

6129-331 Complex cold water systems

Duration: **50 mins**

No of items: **25**

Assessment type: **Multiple Choice (Closed book)**

Outcome/ Section	Underpinning Knowledge	%
01 Plan the work activities to be carried out	01.01 The system types and their intended functions – system components and layouts.	36
	01.02 The regulations governing system design, installation & operation	
	01.02.01 Water Regulations general	
	01.02.02 Notification of proposed plumbing work	
	01.02.03 Water Regulations specific	
	01.03 The main construction features of buildings into which the systems are installed.	
	01.04 The sources of information on the design of specific systems – plans and drawings, specifications.	
	01.05 The installation requirements for systems – installation sequences and routine liaison with others in the overall construction programme, including the customer.	
02 Carry out pre-commissioning checks and tests on systems	02.01 The procedures, equipment and legislative requirements for applying soundness tests to systems.	28
	02.01.01 Testing metallic pipework	
	02.01.02 Testing plastic pipework	
	02.02 The methods of establishing that input services adequately supply all components within the system.	
	02.03 The methods of connecting components to systems.	
	02.04 Pre-commissioning checks & the actions to take where pre-	

	commissioning checks reveal system or component defects.	
	02.04.01 Pre-commission checks.	
	02.04.02 Corrective actions.	
03 Commission systems	03.01 The sources of information on the performance of systems or components.	36
	03.02 The procedures for establishing correct system or component performance and checking against the design specification.	
	03.03 The routines and sequences for commissioning systems or components.	
	03.04 The points in the commissioning process where co-operation and liaison with other trades and customers may be required.	
	03.05 Where to access user information appropriate to different systems and components.	
	03.06 How to complete commissioning documentation confirming the safe commissioning of systems and components.	
	03.07 System handover procedures and demonstrating the operation of systems and components to end users.	
	03.08 The actions to take when components being commissioned do not meet design requirements	

6129-332 Complex hot water systems (part 1)

Duration: **40 mins**

No of items: **20**

Assessment type: **Multiple Choice (Closed book)**

Outcome/ Section	Underpinning Knowledge	%
01 Plan the work activities to be carried out	01.01 The system types and their intended functions – system components and layouts.	50
	01.01.01 Design principles	
	01.01.02 Design considerations	
	01.01.03 System types and functions	
	01.01.04 System components.	
	01.02 The regulations governing system design, installation and operation.	
	01.03 The main construction features of buildings into which the systems are installed.	
	01.04 The sources of information on the design of specific systems – plans and drawings, specifications.	
02 Carry out pre-commissioning checks and tests on systems	02.01 The procedures, equipment and legislative requirements for applying soundness tests to systems.	10
03 Commission systems	03.01 The sources of information on the performance of systems or components.	40
	03.02 The procedures for establishing correct system or component performance and checking against the design specification.	

	03.03 The routines and sequences for commissioning systems or components.	
	03.03.01 Legionella prevention	
	03.03.02 Disinfection of hot water systems	
	03.04 The points in the commissioning process where co-operation and liaison with other trades and customers may be required.	
	03.05 Where to access user information appropriate to different systems and components – common faults on hot water systems.	
	03.06 System handover procedures and demonstrating the operation of systems and components to end users.	

6129-342 Complex hot water systems (part 2)Duration: **50 mins**No of items: **25**Assessment type: **Multiple Choice**

Outcome/ Section	Underpinning Knowledge	%
01 Plan the work activities to be carried out	01.01 The system types and their intended functions – system components and layouts.	20
	01.02 The regulations governing system design, installation and operation.	
	01.03 How to calculate the size of system components including pipework and appliances	
02 Carry out pre-commissioning checks and tests on systems	02.01 The input services or supplies required for new systems or components or adding components to existing systems – how to confirm that supplies are adequate.	8
	02.02 The tools, equipment, materials and components required for the system installation – order and supply advice, delivery and checking procedures.	
03 Commission systems	03.01 How to measure and record installation and site details for prefabrication purposes.	32
	03.01.01 Installations of systems and component	
	03.01.02 Discharge pipework requirements	
	03.02 The range of tests used to confirm the soundness of systems and components and how to use the range of soundness test equipment.	
04 Carry out pre-commissioning checks and tests on systems	04.01 The procedures, equipment and legislative requirements for applying soundness tests to systems	4
05 Commission Systems	05.01 The sources of information on the performance of systems or	16

	components	
	05.02 The procedures for establishing correct system or component performance and checking against the design specification.	
	05.03 The routines and sequences for commissioning systems of components.	
06 Decommission systems	06.01 The importance of confirming the system design, specification, functions and outcomes of suspending the operation of the system.	4
07 Establish maintenance requirements for systems and components	07.01 The maintenance procedures across the range of systems and components	4
08 Carry out service and maintenance of systems and components	08.01 How to use performance specifications for systems and components, and maintenance procedures necessary to restore or maintain the continued performance of systems and components.	4
09 Diagnose the cause and rectify faults in systems and components	09.01 How to interpret information on system or component performance, including advice from users, visual inspections or checks or diagnosis tests to locate faults.	8

6129-333 Complex sanitation systems

Duration: **40 mins**

No of items: **25**

Assessment type: **Multiple Choice (Closed book)**

Outcome/ Section	Underpinning Knowledge	%
01 Plan the work activities to be carried out	01.01 The system types and their intended functions – system components and layouts.	65
	01.01.01 Design principles	
	01.01.02 Sanitary accommodation	
	01.01.03 Primary vented stack design	
	01.02. The regulations governing system design, installation and operation.	
	01.02.01 British Standards	
	01.02.02 Regulations	
	01.03 The main construction features of buildings into which systems are installed.	
	01.04 The sources of information on the design of specific systems – plans and drawings - specifications	
	01.05 The installation requirements for systems – installation sequences & routine liaison with others in the overall construction programme, including the customer.	
	01.05.01 Above ground discharge systems.	
01.05.02 Roof drainage		
02 Carry out pre-commissioning checks and tests on systems	02.01 The methods of establishing that input services adequately supply all components within the system.	5

03 Commission systems	03.03 The routines and sequences for commissioning systems or components.	30
	03.04 The points in the commissioning process where co-operation and liaison with other trades and customers may be required.	
	03.05 Where to access user information appropriate to different systems and components.	
	03.07 System handover procedures and demonstrating the operation of systems and components to end users; faults and problem solving.	

6129-334 Central heating systems including boilers and control wiring

Duration: **60 mins**

No of items: **30**

Assessment type: **Multiple Choice (Closed book)**

Outcome/ Section	Underpinning Knowledge	%
01 Plan the work activities to be carried out	01.01 The system types and their intended functions – system components and layouts.	27
	01.02 The regulations governing system design, installation & operation	
	01.02.01 General	
	01.02.02 Domestic heating compliance guide.	
	01.03 The sources of information on the design of specific systems – plans and drawings, specifications.	
02 Prepare work locations for the installation of systems, and component nos.	02.01 The sources of information on the preparatory work necessary for the system or component installation.	6
	02.02 The input services or supplies required for new systems or components or adding components to existing systems – how to confirm that supplies are adequate.	
03 Carry out installation of systems and components.	03.01 The positioning and fixing requirements for the system components to conform to the system design, and intended functions.	27
	03.01.01 Types of system.	
	03.01.02 System components	
	03.01.03 Pump positions	
	03.01.04 General	
03.02 The procedures required for connecting to input services or		

	connecting pipework into existing systems	
	03.03 The range of tests used to confirm the soundness of systems and components, and how to use the range of soundness test equipment.	
04 Carry out pre-commissioning checks and tests on systems	04 01 The procedures, equipment, and legislative requirements for applying soundness tests to systems.	6
	04.02 The methods of establishing that input services adequately supply all components within the system.	
05 Commission systems	05.01 The sources of information on the performance of systems or components.	10
	05.02 The procedures for establishing correct system or component performance and checking against the design specification.	
06 De-commission systems	06.01 The importance of confirming the system design, specification, functions, and outcomes of suspending the operation of the system.	6
	06.02 The precautions to ensure that de-commissioned systems do not prove a safety hazard; measures to prevent systems being brought into operation; safety and warning notices.	
07 Establish maintenance requirements for systems & components	07.01 The range of information that should be available on the routine and non-routine service and maintenance requirements of systems and components,	3
08 Carry out service and maintenance of systems and components	08.01 How to use performance specifications for systems & components, and maintenance procedures necessary to restore or maintain the continued performance of systems and components.	6
09 Diagnose the cause and rectify the faults in systems and components	09.01 How to interpret information on system or component performance, including advise from users, visual inspections or checks, or diagnosis tests to locate faults.	9

6129-335 Gas Supply Systems (part 1)

Duration: **100 mins**

No of items: **50**

Assessment type: **Multiple Choice (Open book)**

Outcome/ Section	Underpinning Knowledge	%
01 Plan the Work Activities to be Carried Out	01.01 State the system types and their intended functions - system components and layouts	50
	01.02 Identify the regulations governing system design, installation and operation	
	01.03 Describe the main construction features of buildings into which the systems are installed	
	01.04 Define the sources of information on the design of specific systems – plans and drawings – specifications	
	01.05 State the installation requirements for systems – installation sequences and routine liaison with others in the overall construction programme (including) the customer	
	01.06 Identify how to obtain detail from installation programmes and how to monitor progress against the programme	
	01.07 Describe how to negotiate variations to work programmes and the need to obtain written acceptance to major work or material variations	
	01.08 Define how to calculate the size of system components including pipework and appliances	
02 Prepare Work Locations for the Installation of Systems and Components	02.01 Identify the sources of information on the preparatory work necessary for the system or component installation	20
	02.02 Recognise the input services or supplies required for new systems or components, or adding components to existing systems, and how to confirm that supplies are adequate	

	02.03 Describe the persons to whom deficiencies in input services should be reported and procedures for isolating input services	
	02.04 The tools, equipment, materials and components required for the system installation – order and supply advice, delivery and checking procedures	
03 Carry out the installation of systems and components	03.01 State how to measure and record installation and site details for prefabrication purposes	30
	03.02 Identify the industry practices and work standards for fabricating and installing system components	
	03.03 Describe the positioning and fixing requirements for system components to conform to the system design and intended functions	
	03.04 State the procedures required for connecting to input services or connecting pipework into existing systems	
	03.05 Identify the range of tests used to confirm the soundness of systems and components and how to use the range of soundness test equipment.	

Permitted reference materials

- HSE – Approved code of practice and guidance – gas safety and use regulations 1998
- Corgi – Essential gas safety handbook
- Corgi – Central heating wet and dry handbook
- Corgi – Water heaters handbook
- Corgi – Gas fires and space heater handbook
- Corgi – The gas industry unsafe situations procedure handbook
- Corgi – Gas Cookers and ranges domestic handbook
- Corgi – LPG – domestic including permanent dwellings, leisure accommodation vehicles, residential park homes and boats handbook

6129-345 Gas Supply Systems (part 2)

Duration: **100 mins**

No.of items: **50**

Assessment type: **Multiple Choice (Open book)**

Outcome/Section	Underpinning Knowledge	%
01 Carry out pre-commissioning checks and tests on systems	01.01 State the procedures, equipment and legislative requirements for applying soundness tests to systems	26
	01.02 Identify the methods of establishing that input services adequately supply all components within the system	
	01.03 Describe the methods of connecting components to systems	
	01.04 Describe the actions to take where pre-commissioning checks or tests reveal system or component defects	
	01.05 Define how to complete commissioning documentation confirming the safe commissioning of systems and components	
02 Commission systems	02.01 Identify the sources of information on the performance of systems or components	26
	02.02 Recognise the procedures for establishing correct system or component performance and checking against the design specification	
	02.03 Describe the routines and sequences for commissioning systems or components	
	02.04 State the points in the commissioning process where co-operation and liaison with other trades and customers may be required	
	02.05 Identify where to access user information appropriate to different systems and components	
	02.06 Recognise how to complete commissioning documentation confirming the safe commissioning of systems and components	

	02.07 Describe system handover procedures and demonstrating the operation of systems and components to end users	
	02.08 State the actions to take when components being commissioned do not meet design requirements	
03 De-commission systems	03.01 the importance of confirming the system design, specification, functions and outcomes of suspending the operation of the system	14
	03.02 the need to liaise with others whose procedures or routines may be affected by the suspension of the system operation	
	03.03 the potential hazards that could arise from de-commissioning activities and the checks to be carried out before de-commissioning takes place	
	03.04 de-commissioning procedures for temporary and permanent de-commissioning of systems	
	03.05 the precautions to ensure that de-commissioned systems do not prove a safety hazard – measures to prevent systems being brought into operation – safety and warning notices	
	03.06 the precautions to ensure that de-commissioned systems do not prove a safety hazard – measures to prevent systems being brought into operation – safety and warning notices	
04 Establish maintenance requirements for systems and components	04.01 the range of information that should be available on the routine and non-routine service and maintenance requirements of systems and components	10
	04.02 the service and maintenance procedures across the range of systems and components	
	04.03 how to plan maintenance procedures to minimise interference with system operation and customer routines	
	04.04 the materials required for routine maintenance	
	04.05 the tools and equipment required for routine maintenance operations	
05 Carry out the service and maintenance of systems and components	05.01 how to use performance specifications for systems and components, and maintenance procedures necessary to restore or maintain the continued performance of systems and components	12

	05.02 the maintenance procedures necessary to ensure compliance with industry requirements for routine and non-routine maintenance activities	
	05.03 how to complete records and reports of the service and maintenance of systems and components	
	05.04 the action to take when the system or component does not work to full performance specification	
06 Diagnose the cause and rectify faults in systems and components	06.01 how to interpret information on system or component performance, including advice from users, visual inspections or checks or diagnosis tests to locate faults	12
	06.02 the work action and sequences required to rectify faults in systems and components	
	06.03 the measures to ensure that systems do not present a safety hazard to potential users, or the workforce, when carrying out rectification procedures	
	06.04 how to isolate unsafe systems and components	

Permitted reference materials

- HSE – Approved code of practice and guidance – gas safety and use regulations 1998
- Corgi – Essential gas safety handbook
- Corgi – Central heating wet and dry handbook
- Corgi – Water heaters handbook
- Corgi – Gas fires and space heater handbook
- Corgi – The gas industry unsafe situations procedure handbook
- Corgi – Gas Cookers and ranges domestic handbook
- Corgi – LPG – domestic including permanent dwellings, leisure accommodation vehicles, residential park homes and boats handbook

6129-336 Improvement of business products and services

Duration: **40 mins**

No of items: **20**

Assessment type: **Multiple choice (Closed book)**

Outcome/ Section	Underpinning Knowledge	%
01 Promote the image of the business to others.	01.01 The importance of correct personal presentation – clothing worn and manner.	50
	01.02 The range of actions designed to promote the employing business that are within the candidate's day to day routine.	
	01.03 The actions that contribute to individual performance in support of business products and services.	
	01.03.01 Personal development.	
	01.03.02 Effective communication	
	01.03.03 Customer relations	
	01.04 The range of promotional information appropriate to different work situations – ensuring that information provided is appropriate to its intended use.	
02 Identify and recommend opportunities for improving customer care.	02.01 The typical formal and informal approaches to ensuring a system of customer service.	50
	02.01.01 Informal	
	02.01.02 Formal	
	02.02 The typical statements contained in written statements of customer service.	

	02.03 The work actions necessary to support the business' customer service policy.	
	02.04 The checks to be carried out during work activities to ensure customer satisfaction with the service provided, and measures to be taken where deficiencies in customer service are identified.	
	02.04.01 Customer satisfaction	
	02.04.02 Deficiencies in customer service.	
	02.05 The actions necessary to record and report any deficiencies in the performance of systems or components.	
	02.06 The methods of dealing with customer complaints arising from dissatisfaction with work standards or attitudes of workforce.	
	02.06.01 Formal	
	02.06.02 Informal	

6129-339 Oil Supply Systems (Part 1)

Duration: **80 mins**

No of items: **45**

Assessment type: **Multiple Choice (Open book)**

Outcome/ Section	Underpinning Knowledge	%
01 Plan Domestic Plumbing Oil Heating Systems Work Activities - Plan the Work Activities to be Carried Out	01.01 the system types and their intended functions - system components and layouts	53
	01.02 the regulations governing system design, installation and operation	
	01.03 the main construction features of buildings into which the systems are installed	
	01.04 the sources of information on the design of specific systems – plans and drawings – specifications	
	01.05 the installation requirements for systems – installation sequences and routine liaison with others in the overall construction programme (including the customer)	
	01.06 how to obtain detail from installation programmes and how to monitor progress against the programme	
	01.07 how to negotiate variations to work programmes and the need to obtain written acceptance to major work or material variations	
	01.08 how to calculate the size of system components including pipework and appliances	
02 Prepare Work Locations for the Installation of Systems and Components	02.01 the sources of information on the preparatory work necessary for the system or component installation	11
	02.02 the input services or supplies required for new systems or components or adding components to existing systems – how to confirm that supplies are adequate	
	02.03 the persons to whom deficiencies in input services should be reported	

	and procedures for isolating input services	
	02.04 the tools, equipment, materials and components required for the system installation – order and supply advice, delivery and checking procedures	
03 Carry out the installation of systems and components	03.01 how to measure and record installation and site details for prefabrication purposes	36
	03.02 the industry practices and work standards for fabricating and installing system components	
	03.03 the positioning and fixing requirements for system components to conform to the system design and intended functions	
	03.04 the procedures required for connecting to input services or connecting pipework into existing systems	
	03.05 the range of tests used to confirm the soundness of systems and components and how to use the range of soundness test equipment.	

Permitted reference materials

- BS 5410 part 1 - code of practice for oil fired (installations up to 45kW)
- Building Regulations Approved Document J (Technical Booklet L in Northern Ireland)
- CLG - Domestic Heating Compliance Guide
- OFTEC technical book 2 – oil firing commissioning and service manual for appliances with pressure jet burners
- OFTEC technical book 3 – installation requirements for oil fired appliances and oil storage systems
- OFTEC technical book 5 – oil firing commissioning and service manual for appliances with vaporising burners

6129-349 Oil Supply Systems (Part 2)

Duration: **90 mins**

No of items: **45**

Assessment type: **Multiple Choice (Open book)**

Outcome/ Section	Underpinning Knowledge	%
01 Carry out pre-commissioning checks and tests on systems	01.01 State the procedures, equipment and legislative requirements for applying soundness tests to systems	27
	01.02 Identify the methods of establishing that input services adequately supply all components within the system	
	01.03 Identify the methods of connecting components to systems	
	01.04 State the actions to take where pre-commissioning checks or tests reveal system or component defects	
	01.05 Describe how to complete commissioning documentation confirming the safe commissioning of systems and components	
02 Commission systems	02.01 Identify the sources of information on the performance of systems or components	20
	02.02 Recognise the procedures for establishing correct system or component performance and checking against the design specification	
	02.03 Describe the routines and sequences for commissioning systems or components	
	02.04 the points in the commissioning process where co-operation and liaison with other trades and customers may be required	

	02.05 where to access user information appropriate to different systems and components	
	02.06 how to complete commissioning documentation confirming the safe commissioning of systems and components	
	02.07 system handover procedures and demonstrating the operation of systems and components to end users	
	02.08 the actions to take when components being commissioned do not meet design requirements	
03	03.01 The importance of confirming the system design, specification, functions and outcomes of suspending the operation of the system	16
	03.02 The need to liaise with others whose procedures or routines may be affected by the suspension of the system operation.	
	03.03 The potential hazards that could arise from de-commissioning activities and the checks to be carried out before de-commissioning takes place.	
	03.04 De-commissioning procedures for temporary and permanent de-commissioning of systems.	
	03.05 The precautions to ensure that de-commissioned systems do not prove a safety hazard – measures to prevent systems being brought into operation – safety and warning notices.	
	03.06 How to complete systems de-commissioning records.	
04	04.01 The range of information that should be available on the routine and non-routine service and maintenance requirements of systems and components.	11
	04.02 The service and maintenance procedures across the range of systems and components	

	04.03 How to plan maintenance procedures to minimise interference with system operation and customer routines.	
	04.04 The materials required for routine maintenance.	
	04.05 The tools and equipment required for routine maintenance operations.	
05	05.01 How to use performance specifications for systems and components, and maintenance procedures necessary to restore or maintain the continued performance of systems and components.	13
	05.02 The maintenance procedures necessary to ensure compliance with industry requirements for routine and non-routine maintenance activities.	
	05.03 How to complete records and reports of the service and maintenance of systems and components.	
	05.04 The action to take when the system or component does not work to full performance specification.	
06	06.01 How to interpret information on system or component performance, including advice from users, visual inspections or checks or diagnoses tests to locate faults.	13
	06.02 The work action and sequences required to rectify faults in systems and components.	
	06.03 The measures to ensure that systems do not present a safety hazard to potential users, or the workforce, when carrying out rectification procedures.	
	06.04 How to isolate unsafe systems and components.	

Permitted reference materials

- BS 5410 part 1 - code of practice for oil fired (installations up to 45kW)
- Building Regulations Approved Document J (Technical Booklet L in Northern Ireland)

- CLG - Domestic Heating Compliance Guide
- OFTEC technical book 2 – oil firing commissioning and service manual for appliances with pressure jet burners
- OFTEC technical book 3 – installation requirements for oil fired appliances and oil storage systems
- OFTEC technical book 5 – oil firing commissioning and service manual for appliances with vaporising burners