplace

Question 2	
The body responsible for enacting the Environment Act 1995 is called:	
Possible answers	
a)	The Environment Agency
b)	The Environment Commission
c)	The Environment Council
d)	The Environment Executive

Question 3	
When a manometer is connected at the meter test point with appliances operating, the expected operating pressure is:	
Possible answers	
a)	19 mbar ± 2
b)	20 mbar ± 2
c)	21 mbar ± 2
d)	22 mbar ± 2

Question 4	
Under maximum flow conditions, what is the maximum drop in pressure, in millibars (mbar), allowed across a gas-pipework installation?	
Possible answers	
a)	1 mbar
b)	2 mbar
c)	4 mbar
d)	8 mbar

Question 5	
Prior to carrying out a tightness test, why should you inspect the gas installation and appliances?	
Possible answers	
a)	To ensure pipework is correctly sized
b)	To ensure appliances are disconnected before the test
c)	To ensure any appliances and pilot lights are turned off
d)	To ensure all pipework meets the requirements of British Standards

Question 6	
The formula to calculate Volts is:	
Possible answers	
a)	Amperes × Ohms
b)	Amperes ÷ Ohms
c)	Watts × Ohms
d)	Watts ÷ Ohms

Question 7	
When pipe sizing, what factors must be considered when calculating the pressure loss across a pipework installation?	
Possible answers	
a)	Meter size, pipe fittings and circumference
b)	Pipe material, actual pipe length and fittings
c)	Pipe material, equivalent pipe length and diameter
d)	Nominal length, meter size and inlet pressure

Question 8	
A vitiation sensing device is designed to cut off the gas supply to the burner when:	
Possible answers	
a)	pilot temperature exceeds the burner ignition temperature
b)	pilot temperature reduces due to a reduction in oxygen levels
c)	pilot temperature exceeds the temperature of the appliance
d)	pilot temperature increases due to an increase in carbon monoxide levels

Question 9	
All personal protective equipment (PPE) provided for the purpose of protecting persons at work on or near electrical equipment shall be:	
Possible answers	
a)	provided by the company where work will be carried out
b)	maintained in a condition suitable for use by the workplace
c)	worn before entering the premises where work will be carried out
d)	manufactured by a company registered by the Health and Safety Executive

Question 10	
The gas industry publication which outlines the process for the safe isolation of gas appliances is called:	
Possible answers	
a)	Technical Bulletin 118
b)	Technical Bulletin 207
c)	Technical Bulletin 544
d)	Technical Bulletin 698

Question 11	
A short-circuit test is being conducted on a gas cooker with electrics. With the multimeter set on the Ohms scale (Ω,), a short circuit would be indicated by a reading of:	
Possible answers	
a)	0 Ω
b)	100 Ω
c)	500 Ω
d)	1000 Ω

Question 12	
Which gases do combustion analysers measure?	
Possible answers	
a)	Carbon monoxide, oxygen, and helium
b)	Carbon monoxide, oxygen, and nitrogen
c)	Carbon monoxide, oxygen, and hydrogen
d)	Carbon monoxide, oxygen, and carbon dioxide

Question 13	
When performing flue-gas analysis, which two substances are used to determine the combustion ratio?	
Possible answers	
a)	CO and O_2
b)	CO and CO_2
c)	O_2 and CH_4
d)	CH_4 and CO_2

Question 14	
The ignition temperature for natural gas is approximately:	
Possible answers	
a)	404˚C
b)	504˚C
c)	604˚C
d)	704˚C

Question 15	
What position should doors and windows be in when a spillage test is being carried out?	
Possible answers	
a)	Doors and windows should be open
b)	Doors and windows should be closed
c)	Doors should be closed, and windows should be left open
d)	Doors should be left open, and windows should be closed

Question 16	
When installing a fan-flued boiler, the maximum length of the fan-flue system is:	
Possible answers	
a)	1000 mm
b)	2000 mm
c)	as stated within the British Standard 5440 – part 2
d)	as stated within the manufacturer's instructions

Question 17	
When a defect is found after conducting the required checks of Gas Safety Regulation 26 (9), the gas engineering operative must take all reasonable practicable steps to notify:	
Possible answers	
a)	the person on-site
b)	the responsible person
c)	the person deemed as the key holder
d)	the person who allowed access to the premises

Question 18	
An appliance of which type of flue-system may be fitted within a bathroom compartment?	
Possible answers	
a)	Flueless
b)	Open flued
c)	Room sealed
d)	Natural draught

Question 19	
A domestic gas oven is installed in a room with an openable window direct to outside. The room has a volume of less than $5m^3$. What is the required size for the permanent ventilation?	
Possible answers	
a)	35 cm^2
b)	50 cm^2
c)	75 cm^2
d)	100 cm^2

Question 20	
When moving or lifting objects, what is the first option identified in the Manual Handling Operations Regulations 1992?	
Possible answers	
a)	To use mechanical lifting equipment if practicable
b)	To lift objects using more than one person at all times
c)	To abort the work if an item cannot be handled by one person
d)	To seek assistance from the customer or a neighbour if the item is too heavy

Question 21	
The set of regulations currently published in their 18^{th} Edition is the:	
Possible answers	
a)	Gas Safety Regulations 1998
b)	Provision and Use of Work Equipment Regulations 1998
c)	Working at Heights Regulations 2005
d)	IET Wiring Regulations 2018

Question 22	
Which ONE of the following situations would be reportable under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR)?	
Possible answers	
a)	The installation of a room sealed boiler in a kitchen compartment
b)	The installation of a gas hob in a room of volume less than 10 m3
c)	The installation of an open flued boiler in a bathroom
d)	The installation of a gas fire in a through-room

Question 23	
Which ONE of the following activities must be carried out when looking for a suspected gas escape at a property connected to a natural gas supply?	
Possible answers	
a)	Test all flues for safe operation
b)	Apply a tightness test to the installation
c)	Carry out safety checks on all appliances
d)	Test appliances for the presence of carbon monoxide

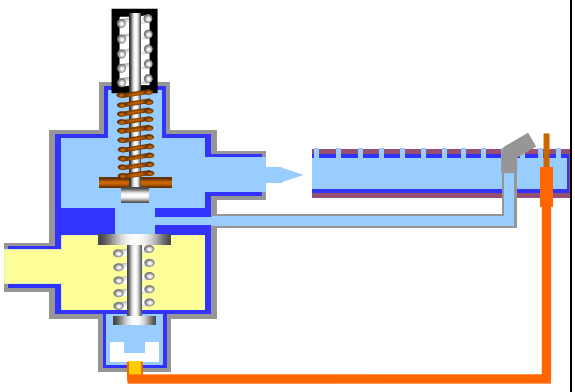
Question 24	
If a member of the public reports a smell of gas in their kitchen, what should the operative instruct them to do?	
Possible answers	
a)	Turn the gas off at the meter and call Gas Safe Register
b)	Turn the gas off at the meter and call a registered installer
c)	Turn the gas off at the meter and call the Local Authority
d)	Turn the gas off at the meter and call the gas emergency service

Question 25	
The type of gas space heater that is fitted within a fireplace opening, has a coal bed and an integral heat exchanger. What type of effect is this gas fire?	
Possible answers	
a)	A radiant fuel effect gas fire
b)	An inset live fuel effect gas fire
c)	A room-sealed fuel effect gas fire
d)	A semi-concealed fuel effect gas fire

Question 26	
Which appliance may contain a slow ignition device?	
Possible answers	
a)	A gas fire
b)	A gas cooker
c)	A ducted air heater
d)	A multipoint water heater

Question 27	
When calculating installation volume (IV) of a natural gas installation as per IG/UP/1B, what factor is applied to the calculation to account for fittings (IVf)?	
Possible answers	
a)	10% of meter volume
b)	10% of total pipe volume
c)	10% of appliance volume
d)	10% of total room volume

Question 28	
Which type of device causes a valve to be held in the open position when a pilot flame burns across two dissimilar metals joined at the tip?	
Possible answers	
a)	A pressure regulator
b)	A mercury-vapour valve
c)	A thermo-electric valve
d)	A solenoid valve



Question 29	
The type of flue system which rises from the top of the appliance, takes combustion air from outside and discharges products of combustion outside is called:	
Possible answers	
a)	An open flue
b)	A closed flue
c)	A combination flue
d)	A vertical balanced flue

Question 30	
An 'In-Home-Display' that is left with the customer after the installation of a Smart Meter provides the customer with details of:	
	Possible answers
a)	Their energy usage by day
b)	The date of the next gas bill
c)	The emergency contact number
d)	The appliances that have been installed

Question 31	
The type of appliance that can provide highly efficient home heating using the thermal energy stored in the earth is referred to as:	
	Possible answers
a)	an air source heat pump
b)	a sonic source heat pump
c)	a biomass source heat pump
d)	a ground source heat pump

Question 32	
When escaping liquefied petroleum gas (LPG) comes into contact with human skin, it could cause:	
Possible answers	
a)	a skin rash
b)	cold burns
c)	skin to peel
d)	mild concussion

Question 33	
An operative is checking if the location of liquefied petroleum gas (LPG) cylinders is correct. What is the minimum separation distance that must be maintained between the nearest cylinder and any un-trapped drains or cellar openings?	
Possible answers	
a)	500 mm
b)	1 metre
c)	2 metres
d)	3 metres

Question 34	
Which ONE of the following is covered under the Gas Safety (Installation and Use) Regulations 1998?	
Possible answers	
a)	Duties of landlords
b)	Gas appliance design
c)	Ignition temperatures
d)	Central heating pump settings

[Turn to the next page for question 35]

Question 35	
Where a load is too heavy for a gas engineer to lift and there is no help available, the gas engineer should:	
Possible answers	
a)	seek the assistance of a neighbour
b)	leave the load and not attempt the lift
c)	contact a colleague and relay the situation
d)	order a mechanical aid such as a forklift truck

Question 36	
The cause of a hob burner on a gas cooker burning with a floppy yellow flame could be:	
Possible answers	
a)	blocked primary air-port
b)	volume of room or space too high
c)	high oxygen content in secondary flame
d)	openable window located further than 300 mm from the appliance

Question 37	
Where a flue passes through a void, which ONE of the following must be provided?	
Possible answers	
a)	An inspection hatch every 1 metre
b)	Ventilation throughout its length
c)	A carbon monoxide (CO) detector at the outlet
d)	A means to allow a full visual inspection of the flue

Question 38	
What is the category of an unsafe situation where during a tightness test, the pressure drop recorded is greater than the permissible pressure drop relative to the meter size?	
Possible answers	
a)	At Risk
b)	Concern for Safety
c)	Immediately Dangerous
d)	Not to Current Standards

Question 39	
A self-sealing valve which is operated when a hose connection is inserted into it is called a:	
Possible answers	
a)	ball value
b)	pedestal elbow
c)	restrictor elbow
d)	bayonet connection

Question 40	
A device which generates a small electrical current when heat is applied to its tip where two dissimilar metals join together is called a:	
Possible answers	
a)	relay
b)	solenoid
c)	thermocouple
d)	Seebeck sensor

End of Questions

Practice Knowledge Test - Domestic

Answer scheme

Question	Answer
1	D
2	A
3	C
4	A
5	C
6	A
7	C
8	B
9	C
10	A
11	A
12	D
13	B
14	D
15	B
16	D
17	B
18	C
19	D
20	A

Question	Answer
21	D
22	C
23	B
24	D
25	B
26	D
27	B
28	C
29	D
30	A
31	D
32	B
33	C
34	A
35	B
36	A
37	D
38	C
39	D
40	C

Level: 3

Gas Engineering Operative: Non-Domestic

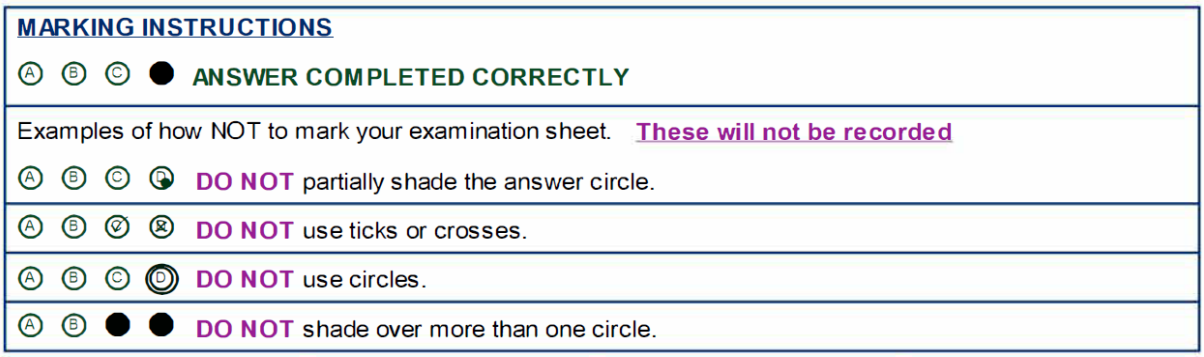
Paper Code: Practice Paper

This examination consists of 40 multiple-choice questions.

The Pass mark is 32 correct answers.
The Distinction mark is 36 correct answers
The duration of this examination is 60 minutes.

You must use a **pencil** to complete the answer sheet - pens must NOT be used. When completed, please leave the examination answer sheet and question paper on the desk.

For each question, fill in ONE answer ONLY.
If you make a mistake, ensure you erase it thoroughly.
You must mark your choice of answer by shading in ONE answer circle only. Please mark each choice like this:



You may use this page for rough work. This page must not be removed.

Question 1	
According to the Health and Safety Executive (HSE), all workers must take care of their own Health and Safety as well as:	
Possible answers	
a)	take charge of first-aid arrangements in the workplace
b)	provide the necessary protection such as boots or gloves
c)	have a duty of care for those who may be affected by their actions
d)	work with a safety representative to ensure everyone is protected from harm in the workplace

Question 2	
The body responsible for enacting the Environment Act 1995 is called:	
Possible answers	
a)	The Environment Agency
b)	The Environment Commission
c)	The Environment Council
d)	The Environment Executive

Question 3	
When a manometer is connected at the meter test point with appliances operating, the expected operating pressure is:	
Possible answers	
a)	19 mbar ± 2
b)	20 mbar ± 2
c)	21 mbar ± 2
d)	22 mbar ± 2

Question 4	
Under maximum flow conditions, what is the maximum drop in pressure, in millibars (mbar), allowed across a gas-pipework installation?	
Possible answers	
a)	1 mbar
b)	2 mbar
c)	4 mbar
d)	8 mbar

Question 5	
Prior to carrying out a tightness test, why should you inspect the gas installation and appliances?	
Possible answers	
a)	To ensure pipework is correctly sized
b)	To ensure appliances are disconnected before the test
c)	To ensure any appliances and pilot lights are turned off
d)	To ensure all pipework meets the requirements of British Standards

Question 6	
The formula to calculate Volts is:	
Possible answers	
a)	Amperes × Ohms
b)	Amperes ÷ Ohms
c)	Watts × Ohms
d)	Watts ÷ Ohms

Question 7	
When pipe sizing, what factors must be considered when calculating the pressure loss across a pipework installation?	
Possible answers	
a)	Meter size, pipe fittings and circumference
b)	Pipe material, actual pipe length and fittings
c)	Pipe material, equivalent pipe length and diameter
d)	Nominal length, meter size and inlet pressure

Question 8	
Which of the following is **NOT** a Flame Supervision Device (FSD)?	
Possible answers	
a)	Ultra-violet
b)	Flame rectification
c)	Thermo-electric
d)	Safety interlock

Question 9	
All personal protective equipment (PPE) provided for the purpose of protecting persons at work on or near electrical equipment shall be:	
Possible answers	
a)	provided by the company where work will be carried out
b)	maintained in a condition suitable for use by the workplace
c)	worn before entering the premises where work will be carried out
d)	manufactured by a company registered by the Health and Safety Executive

Question 10	
The gas industry publication which outlines the process for the safe isolation of gas appliances is called:	
Possible answers	
a)	Technical Bulletin 118
b)	Technical Bulletin 207
c)	Technical Bulletin 544
d)	Technical Bulletin 698

Question 11	
A short-circuit test is being conducted on a gas cooker with electrics. With the multimeter set on the Ohms scale (Ω,), a short circuit would be indicated by a reading of:	
Possible answers	
a)	0 Ω
b)	100 Ω
c)	500 Ω
d)	1000 Ω

Question 12	
Which gases do combustion analysers measure?	
Possible answers	
a)	Carbon monoxide, oxygen, and helium
b)	Carbon monoxide, oxygen, and nitrogen
c)	Carbon monoxide, oxygen, and hydrogen
d)	Carbon monoxide, oxygen, and carbon dioxide

Question 13	
When performing flue-gas analysis, which two substances are used to determine the combustion ratio?	
Possible answers	
a)	CO and O_2
b)	CO and CO_2
c)	O_2 and CH_4
d)	CH_4 and CO_2

Question 14	
The ignition temperature for natural gas is approximately:	
Possible answers	
a)	404˚C
b)	504˚C
c)	604˚C
d)	704˚C

Question 15	
What position should doors and windows be in when a spillage test is being carried out?	
Possible answers	
a)	Doors and windows should be open
b)	Doors and windows should be closed
c)	Doors should be closed, and windows should be left open
d)	Doors should be left open, and windows should be closed

Question 16	
When installing a fan-flued boiler, the maximum length of the fan-flue system is:	
Possible answers	
a)	1000 mm
b)	2000 mm
c)	as stated within the British Standard 5440 – part 2
d)	as stated within the manufacturer's instructions

Question 17	
When a defect is found after conducting the required checks of Gas Safety Regulation 26 (9), the gas engineering operative must take all reasonable practicable steps to notify:	
Possible answers	
a)	the person on-site
b)	the responsible person
c)	the person deemed as the key holder
d)	the person who allowed access to the premises

Question 18	
Gas Safety Regulation 26(9) states that where a person performs work on a gas appliance they shall immediately thereafter examine the:	
Possible answers	
a)	meter reading
b)	heating circuit
c)	effectiveness of the flue
d)	electrical supply to the appliance

Question 19	
There are 3 ventilation factors for catering establishments to maintain a comfortable environment, two of them are: 1. Replacement air for the room 2. Sufficient air for combustion What is the third factor?	
Possible answers	
a)	An extract system
b)	A suitable gas supply
c)	A safety-shut-off device
d)	A carbon monoxide (CO) detector

Question 20	
When moving or lifting objects, what is the first option identified in the Manual Handling Operations Regulations 1992?	
Possible answers	
a)	To use mechanical lifting equipment if practicable
b)	To lift objects using more than one person at all times
c)	To abort the work if an item cannot be handled by one person
d)	To seek assistance from the customer or a neighbour if the item is too heavy

Question 21	
The set of regulations currently published in their 18th Edition is the:	
Possible answers	
a)	Gas Safety Regulations 1998
b)	Provision and Use of Work Equipment Regulations 1998
c)	Working at Heights Regulations 2005
d)	IET Wiring Regulations 2018

Question 22	
Which ONE of the following situations would be reportable under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR)?	
Possible answers	
a)	The installation of a room sealed boiler in a kitchen compartment
b)	The installation of a gas hob in a room of volume less than 10 m3
c)	The installation of an open flued boiler in a bathroom
d)	The installation of a gas fire in a through-room

Question 23	
Which ONE of the following activities must be carried out when looking for a suspected gas escape at a property connected to a natural gas supply?	
Possible answers	
a)	Test all flues for safe operation
b)	Apply a tightness test to the installation
c)	Carry out safety checks on all appliances
d)	Test appliances for the presence of carbon monoxide

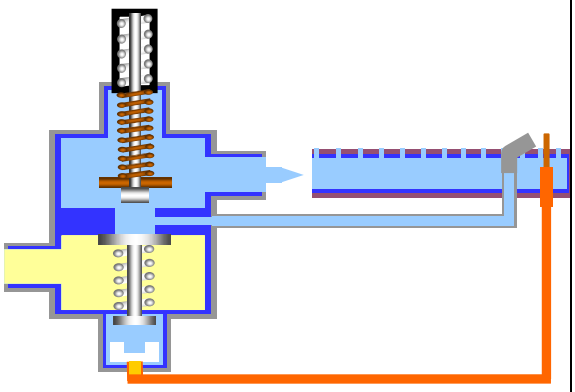
Question 24	
If a member of the public reports a smell of gas in their kitchen, what should the operative instruct them to do?	
Possible answers	
a)	Turn the gas off at the meter and call Gas Safe Register
b)	Turn the gas off at the meter and call a registered installer
c)	Turn the gas off at the meter and call the Local Authority
d)	Turn the gas off at the meter and call the gas emergency service

Question 25	
The air for combustion on a type C73 room-sealed fan draught 'vertex' chimney/flue appliance is taken from:	
Possible answers	
a)	the outside air
b)	a ventilated room
c)	a ventilated loft space
d)	the air in the basement

Question 26	
The type of gas pilot found on a commercial burner system where the pilot is extinguished after the main burner has ignited. It has been proved as stable via a flame providing unit known as:	
Possible answers	
a)	interrupted
b)	intermittent
c)	permanent
d)	semi-permanent

Question 27	
The purpose of the manual damper located in the main duct of a fan diluted chimney/flue system, is to:	
Possible answers	
a)	set the amount of dilutant air
b)	restrict the products of combustion
c)	interrupt the operation of the appliance
d)	divert the direction of the products of combustion

Question 28	
Which type of device causes a valve to be held in the open position when a pilot flame burns across two dissimilar metals joined at the tip?	
Possible answers	
a)	A pressure regulator
b)	A mercury-vapour valve
c)	A thermo-electric valve
d)	A solenoid valve



Question 29	
The type of flue system which rises from the top of the appliance, takes combustion air from outside and discharges products of combustion outside is called:	
Possible answers	
a)	An open flue
b)	A closed flue
c)	A combination flue
d)	A vertical balanced flue

Question 30	
A system where multiple boilers are linked allowing them to work in sync to provide heat and hot water is known as:	
Possible answers	
a)	parallel
b)	ladder
c)	waterfall
d)	cascade

Question 31	
The type of appliance that can provide highly efficient home heating using the thermal energy stored in the earth is referred to as:	
Possible answers	
a)	an air source heat pump
b)	a sonic source heat pump
c)	a biomass source heat pump
d)	a ground source heat pump

Question 32	
When escaping liquefied petroleum gas (LPG) comes into contact with human skin, it could cause:	
Possible answers	
a)	a skin rash
b)	cold burns
c)	skin to peel
d)	mild concussion

Question 33	
An operative is checking if the location of liquefied petroleum gas (LPG) cylinders is correct. What is the minimum separation distance that must be maintained between the nearest cylinder and any un-trapped drains or cellar openings?	
Possible answers	
a)	500 mm
b)	1 metre
c)	2 metres
d)	3 metres

Question 34	
Which ONE of the following is covered under the Gas Safety (Installation and Use) Regulations 1998?	
Possible answers	
a)	Duties of landlords
b)	Gas appliance design
c)	Ignition temperatures
d)	Central heating pump settings

[Turn to the next page for question 35]

Question 35	
Where a load is too heavy for a gas engineer to lift and there is no help available, the gas engineer should:	
Possible answers	
a)	seek the assistance of a neighbour
b)	leave the load and not attempt the lift
c)	contact a colleague and relay the situation
d)	order a mechanical aid such as a forklift truck

Question 36	
The cause of a hob burner on a gas cooker burning with a floppy yellow flame could be:	
Possible answers	
a)	blocked primary air-port
b)	volume of room or space too high
c)	high oxygen content in secondary flame
d)	openable window located further than 300 mm from the appliance

Question 37	
Where a flue passes through a void, which ONE of the following must be provided?	
Possible answers	
a)	An inspection hatch every 1 metre
b)	Ventilation throughout its length
c)	A carbon monoxide (CO) detector at the outlet
d)	A means to allow a full visual inspection of the flue

Question 38	
What is the category of an unsafe situation where during a tightness test, the pressure drop recorded is greater than the permissible pressure drop relative to the meter size?	
Possible answers	
a)	At Risk
b)	Concern for Safety
c)	Immediately Dangerous
d)	Not to Current Standards

Question 39	
After checking the gas rate on an appliance, the operative identifies that a significant amount of gas has been burnt above the expected rate. What is the most likely cause of this?	
Possible answers	
a)	Wrongly sized injector
b)	Undersized ventilation
c)	Low pressure at the meter
d)	Blockage in the gas outlet supply

Question 40	
A device which generates a small electrical current when heat is applied to its tip where two dissimilar metals join together is called a:	
Possible answers	
a)	relay
b)	solenoid
c)	thermocouple
d)	Seebeck sensor

End of Questions

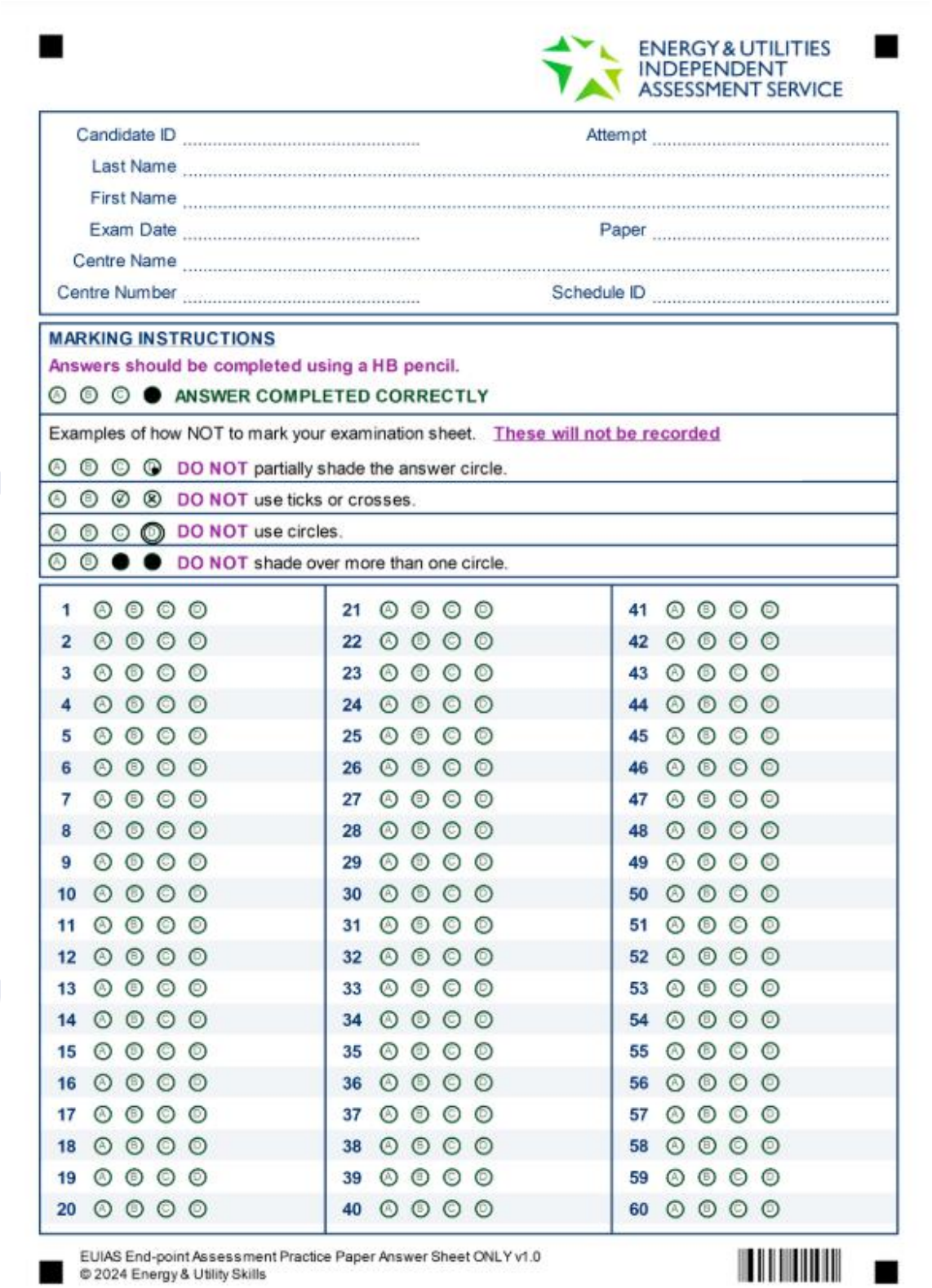
Practice Knowledge Test: Non-Domestic

Answer scheme

Question	Answer
1	D
2	A
3	C
4	A
5	C
6	A
7	C
8	D
9	C
10	A
11	A
12	D
13	B
14	D
15	B
16	D
17	B
18	C
19	A
20	A

Question	Answer
21	D
22	C
23	B
24	D
25	C
26	D
27	A
28	C
29	D
30	D
31	D
32	B
33	C
34	A
35	B
36	A
37	D
38	C
39	A
40	C

GEO Practice Paper Answer Sheet



ENERGY & UTILITIES INDEPENDENT ASSESSMENT SERVICE

Candidate ID ..... Attempt .....

Last Name .....

First Name .....

Exam Date ..... Paper .....

Centre Name .....

Centre Number ..... Schedule ID .....

MARKING INSTRUCTIONS

Answers should be completed using a HB pencil.

A B C ● **ANSWER COMPLETED CORRECTLY**

Examples of how NOT to mark your examination sheet. These will not be recorded

A B C ◔ **DO NOT** partially shade the answer circle.

A B ✓ ✗ **DO NOT** use ticks or crosses.

A B C D **DO NOT** use circles.

A D ● ● **DO NOT** shade over more than one circle.

1	A	B	C	D	21	A	B	C	D	41	A	B	C	D
2	A	B	C	D	22	A	B	C	D	42	A	B	C	D
3	A	B	C	D	23	A	B	C	D	43	A	B	C	D
4	A	B	C	D	24	A	B	C	D	44	A	B	C	D
5	A	B	C	D	25	A	B	C	D	45	A	B	C	D
6	A	B	C	D	26	A	B	C	D	46	A	B	C	D
7	A	B	C	D	27	A	B	C	D	47	A	B	C	D
8	A	B	C	D	28	A	B	C	D	48	A	B	C	D
9	A	B	C	D	29	A	B	C	D	49	A	B	C	D
10	A	B	C	D	30	A	B	C	D	50	A	B	C	D
11	A	B	C	D	31	A	B	C	D	51	A	B	C	D
12	A	B	C	D	32	A	B	C	D	52	A	B	C	D
13	A	B	C	D	33	A	B	C	D	53	A	B	C	D
14	A	B	C	D	34	A	B	C	D	54	A	B	C	D
15	A	B	C	D	35	A	B	C	D	55	A	B	C	D
16	A	B	C	D	36	A	B	C	D	56	A	B	C	D
17	A	B	C	D	37	A	B	C	D	57	A	B	C	D
18	A	B	C	D	38	A	B	C	D	58	A	B	C	D
19	A	B	C	D	39	A	B	C	D	59	A	B	C	D
20	A	B	C	D	40	A	B	C	D	60	A	B	C	D

EUIAS End-point Assessment Practice Paper Answer Sheet ONLY v1.0

Appendix D - Level 3 GEO Competency Test (Practical Assessment) and Planning Form

The Level 3 GEO Competency Test (Practical Assessment) must be designed to meet the requirements of the Gas Engineering Operative standard.

Guidance for setting up a practice competency test (practical assessment)

There are four tasks in the competency test (practical assessment). They are based on the apprentice's four appliance categories for which they hold Gas Safe® registration. Each task must be completed on a different appliance type or system in different realistic working environments. For amplification and guidance on the four appliance categories refer to Appendix F.

Appliances can include but are not limited to:

- a range of work categories such as central heating boilers
- unvented hot water storage
- ducted air heaters
- cookers, space heaters
- meters, alternative fuel
- boosters
- testing purging for industrial pipework

- The apprentice is assessed applying the KSBs in the workplace (customer's home), or in a 'Realistic Work Environment (RWE) (training centre).'
- Typically takes half a day to enable the assessment of four appliances with questioning
- Equipment and resources needed for the assessment must be in good and safe working condition

The employer and/or training provider should produce practice competency tests for the apprentices to carry out under controlled examination conditions and assess them on a range that could include the safe gas and electrical installation,

commissioning, decommissioning and/or ongoing service and repair on a minimum of four appliances.
For example, the apprentice could be assigned a task to diagnose and rectify fault(s). The apprentice will need to apply the appropriate principles, procedures and knowledge and explain what and why they are undertaking a particular approach. They will be expected to select and use the appropriate equipment and tools, protect themselves and others from potential harm that can arise from their work, while ensuring other processes on site continue to function; effectively and efficiently maintaining production.

Below we have provided guidance on the tasks that will be undertaken during the competency test. The tutor, supervisor or technical expert from the employer or training provider should use the information to produce practice tests.

The tasks that will be undertaken within the end-point assessment competency test:

Task 1: Install and commission a gas appliance:

- Appliance category's utilised will be dependent on the apprentice Gas Safe® certifications and shall be stated on the assessment route plans approved by EUIAS
- This task will involve the installation of a pipe system – a minimum of 1m in length to connect an appliance to the gas supply. The installation will require a pipe system to be installed and should also include the apprentice having to use soldered and threaded joints as part of the installation
- Once pipe systems and associated checks and tests are complete, the apprentice shall commission the appliance or system as per manufacturer's instructions Nb. This task does not include a requirement for wall-mounting any appliance.

Task 2: Carry out a service on a gas appliance or system:

- Apprentices shall carry out a service on an appliance in accordance with manufacturer's instructions
- It shall be permissible to utilise the appliances that were installed in Task 1 through the use of a rotation system so that no apprentice works on the appliance they installed

Task 3: Repair a faulty gas appliance or system:

- Technical Experts shall set faults on appliance categories
- Faults that will be used should be listed for each appliance and held on a register that will be made available for audit

Task 4: Decommission a gas appliance or system:

- Appliances or systems shall be decommissioned as per manufacturer's instructions
- The appliance pipe installation installed as part of Task 1 should be removed and all supply pipes capped or sealed
- Gas systems shall be left in a safe condition The area designated for practice assessments must have a suite of appliances and equipment matching the categories for which apprentices gained certification during their Gas Safe process, i.e., if apprentices gained certification for central heating boilers, space heaters, cookers, and laundry devices, then these will be the appliance types required for the competency test and which will be required for the practice assessments. Appliances for practice assessments must have a range of faulty components available

Practice competency tests must be assessed against the following high level competency areas:

- Application of company policy and procedures
- Operates in a manner to ensure the safety of all
- Maintains technical and safety standards at all times (behaviours)
- Communication skills and customer interaction
- Has focus and clear purpose in all conditions and locations, covering business requirements
- Work on customer premises / property shows proper care and respect
- Quality of work – skills
- Safe gas and electrical working practices
- Pipework skills
- Relays energy efficiency advice and product knowledge

The competency test brief should provide specification instructions for the apprentice to be able to:

- plan the job
- select the appropriate tools and materials
- focus on the skill
- work safely

The apprentice will be expected to work to the standards set in relevant industry and company procedures.

Note: that the expectation is that all the tasks will take up to half a day to complete and therefore must be sufficiently complex to match this duration.

The live competency test also includes questioning from the employer/independent expert. The questioning is designed to confirm the apprentice's understanding of the rationale for actions taken and choices made to complete the task. To prepare the apprentice for this aspect of the practice competency test, we recommend developing some open-ended questions which focus on the rationale for each part of the task.

A practice competency test should be conducted under supervision conditions. The test should be marked and feedback provided to the apprentice to help them identify their strengths and weaknesses in relation to the KSBs. The competency test must test the following KSBs:

- Selected Core Knowledge (CK2; CK5; CK6; CK8)
- PLUS Selected Core Skills (CS1; CS2; CS4; CS5; CS6; CS7; CS8; CS11; CS12)
- PLUS All behaviours (B1; B2; B3; B4; B5; B6; B7; B8)
- PLUS ALL Technical Skills (TS1; TS2; TS3; TS4; TS5; TS6; TS7; TS8; TS9; TS10; TS11; TS12; TS13)

The apprentice should be aware of the criteria listed above and additional support and guidance can be found in Section 1 of the GEO Specification.

The activities should be designed to assess a broad range of the skills, knowledge and behaviours developed over the period of the apprenticeship. However, as a minimum the competency test will need to cover the activities listed overleaf.

The activities will need to be able to provide the evidence identified in the checklist in the form below.

The EUIAS offer an optional service to review the employer/training provider's competency test design. To do this complete the 'Level 3 Gas Engineering Operative Competency Test (Practical Assessment) and Planning Form' and submit to the Service Delivery team, for review 1 month before the start of the end-point assessment.

Level 3 Gas Engineering Operative Competency Test (Practical Assessment) and Planning Form

<table>
<tr><td>Employer name and site address:</td><td colspan="2"></td></tr>
<tr><td>Training provider (if applicable) name and site address:</td><td colspan="2"></td></tr>
<tr><td>Standard:</td><td colspan="2">Gas Engineering Operative</td></tr>
<tr><td>Level:</td><td colspan="2">3</td></tr>
<tr><td rowspan="5">State minimum four appliances:</td><td>Appliance 1.</td><td></td></tr>
<tr><td>Appliance 2.</td><td></td></tr>
<tr><td>Appliance 3.</td><td></td></tr>
<tr><td>Appliance 4.</td><td></td></tr>
<tr><td>Optional Additional Appliance(s)</td><td></td></tr>
<tr><td colspan="3">Identify below the minimum four tasks that the apprentice is expected to do</td></tr>
<tr><td>Task 1: Install and commission a gas appliance.</td><td colspan="2"></td></tr>
<tr><td>Task 2: Carry out a service on a gas appliance or system.</td><td colspan="2"></td></tr>
</table>

Task 3: Repair a faulty gas appliance or system.	
Task 4: Decommission a gas appliance or system.	
Details of where the competency test will take place (in a 'real world' - realistic working environments) (Include full address of all locations).	
Contact Details: Employer/training provider representative, email address and contact number overseeing the setup of the competency test (documents and site).	
EUIAS Date of review:	

Brief task(s) description:
Proposed method and reasoning:
Special requirements (for example: provide site-specific details including access and or induction arrangements for the independent assessor; permissions; equipment; PPE; specific calculations include others that are applicable):

Equipment required:	**Resources required:**

Tools required:	Consumables required:

Appendix E: Practice Competency Test (Practical Assessment) Template

Four tasks must be planned in the Competency Test (Practical Assessment):

Gas Engineering Operative Tasks					
Task 1: Install and Commission Appliance or System					
Appliance or System Type		Make and Model: Where applicable.		Flue Type: Where applicable.	
Task 2: Service / Maintain Appliance or System					
Appliance Type		Make and Model: Where applicable		Flue Type: Where applicable	
Task 3: Repair Fault on Appliance or System					
Appliance or System Type		Fault Details: Where applicable			
Task 4: Decommission appliance or system					
Appliance or System Type		Make and Model: Where applicable		Flue Type: Where applicable	

Checklist

This checklist will assist the employer and/or training provider with planning the activity. It is important to ensure the planned activity is covered in at least one of the tasks.

Group 1 Operational / Installation	Planned activity - place a tick below
Appliance location deemed suitable	☐
Appliance clearances correct	☐
Flue / Chimney installed correctly	☐
Appliance Ventilation deemed correct	☐

Appliance commissioned correctly	☐
Flue/spillage-testing is correctly carried out	☐
Safety information correctly recorded	☐
Identifies gas safety controls and proves safe operation	☐
Completes and maintains records accordingly	☐
Gas supply installed satisfactorily	☐
Pipe jointing methods are correct	☐
Gas supply pipe correctly sized	☐
The quality and levels of customer communication / interaction	☐
General management of the workspace, i.e. tidiness of work area	☐
Quality of pipe jointing methods, i.e., soldering, threaded et.	☐
Quality of job close-down – demonstrations and advice to customer on new equipment	☐
Quality of written reports / records	☐
Depth of knowledge and understanding shown around electrical processes	☐
Estimated time for a Gas Engineering Operative to complete the task	
Group 2: Electrical Safety	Planned activity - place a tick below
Applies correct electrical test requirements throughout works	☐
Undertakes electrical checks correctly:	
Confirms correct polarity	☐
Understands company processes for electrical testing	☐
Applies the correct electrical testing and checking processes	☐
Safe procedure for electrical isolation	☐
Fuse Rating Check	☐
Proves safe isolation through appropriate testing	☐
Applies measures to ensure supply remains isolated throughout the works	☐
Estimated time for a Gas Engineering Operative to complete the task	
Group 3: Health, Safety and Environment	Planned activity - place a tick below
Continuous risk assessment throughout job	☐
Maintains safety standards throughout job	☐
Appropriate customer safety management	☐
Risk Assessments are documented	☐

Correct PPE worn and utilised throughout	☐
Re-instate following completion of works	☐
Takes account of any customer vulnerability	☐
Job objectives achieved	☐
The quality of safety advice given to the customer and levels of 'keeping them informed' throughout the job	☐
Demonstration of a deeper awareness of safety during the works, i.e., ensuring any visitors to the site cannot inadvertently enter the work location	☐
The quality of documented risk assessments	☐
Group 4: Tightness Testing and Purging	Planned activity - place a tick below
4a. **Tightness Test Report**: Carried out correctly as per IGEM/UP/!B)	☐
4b. **Purging Report**: Carried out correctly as per IGEM/UP/!B)	☐
Estimated time for a Gas Engineering Operative to complete the task	
Group 5: Ventilation Checks and Sizing Report	Planned activity - place a tick below
Ventilation checks and sizing report: Ventilation sizing and checks must be carried in accordance with Manufacturer's Instructions or where Manufacturer's Instructions are absent, BS 5440-2	☐
Estimated time for a Gas Engineering Operative to complete the task	
Group 6: Operating Pressure, Heat Input and Gas Rate	Planned activity - place a tick below
Operating pressure, heat input and gas rate. (Some apprentices may utilise widely available 'Apps' for gas rate checks. Where this is the case, marks awarded should also consider the apprentice's underpinning knowledge of the correlation between operating pressure, heat input and gas rates of an appliance)	☐
Understanding shown by the apprentice in describing the relationship between the above factors (operating pressure; heat input and gas rate)	☐
Estimated time for a Gas Engineering Operative to complete the task	
Group 7: Service and Maintenance	Planned activity - place a tick below
Check's operation of appliance and checks meter installation	☐
Combustion Performance Tests carried out	☐
Isolate's gas/electric/water, as necessary	☐

Strip Down service as per Manufacturer's instructions including system and component checks	☐
Carries out appropriate flue tests including flue-flow and spillage	☐
Check's ventilation size and route.	☐
Heat exchanger and case seal tests	☐
Gas Safety Reg. 26 (9) checks after work	☐
Provides Energy Efficiency and product advice and guidance	☐
Tidiness of work areas during the works	☐
Use of tools and equipment i.e., only bringing out the required tools at the required time	☐
Levels of keeping the customer informed	☐
Depth of energy efficiency advice given	☐
Estimated time for a Gas Engineering Operative to complete the task	
Group 8: Fault Finding / Repair Report (Inc GSIUR 26(9))	Planned activity - place a tick below
Trace and repair the fault in a safe manner, utilising recognised checks and tests to confirm cause and effect	☐
For a sound systematic approach in tracing and repairing the fault, and for the quality of information provided to the customer during the works	☐
Estimated time for a Gas Engineering Operative to complete the task	
Group 9: Decommission appliance and / or system	Planned activity - place a tick below
Decommission work must be completed correctly, and in accordance with manufacturer's instructions and the relevant regulations, standards, codes of practice and company operating procedures	☐
The tidiness and quality of works, including the method used to seal the gas supply. Also consider tidiness of work area and close-down advice from the job	☐
Estimated time for a Gas Engineering Operative to complete the task	
Behaviours	Planned activity - place a tick below
B1 Ensure personal wellbeing and the safety of customers and others is a priority - working on customer premises / property showing appropriate care and respect whilst focussing on safety	☐
B2 Be risk aware showing the desire to reduce risks through systematic monitoring and checking information and the strict	☐

compliance with appropriate regulations and normative documents	
B3 Demonstrate an awareness of how the work impacts on others in the work environment - identify, organise and use resources effectively and sustainably to complete the task with consideration to cost, quality, safety, security and environmental impact	☐
B4 Confidently deliver a polite, courteous, professional service to all customers and members of the public whilst safeguarding - customer welfare and recognising vulnerability, equality, and diversity	☐
B5 Undertake Continuous Professional Development to enhance knowledge and skills to maintain competence	☐
B6 Recognise personal and professional limitations and seek appropriate advice when necessary	☐
B7 Display self-discipline and self-motivated approach - working with focus and clear purpose in all conditions and locations. Can state the business requirements around lone working	☐
B8 Exercise responsibilities in an ethical manner	☐
Group 11: Unsafe Situations	Planned activity - place a tick below
The quality of safety advice given to the customer and levels of 'keeping them informed' throughout the job	☐
Demonstration of a deeper awareness of safety during the works, i.e., ensuring any visitors to the site cannot inadvertently enter the work location	☐
The quality of documented risk assessments	☐
Estimated time for a Gas Engineering Operative to complete the task	

IMPORTANT INFORMATION TO Remember: The specific detail of the tasks to be undertaken should be **kept confidential from the apprentices**, and you will require differing tasks where you have more than one apprentice to be assessed so that each apprentice cannot predict which task they will be given**.**

Practical Task: Photographic and/or Video Evidence Submitted for Review

Photograph and or Video 1: Insert Title of Activity (Task 1, 2, 3 or 4) and Appliance
Insert photograph
Photograph and or Video 2: Insert Title of Activity (Task 1, 2, 3 or 4) and Appliance
Insert photograph
Photograph and or Video 3: Insert Title of Activity (Task 1, 2, 3 or 4) and Appliance
Insert photograph
Photograph and or Video 4: Insert Title of Activity (Task 1, 2, 3 or 4) and Appliance
Insert photograph
Please add more rows as required…

EUIAS Office use only

Practical task scenario(s) / briefs reviewed	
Mandatory KSBs reviewed	
Workplace reviewed	
Realistic work situation reviewed	
Timings reviewed	

Appendix F: Four Appliance Categories – Amplification and Guidance

Appliances can include, but are not limited to, the range of appliance categories listed below. Appliances listed here can be for the alternative fuels - Natural Gas or LPG. These are the most common categories that are in use across gas engineering roles:

Appliance	ACS Code	Comment
Central Heating Boilers and Water Heaters	**CENWAT**	Central Heating Boilers and Water Heaters count as TWO appliance categories
Unvented Hot Water Storage	**UHWSS**	This is a non-ACS aligned category and is a stand-alone qualification separate to the ACS scheme. It does still count as an 'appliance' category for the purposes of the gas engineering operative apprenticeship standard.
Ducted Air Heaters	**DAH1**	This appliance type has regional variances in description i.e. Warm Air Units, or Warm Air Heaters
Cookers	**CKR1**	This appliance category covers domestic cooking appliances and derivatives such as ovens and hobs
Space Heaters	**HTR1**	Covers all space heating appliances and gas fires; includes Inset Live Flame Effect, (ILFE,) and Decorative Flame Effect (DFE) installations
Meters	**MET1**	Covers the installation, exchange and removal of gas meters up to 6m^3 capacity, (U6.) This also covers commissioning and decommissioning meter installations
Domestic Gas Range Cooker/Boiler	**CKHB1**	Covers domestic gas range cookers (such as 'Aga's,) and range cooker-boilers with atmospheric or forced draught burners
Domestic Laundry Appliances	**LAU1**	Install, commission, exchange, disconnect, service, repair and break down of domestic gas laundry appliances

Notes:

1. The Gas Engineering Operative Standard requires apprentices to gain certification of competency on four appliance categories.
2. Participation in competency assessments for appliance categories is subject to successful completion of an ACS core gas safety module (CCN1 for Natural Gas or CCLP1 for LPG.)
3. Normally the apprentice employer will state the appliance categories that apply to their business. i.e., a business that concentrates on central heating installation would have no requirement for a gas engineering operative to undertake the CKHB1 category.
4. The training provider may also stipulate the appliance categories against which their learning programme is structured.
5. All appliance categories listed here apply to both Natural Gas and LPG installations.
6. After completion of the apprenticeship, gas engineering operatives must operate for a period of six months before additional categories can be undertaken (as per Industry Standard GN8.)
7. Employers or Apprentices who work on appliance categories other than those listed here should contact EUIAS for consultation on suitability and availability.

Appendix G: Practice Work Log Mapping Document Template

This document is for use by the person from the employer/training provider playing the role of the assessor during the work log review. It is designed to help replicate the live assessment experience and to enable feedback to be provided to the apprentice. There are a maximum of 50 marks available for the Work Log Review.

Name of Apprentice	
Employer/Training Provider Location:	
Assessor Name:	
Date of Review:	

Please Note:

Pass: each criteria must be met to achieve a pass.

Fail: the apprentice does not demonstrate the pass criteria.

The knowledge, skills and behaviours are grouped in six areas, each with a maximum number of marks available which are shown below:

Knowledge, Skills and Behaviours – Six areas	
Group 1	Work Safely (10)
Group 2	Demonstrating Technical Knowledge (10)
Group 3	Industry Standards, Legislation, Processes and Procedures (6)
Group 4	Demonstrating Technical Skills (12)
Group 5	Customer Service / Working with others (6)
Group 6	Behaviours (6)

The table below provides the standard that is to be met and there are three columns for the work log review. The assessor may find that 1 piece of quality evidence covers the K/S/B in this case the assessor should write down the evidence reviewed in column 1. If more than one piece of evidence had to be reviewed for the K/S/B the assessor must state, the additional pieces of evidence reviewed in column 2 and/or 3.

There are 6 areas and, in each area, a minimum score of 1 mark for each standard can be achieved, and 2 marks where quality exceeds the minimum requirement to a maximum score of 10.

Group 1: Work Safely

Ref.	Apprenticeship Standard Criteria	WORK LOG REVIEW (Assessor Use Only)		
		1	2	3
CS1	Undertake and document rigorous risk assessments to ensure the safety of all affected by the work activities			
CS2	Take personal responsibility for maintaining safety standards and achieving job objectives			
CS3	Use and maintain tools, equipment, and personal protective equipment (PPE) in a safe and appropriate manner			
CS5	Work with focus and clear purpose in all conditions and locations, covering business requirements, including lone working and safely adapt working methods to reflect changes in working environments			
CS6	Work on customer premises/property showing appropriate care and respect whilst focusing on safety			
Assessor Comments:				

Group 2: Demonstrating Technical Knowledge

Ref.	Apprenticeship Standard Criteria	WORK LOG REVIEW (Assessor Use Only)		
		1	2	3
K2; S4	Safe gas and electrical installation, commissioning, decommissioning and/or ongoing service and repair procedures of gas installations and appliances needed to establish the safe operation of the equipment and installation in accordance with industry standards			
K3	Gas and electrical theories and procedures involved in the practical installation, commissioning, decommissioning and/or ongoing service and repair			

	of gas installations, appliances, and associated equipment			
TK1	Electrical awareness and be able to carry out safe isolation and essential electrical safety checks			
TK6	The statutory and normative documentation including building regulations, water regulations and electrical regulations			
TK7	Emergency procedures, including gas escapes, report of fumes and for unsafe situations			
Assessor Comments:				

Group 3: Industry standards, Legislation, Processes and Procedures

Ref.	Apprenticeship Standard Criteria	WORK LOG REVIEW (Assessor Use Only)		
		1	2	3
S8	Identify where situations or conditions are to unsafe standards and take appropriate actions within your range of competency			
S12	Be able to read and follow technical documentation associated with equipment and installation requirements			
TS11	Access and comply with technical guidance, bulletins, and safety alerts e.g., Gas Industry Unsafe Situations Procedures (GIUSP)			
TS8	Complete and maintain records accordingly			
Assessor Comments:				

Group 4: Demonstrating Technical Skills

Ref.	Apprenticeship Standard Criteria	WORK LOG REVIEW (Assessor Use Only)		
		1	2	3
K4	Application of relevant electrical / mechanical principles and how they are applied in work processes and procedures			
TS1	Carry out safe isolation essential electrical safety checks			

TS2; TS3	Demonstrate ambient air testing/carbon monoxide/dioxide atmosphere testing, flue-flow and spillage testing			
TS4	Undertake and record the details of the necessary safety checks following gas work on an appliance (Reg. 26/9)			
TS5	Identify faults and take the appropriate action to rectify			
TS6;TS7	Undertake the installation and commissioning of appliances, including identification of gas safety controls and prove their safe operation			
TS7	Undertake the maintenance AND repair of appliances/systems			
TS9	Reinstate following completion of works cleaning up and making good			
TS12	Demonstrate tightness testing, purging and relight procedures on gas installations			
TS13	Demonstrate pipework installations/pipework skills, pressure and flow/pipework sizing, meter installation			
Assessor Comments:				

Group 5: Customer Service/Working with others

Ref.	Apprenticeship Standard Criteria	WORK LOG REVIEW (Assessor Use Only)		
		1	2	3
K5	Up to date energy efficiency advice and guidance to be given to the customer			
K6	Product knowledge to be able to discuss and advise the customer			
S7	Use a variety of appropriate and effective communication methods to interact with customers and others to give/receive information accurately, in a timely and positive manner in order to deliver the best possible service			
S9	Achieve individual and team tasks which align to overall work objectives, be self-motivated and disciplined in the approach to work activities			
S10	Work effectively and efficiently with people from different trades/disciplines, backgrounds and expertise to accomplish an activity in a safe manner, on time, to meet customer expectations			

S11	Identify, organise, and use resources effectively and sustainably to complete the task with consideration to cost, quality, safety, security, and environmental impact			
Assessor Comments:				

Group 6: Behaviours

Ref.	Apprenticeship Standard Criteria	WORK LOG REVIEW (Assessor Use Only)		
		1	2	3
B1	Ensure personal wellbeing and the safety of customers and others is a priority			
B2	Be risk aware showing the desire to reduce risks through systematic monitoring and checking information and the strict compliance with appropriate regulations and normative documents			
B3	Demonstrate an awareness of how the work impacts on others in the work environment			
B4	Confidently deliver a polite, courteous, professional service to all customers and members of the public whilst safeguarding customer welfare and recognising vulnerability, equality, and diversity			
B5	Undertake Continuous Professional Development to enhance knowledge and skills to maintain competence			
B6	Recognise personal and professional limitations and seek appropriate advice when necessary			
B7	Display self-discipline and self-motivated approach			
B8	Exercise responsibilities in an ethical manner			
Assessor Comments:				

Appendix H: Practice Interview based on the Work Log Template

This document is for use by the employer/provider person playing the role of the assessor during a practice work log interview assessment. It is designed to help replicate the live assessment experience and to enable feedback to be provided to the apprentice. EUUIAS are unable to provide the questions that are used by assessors in the interview. Centres should develop open-ended questions that focus on the relevant part of the standard. To replicate the questions used in the interview, each question should have 2 parts. Typically, the first part of the question asks for some factual knowledge relating to the relevant part of the standard and the second part of the question asks for an example of where the apprentice has used or applied that knowledge

The practice Interview based on the Work Log must be conducted under examination conditions and recorded. The apprentice must be asked 10 questions in total. Each is allocated two marks and question must have two parts 1a and 1b.

There are a maximum of **20 marks** for the interview. The apprentice must score at least one mark for each question in order to achieve a Pass in the Interview.

Apprentice Full Name:					
Employer and Location:					
Assessor Full Name:					
Date of Interview:		Start time:		Finish time:	

K1 Health, Safety and Environmental legislation and regulations applicable to work in the gas industry			
Assessor must ask the following standardised questions.	**Assessor must record all additional questions asked for clarification and the responses provided by the apprentice including examples.**	**Recording timeline.**	**Mark awarded.**
Questions *Develop some open ended questions*			

K7 Current regulatory compliance, current Gas Safety (Installation and Use) Regulations and the current Electricity at Work Regulations			
Assessor must ask the following standardised questions.	**Assessor must record all additional questions asked for clarification and the response provided by the apprentice including examples.**	**Recording timeline.**	**Mark awarded.**
Questions *Develop some open ended questions*			

K8 Company rules, policies and procedures as defined by the employer **TS10** Work in compliance with statutory and normative documentation including building regulations, water, regulations and electrical regulations			
Assessor must ask the following standardised questions.	**Assessor must record all additional questions asked for clarification and the response provided by the apprentice including examples.**	**Recording timeline.**	**Mark awarded.**
Questions *Develop some open ended questions*			

K2; S4 Safe gas and electrical installation, commissioning, decommissioning and/or ongoing service and repair procedures of gas installations and appliances needed to establish the safe operation of the equipment and installation in accordance with industry standards			
Assessor must ask the following standardised questions.	**Assessor must record all additional questions asked for clarification and the response provided by the apprentice including examples.**	**Recording timeline.**	**Mark awarded.**
Questions *Develop some open ended questions*			

TK2 Combustion, combustion analysis, gas properties, carbon monoxide (CO), and types of burners			
Assessor must ask the following standardised questions.	**Assessor must record all additional questions asked for clarification and the response provided by the apprentice including examples.**	**Recording timeline.**	**Mark awarded.**
Questions *Develop some open ended questions*			

TK3 Flues and ventilation principles			
Assessor must ask the following standardised questions.	**Assessor must record all additional questions asked for clarification and the response provided by the apprentice including examples.**	**Recording timeline.**	**Mark awarded.**
Questions *Develop some open ended questions*			

TK4 The necessary safety checks following gas work on an appliance (GSR 26/9)			
Assessor must ask the following standardised questions.	**Assessor must record all additional questions asked for clarification and the response provided by the apprentice including examples.**	**Recording timeline.**	**Mark awarded.**
Questions *Develop some open ended questions*			

TK5 The range and suitability of appliances **TK8** A knowledge and understanding of appliances **TK9** System design, location, controls, flue types for appliances and smart controls **TK10** An awareness of green technologies			
Assessor must ask the following standardised questions.	**Assessor must record all additional questions asked for clarification and the response provided by the apprentice including examples.**	**Recording timeline.**	**Mark awarded.**
Questions *Develop some open ended questions*			

TK7 Emergency procedures, including gas escapes, report of fumes and unsafe situations			
Assessor must ask the following standardised questions.	**Assessor must record all additional questions asked for clarification and the response provided by the apprentice including examples.**	**Recording timeline.**	**Mark awarded.**
Questions *Develop some open ended questions*			

TK11 The properties of Liquid Petroleum Gas (LPG) **TK12** An awareness of fuel storage – tanks and bottles (Liquid Petroleum Gas – LPG)			
Assessor must ask the following standardised questions.	**Assessor must record all additional questions asked for clarification and the response provided by the apprentice including examples.**	**Recording timeline.**	**Mark awarded.**
Questions *Develop some open ended questions*			

Gas Engineering Operative – Work Log Interview: Mark Allocation Table and Summary				
Standard and Criteria	Question	Marks Available	Marks allocated by Assessor	Comment box per section for Assessor use, if required.
K1 Current hhealth, safety environmental legislation and regulations applicable to work in the gas industry	**1a**	**1**		
	1b	**1**		
K7 Current regulatory compliance, current Gas Safety (Installation and Use) Regulations and the current and the current Electricity at work regulations	**2a**	**1**		
	2b	**1**		
K8 Company rules, policies and procedures as defined by the employer **TS10** Work in compliance with statutory and normative documentation including building regulations, water regulations and electrical regulations	**3a**	**1**		
	3b	**1**		
K2 and S4 Safe gas and electrical installation, commissioning, decommissioning and/or ongoing service and repair procedures of gas installations and appliances needed to establish the safe operation of the equipment and installation in accordance with industry standards	**4a**	**1**		
	4b	**1**		
	5a	**1**		

TK2 Combustion, combustion analysis, gas properties, carbon monoxide (CO), and types of burners	**5b**	**1**		
TK3 Flues and ventilation principles	**6a**	**1**		
	6b	**1**		
TK4 The necessary safety checks following gas work on an appliance (GSR 26/9)	**7a**	**1**		
	7b	**1**		
TK5 The range and suitability of appliances **TK8** A knowledge and understanding of appliances **TK9** System design, location, controls, flue types for appliances and smart controls **TK10** An awareness of green technologies	**8a**	**1**		
	8b	**1**		
TK7 Emergency procedures, including gas escapes, report of fumes and unsafe situations	**9a**	**1**		
	9b	**1**		
TK11 The properties of Liquid Petroleum Gas (LPG) **TK12** An awareness of fuel storage – tanks and bottles (Liquid Petroleum Gas - LPG	**10a**	**1**		
	10b	**1**		
Total Marks Awarded		**20**		

Appendix I: Work Log Mapping Document

Introduction

Throughout the on-programme part of the apprenticeship, the apprentice will need to compile a work log of evidence to support the requirements of the interview which is based on the work log. The evidence within the work log will need to be mapped by the apprentice to the KSB requirements using the mapping document below.

The employer/independent assessor will use the mapping document to review and assess the evidence in the apprentice's work log in preparation for the interview.

The work log mapping document below consists of the core requirements.

Apprentices next steps

1. Complete all the details on the first page and include employer details of where relevant competencies from their experience at work was gained.
2. Ensure each piece of evidence is signed off by their tutor/supervisor/mentor and training provider. The apprentice can use a number of different types of evidence to demonstrate their competence as described in Section 5 of the Specification – 'What to include in the work log'. For further guidance, the apprentice must seek advice from their tutor/supervisor/mentor and training provider.
3. Map evidence to the criteria in the following pages using a referencing system indicating where the evidence for the criteria is located in the work log e.g., work based evidence Job 1 (J1) page 5 paragraph 2. This will allow the independent assessor, appointed by the EUIAS to locate the section or specific piece of evidence being discussed and referred to during the interview.
4. Place the work log mapping document at the front of the work log of evidence.

The apprentice's training provider must make arrangements for EUIAS to have access to the apprentice's work log including the work log mapping document at Gateway. For those using e-work logs such as ONEFILE or SMARTASSESSOR the reference used must simply be the file or folder name you used when uploading the evidence to such systems.

Work Log Mapping Document

This document must be placed at the front of the Work Log and submitted to EUIAS with the Work Log. **It is not mandatory** to have more than one piece of evidence for each element of the standard. However, we have provided the opportunity to map up to three pieces of evidence to each element, should that be required to provide reassurance that the evidence is sufficient.
Employer/providers should support apprentices in selecting appropriate and sufficient evidence.

Mapping Sign off on Work Log Completion:

Apprentice Full Name (Print)	Apprentice Signature	Training Provider (Company)	Training Provider Signatory (Include Full Name)	Date of Sign Off

Group 1: Work Safely

Ref.	Apprenticeship Standard Criteria	WORK LOG EVIDENCE REFERENCE (Apprentice Input)		
		1	2	3
S1	Undertake and document rigorous risk assessments to ensure the safety of all affected by the work activities			
S2	Take personal responsibility for maintaining safety standards and achieving job objectives			
S3	Use and maintain tools, equipment, and personal protective equipment (PPE) in a safe and appropriate manner			
S5	Work with focus and clear purpose in all conditions and locations, covering business requirements, including lone working and safely adapt working methods to reflect changes in working environments			
S6	Work on customer premises/property showing			

	appropriate care and respect whilst focusing on safety			

Group 2: Demonstrating Technical Knowledge

Ref.	Apprenticeship Standard Criteria	WORK LOG EVIDENCE REFERENCE (Apprentice Input)		
		1	2	3
K2; S4	Safe gas and electrical installation, commissioning, decommissioning and/or ongoing service and repair procedures of gas installations and appliances needed to establish the safe operation of the equipment and installation in accordance with industry standards			
K3	Gas and electrical theories and procedures involved in the practical installation, commissioning, decommissioning and/or ongoing service and repair of gas installations, appliances, and associated equipment			
TK1	Electrical awareness and be able to carry out safe isolation and essential electrical safety checks			
TK6	The statutory and normative documentation including building regulations, water regulations and electrical regulations			
TK7	Emergency procedures, including gas escapes, report of fumes and for unsafe situations			

Group 3: Industry standards, Legislation, Processes and Procedures

Ref.	Apprenticeship Standard Criteria	WORK LOG EVIDENCE REFERENCE (Apprentice Input)		
		1	2	3
S8	Identify where situations or conditions are to unsafe standards and take appropriate actions within your range of competency			
S12	Be able to read and follow technical documentation associated with equipment and installation requirements			

TS11	Access and comply with technical guidance, bulletins, and safety alerts e.g., Gas Industry Unsafe Situations Procedures (GIUSP)			
TS8	Complete and maintain records accordingly			

Group 4: Demonstrating Technical Skills

Ref.	Apprenticeship Standard Criteria	WORK LOG EVIDENCE REFERENCE (Apprentice Input)		
		1	2	3
K4	Relevant electrical/mechanical principles and how they are applied in work processes and procedures			
TS1	Carry out safe isolation essential electrical safety checks			
TS2 & TS3	Demonstrate ambient air testing/carbon monoxide/dioxide atmosphere testing, flue-flow and spillage testing			
TS4	Undertake and record the details of the necessary safety checks following gas work on an appliance (Reg. 26/9)			
TS5	Identify faults and take the appropriate action to rectify			
TS6 & TS7	Undertake the installation and commissioning of appliances, including identification of gas safety controls and prove their safe operation			
TS7	Undertake the maintenance AND repair of appliances/systems			
TS9	Reinstate following completion of works cleaning up and making good			
TS12	Demonstrate tightness testing, purging and relight procedures on gas installations			
TS13	Demonstrate pipework installations/pipework skills, pressure and flow/pipework sizing, meter installation			

Group 5: Customer Service/Working with others

Ref.	Apprenticeship Standard Criteria	WORK LOG EVIDENCE REFERENCE (Apprentice Input)		
		1	2	3
K5	Up to date energy efficiency advice and guidance to be given to the customer			
K6	Product knowledge to be able to discuss and advise the customer			
S7	Use a variety of appropriate and effective communication methods to interact with customers and others to give/receive information accurately, in a timely and positive manner in order to deliver the best possible service			
S9	Achieve individual and team tasks which align to overall work objectives, be self-motivated and disciplined in the approach to work activities			
S10	Work effectively and efficiently with people from different trades/disciplines, backgrounds and expertise to accomplish an activity in a safe manner, on time, to meet customer expectations			
S11	Identify, organise, and use resources effectively and sustainably to complete the task with consideration to cost, quality, safety, security, and environmental impact			

Group 6: Behaviours

Ref.	Apprenticeship Standard Criteria	WORK LOG EVIDENCE REFERENCE (Apprentice Input)		
		1	2	3
B1	Ensure personal wellbeing and the safety of customers and others is a priority			
B2	Be risk aware showing the desire to reduce risks through			

	systematic monitoring and checking information and the strict compliance with appropriate regulations and normative documents			
B3	Demonstrate an awareness of how the work impacts on others in the work environment			
B4	Confidently deliver a polite, courteous, professional service to all customers and members of the public whilst safeguarding customer welfare and recognising vulnerability, equality, and diversity			
B5	Undertake Continuous Professional Development to enhance knowledge and skills to maintain competence			
B6	Recognise personal and professional limitations and seek appropriate advice when necessary			
B7	Display self-discipline and self-motivated approach			
B8	Exercise responsibilities in an ethical manner			