



Cambridge IGCSE™

INFORMATION AND COMMUNICATION TECHNOLOGY

0417/21

Paper 2 Practical Test A

March 2020

MARK SCHEME

Maximum Mark: 80

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the March 2020 series for most Cambridge IGCSE™, Cambridge International A and AS Level components and some Cambridge O Level components.

This document consists of **18** printed pages.

Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

Candidate details

Candidate details to left and date to right 1 mark

Tuesday, April 07, 2020

HOME SAFETY CHECKS

Report for home customers

You want your family to be safe in your home. We can help to keep you safe by servicing your appliances at regular intervals. This will give you peace of mind that you and your family are safe at all times.

monoxide. A carbon monoxide leak can be lethal. The occupants of a room or of the presence of late. You should get boilers, gas fires and cookers serviced by a Gas Safe Registered engineer once a year and, for added safety, have a working carbon monoxide detector located in your house.

Our Charter

We provide servicing plans to meet all needs. These include servicing and safety checks on your heating boiler and any gas you have in your house. We can also inspect and service all electrical appliances including air conditioning systems.

on the Gas Safe our engineers to service your boiler properly. They are approved by the Gas Safe Register, the official registration body designed to protect the public against unqualified engineers and unsafe gas work.

We have a nationally based team of engineers and technicians who are all qualified in their respective areas of expertise. Our gas service engineers are all registered for gas safety and will present their gas safety accreditation on arrival at your house. Our electrical and air conditioning technicians are also qualified in their fields. We will match our technical staff to the requirements of your agreement.

What happens during the service?

The engineer will:

- ✓ inspect your boiler and controls to make sure they are working properly
- ✓ check your boiler for corrosion and leaks
- ✓ take off the casing of your boiler to inspect the main components
- ✓ check the gas pressure
- ✓ test the flue to make sure it is not emitting any unsafe fumes
- ✓ clean the parts (if tests indicate they need it)
- ✓ replace the casing and check the seals
- ✓ leave you with a checklist of information about your boiler's safety.

Why do I need an annual boiler service?

You should get your boiler serviced regularly to make sure it is working properly. A faulty boiler could waste money on energy and might even start leaking poisonous carbon monoxide.

This gas is colourless and scentless it is hard to tell if one of your appliances starts leaking ca

Page layout changed to two columns 1 mark
2 equal columns, 1 cm column spacing 1 mark

Spell check changes made 1 mark

Footer

Page numbers to left 1 mark
File name and path to right 1 mark
All header and footer items align to margins 1 mark

Candidate details

Tuesday, April 07, 2020

We provide several different levels of service. This table shows you what is included in each level.

air conditioner's energy consumption by 5% to 15%.

	Service level				
	One	Two	Three	Four	Five
Annual boiler service					
Boiler and controls					
Central heating					
Home electrics					
Plumbing					
Drains					

Top row text centred over right five columns 1 mark
 Top row only shaded 1 mark
 Text rotated to be vertical 1 mark

locations are in walls, ceilings, furnaces, or in the air conditioner itself. Room air conditioners have a filter

Text and gridlines fit within column, no split words 1 mark
 All gridlines dark and printed 1 mark

Air conditioning

REGULAR TASKS YOU CAN DO YOURSELF



An air conditioner's filters, coils and fins require

Some types of filters are reusable; others must be replaced. They are available in a variety of types and efficiencies. Clean or replace your air conditioning system's filter or filters every month or two during the cooling season. Filters may need more frequent attention if the air conditioner is in constant use, is subjected to dusty conditions, or you have fur-bearing pets in the house.

regular maintenance for the unit to effectively and efficiently for years of service. Neglecting maintenance ensures a safe air conditioning performance energy use steadily increases.

Image inserted at correct place 1 mark
 Aligned top of text and left margin 1 mark
 Resized half column width, aspect ratio maintained 1 mark
 Text is wrapped round image 1 mark

AIR CONDITIONER FILTERS

The most important maintenance task that will ensure the efficiency of your air conditioner is to routinely replace or clean its filters. Clogged, dirty filters block normal airflow and reduce a system's efficiency significantly. With normal airflow obstructed, air that bypasses the filter may carry dirt directly into the evaporator coil and impair the coil's heat-absorbing capacity. Replacing a dirty, clogged filter with a clean one can lower your

filter prevents the evaporator coil from soiling quickly. In time, however, the evaporator coil will still collect dirt. This dirt reduces airflow and insulates the coil, reducing its ability to absorb heat. To avoid this problem, check your evaporator coil every year and clean it as necessary.

Outdoor condenser coils can also become very dirty if the outdoor environment is dusty or if there is foliage nearby. You can easily see the condenser coil and notice if dirt is collecting on its fins.

Candidate details

Tuesday, April 07, 2020

You should minimise dirt and debris near the condenser unit. Your dryer vents, falling leaves, and lawn mower are all potential sources of dirt and debris. Cleaning the area around the coil, removing any debris, and trimming foliage back at least 2 feet (0.6 metres) allow for adequate airflow around the condenser.

COIL FINS

The aluminium fins on evaporator and condenser coils are easily bent and can block airflow through the coil. Air conditioning wholesalers sell a tool called a "fin comb" that will comb these fins back into nearly original condition.

CONDENSATE DRAINS

Occasionally pass a stiff wire through the unit's drain channels. Clogged drain channels prevent a unit from reducing humidity, and the resulting excess moisture may discolour walls or carpets.

Servicing your AC Unit

When your air conditioner needs more than regular maintenance, call in one of our professional service technicians. A well-trained technician will find and fix problems in your air conditioning system.

The technician will:

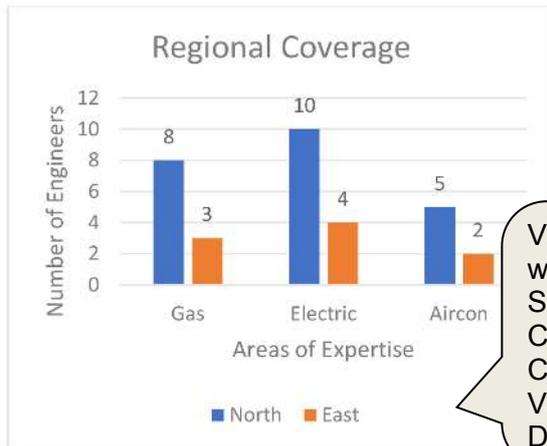
- ✓ check for correct amount of refrigerant
- ✓ test for refrigerant leaks using a leak detector
- ✓ capture any refrigerant that must be evacuated from the system, instead of illegally releasing it to the atmosphere
- ✓ check for and seal duct leakage in central systems
- ✓ measure airflow through the evaporator coil
- ✓ verify the correct electric control sequence and make sure that the heating system and cooling system cannot operate simultaneously
- ✓ inspect electric terminals, clean and tighten connections, and apply a non-conductive coating if necessary
- ✓ oil motors and check belts for tightness and wear
- ✓ check the accuracy of the thermostat.

Candidate details

Tuesday, April 07, 2020

DO NOT WAIT FOR PROBLEMS TO OCCUR

We have the country covered by qualified engineers and are in the process of training new ones. This chart shows how we cover the regions:



Vertical bar chart, correct data, correct place within column width, category axis labels present 1 mark
 Selects North and East regions only 1 mark
 Correct title 1 mark
 Correct category and value axis title 1 mark
 Values displayed above bars 1 mark
 Displayed legend correct for data 1 mark

Call now for a catalogue of our services. We will be pleased to offer you our most appropriate package or quote you for a specialised service

Page layout

Document complete/paragraphs intact, no changes to page setup, spacing consistent, top of columns balanced, no widows/orphans, split table/chart/lists or blank pages 1 mark

Daily Service Visits

CustomerNumber	Title	FamilyName	StreetAddress	PostCode	TelephoneNumber	Date	Session	Service	Price	EngineerRef
119	Mr	Rhodes	11 Glandovey Terrace	PL32 9XJ	7800650838	05-Mar-20	AM	GE	£40.00	E01
120	Miss	Hope	55 Fordham Rd	PL32 1TA	7038011183	05-Mar-20	AM	G	£25.00	E01
125	Mr	Barnes	41 Newport Road	PO30 1PX	7745047773	05-Mar-20	AM	G	£25.00	E01
197	Mr	O'Brien	8 Iffley Road	PO18 0BQ	7733297632	05-Mar-20	AM	G	£25.00	E01
256	Mr	Chadwick	30 Shore Street	PO11 5JA	7917845782	05-Mar-20	AM	GE	£40.00	E01
262	Miss	Whitehead	67 High Street	RG25 2WH	7741348752	05-Mar-20	PM	G	£25.00	E01
193	Ms	Murphy	32 Neville Street	RH11 8BA	7069171302	05-Mar-20	PM	G	£25.00	E01
132	Mr	Saunders	12 Old Edinburgh Road	RG7 8KQ	7047510765	05-Mar-20	PM	G	£25.00	E01
175	Mr	Clayton	19 Eastbourne Rd	RH5 7GJ	7975567910	05-Mar-20	PM	G	£25.00	E01
221	Mrs	Conlly	26 Winchester Rd	RH5 1HR	7979446623	05-Mar-20	PM	G	£25.00	E01
229	Mrs	Sims	56 Cefn Road	RG25 3NH	7015757410	05-Mar-20	PM	G	£25.00	E01
110	Miss	Hammond	12 Simone Weil Avenue	SA17 7TB	7852376534	05-Mar-20	AM	GE	£40.00	E02
259	Ms	Hardy	35 Rhosddu Rd	SA19 0QD	7837507087	05-Mar-20	AM	GE	£40.00	E02
181	Ms	Thornton	30 Petworth Rd	SA19 9KP	7854361731	05-Mar-20	AM	G	£25.00	E02
144	Mr	Nicholls	45 Nottingham Rd	SA20 9RZ	7954258613	05-Mar-20	AM	GE	£40.00	E02
269	Miss	Able	67 Southend Avenue	SA3 1TC	7017857307	05-Mar-20	AM	G	£25.00	E02
202	Mr	Saleem	23 Boat Lane	SA68 9BR	7731775770	05-Mar-20	PM	G	£25.00	E02
170	Miss	Newman	79 Greyfriars Road	SA44 6UO	7041949176	05-Mar-20	PM	G	£25.00	E02
190	Mrs	Williamson	52 Foregate Street	SA66 0QG	7889271480	05-Mar-20	PM	G	£25.00	E02
191	Mr	McDonald	95 Earls Avenue	SA41 6GO	7747284510	05-Mar-20	PM	GE	£40.00	E02
225	Mr	Ingram	98 Guild Street	SE17 8QX	7773050104	05-Mar-20	PM	GE	£40.00	E02
167	Ms	Kent	24 Prospect Hill	SA40 0CM	7041668722	05-Mar-20	PM	GE	£40.00	E02
227	Mr	Ryan	77 Colorado Way	SA3 2YI	7858287133	05-Mar-20	AM	G	£25.00	E03
123	Mr	Bates	52 Graham Road	SA3 7AM	7852902116	05-Mar-20	AM	GE	£40.00	E03
129	Mr	Chapman	27 Iffley Road	SA32 4ZW	7756302998	05-Mar-20	AM	GE	£40.00	E03
154	Ms	Day	65 Northgate Street	SA38 1VW	7711606538	05-Mar-20	AM	GE	£40.00	E03
230	Mrs	Peacock						GE	£40.00	E03
271	Mr	Akhtar						GE	£40.00	E03

Report 1

Candidate details on every page

1 mark

Title 100% accurate

1 mark

Select **05-Mar-20** visits only (44 records)

1 mark

These fields in this order

1 mark

Sorted ascending order of *EngineerRef* and ascending order of *Session*

1 mark

Landscape one page wide, data and labels fully visible

1 mark

CustomerNumber	Title	FamilyName	StreetAddress	PostCode	TelephoneNumber	Date	Session	Service	Price	EngineerRef
157	Mr	Bradshaw	9 Long Street	SN11 6EP	7046582650	05-Mar-20	PM	GE	£40.00	E03
156	Mrs	Hargreaves	73 Simone Weil Avenue	SL8 4PZ	7708234050	05-Mar-20	PM	G	£25.00	E03
215	Ms	Howells	45 Ramsgate Rd	SG6 3BR	7712864980	05-Mar-20	PM	GE	£40.00	E03
137	Mr	Leonard	18 Lincoln Green Lane	SG8 3JM	7806616026	05-Mar-20	PM	G	£25.00	E03
270	Mr	O'Sullivan	58 Holburn Lane	SK4 2NM	7055670639	05-Mar-20	PM	G	£25.00	E03
114	Miss	Fleming	75 Ballifeary Road	PR5 0TU	7022870252	05-Mar-20	AM	G	£25.00	E05
244	Mr	Hooper	19 St Dunstons Street	PO7 2PL	7923304355	05-Mar-20	AM	GE	£40.00	E05
184	Mrs	Allan	16 Fordham Rd	PR2 1VQ	7920356485	05-Mar-20	AM	G	£25.00	E05
245	Mrs	Ingram	5 Earls Avenue	PO38 1RG	7985916287	05-Mar-20	AM	G	£25.00	E05
228	Mr	Baker	95 Peachfield Road	PO38 0QH	7011814720	05-Mar-20	AM	G	£25.00	E05
140	Mrs	Hart	76 Annfield Rd	PO9 2NK	7088010157	05-Mar-20	AM	GE	£40.00	E05
147	Ms	Edwards	68 Preston Rd	SA11 6NU	7986126560	05-Mar-20	PM	G	£25.00	E05
165	Mr	Reeves	67 Cambridge Road	S31 7CG	7035076899	05-Mar-20	PM	G	£25.00	E05
185	Mr	Doyle	21 Peachfield Road	SA14 7AC	7709130328	05-Mar-20	PM	GE	£40.00	E05
232	Mr	Hayward	15 Scrimshire Lane	S30 0HW	7809175132	05-Mar-20	PM	GE	£40.00	E05
249	Ms	Crawford	98 High St	S65 7ZW	7908149967	05-Mar-20	PM	G	£25.00	E05

Daily total

£1,385.00

Report 1Daily total displayed as currency below *Price* field

1 mark

Has label to the left **Daily total**

1 mark

Date displays dd-MMM-yy, consistent currency symbol 2 dp for *Price* and *Total*

1 mark

Morning Gas Service Schedule

Candidate details

Title	FamilyName	CustomerNumber	StreetAddress	PostCode	Date	Session	Service	FirstName	LastName	Gas	GasRegNo
Mr	Webb	258	90 Cloch Rd	PE17 6WN	03-Mar-20	AM	GE	Ellie	Akhtar	Yes	GRN541627
Mr	Dean	121	30 Sutton Wick Lane	PE18 4OJ	03-Mar-20	AM	GE	Ellie	Akhtar	Yes	GRN541627
Mr	Bolton	240	13 Ivy Lane	PE17 2QE	03-Mar-20	AM	G	Ellie	Akhtar	Yes	GRN541627
Ms	Johnson	234	54 Redcliffe Way	PE18 6HN	03-Mar-20	AM	G	Ellie	Akhtar	Yes	GRN541627
Mr	Marshall	178	52 Felix Lane	PE22 5AI	03-Mar-20	AM	G	Ellie	Akhtar	Yes	GRN541627
Mr	Davey	161	5 Bootham Crescent	PE13 4AN	03-Mar-20	AM	G	Ellie	Akhtar	Yes	GRN541627
Ms	Marshall	233	99 Dunmow Road	PE10 7CT	03-Mar-20	AM	GE	Charlie	Stevens	Yes	GRN541623
Mr	Naylor	222	81 Coast Rd	PE10 8CT	03-Mar-20	AM	GE	Charlie	Stevens	Yes	GRN541623
Ms	Howarth	199	52 Farburn Terrace	PE12 5IV	03-Mar-20	AM	GE	Charlie	Stevens	Yes	GRN541623
Miss	Hardy	255	21 Ploughley Rd	PE10 9XZ	03-Mar-20	AM	G	Charlie	Stevens	Yes	GRN541623
Ms	Sykes	188	86 Temple Way	PE10 9TQ	03-Mar-20	AM	G	Charlie	Stevens	Yes	GRN541623

Engineer visits to be made

11

Report 2

Title 100% correct	1 mark
Postcode starts PE	1 mark
Session is AM	1 mark
Service is G or GE	1 mark
Sort <i>LastName</i> ascending	1 mark
Shows fields <i>Title, FamilyName, CustomeNumber, StreetAddress, PostCode, Date, Session, Service, FirstName, LastName, Gas, GasRegNo</i> correct order	1 mark
Fits on a single landscape page with all data and labels fully visible	1 mark
Label 100% accurate to left of summary count	1 mark
Candidate details at top right of the report	1 mark

Mail Merge

Euro Services
Home Farm Offices
Chelmsford
CH12 0PT

25 September 2018

«Title» «Name» «Last_Name»
«Street»
«Town»
«Postcode»

Dear «Title» «Last_Name»

You have expressed a wish to update your range of appliance servicing skills by adding air conditioning servicing to your existing qualifications. We have new courses planned for all regions. The next course for the «Region» region will be course reference «Course_Ref» «Course». This will start on «Start_Date» and last for «Duration» days. The course will be led by «Tutor».

You will be given leave to attend this course by your line manager and should report to the course location «Location» at nine o'clock on the start date.

Yours sincerely

Candidate Name
Training Manager|

Mail merge

Candidate name replaces <Your Name>, name, centre number, candidate number in footer	1 mark
Address fields entered, layout and spacing	1 mark
Fields <i>Title</i> , <i>Last_Name</i> , <i>Region</i> , <i>Course_Ref</i> , <i>Course</i> with spacing and punctuation	1 mark
Fields <i>Start_Date</i> , <i>Duration</i>	1 mark
Fields <i>Tutor</i> and <i>Location</i> with spacing and punctuation	1 mark

Name, centre number and candidate number

Euro Services
Home Farm Offices
Chelmsford
CH12 0PT

25 September 2018

Ms Madison Middleton
73 Pier Road
STANWELL
TW19 7MD

Dear Ms Middleton

You have expressed a wish to update your range of appliance servicing skills by adding air conditioning servicing to your existing qualifications. We have new courses planned for all regions. The next course for the East region will be course reference AC1E Basic air conditioning servicing. This will start on 15-May-20 and last for 3 days. The course will be led by Ms Wright.

You will be given leave to attend this course by your line manager and should report to the course location Peterborough offices at nine o'clock on the start date.

Yours sincerely

Candidate Name
Training Manager

Name, centre number and candidate number

Euro Services
Home Farm Offices
Chelmsford
CH12 0PT

25 September 2018

Mr Edward Ashton
10 Helland Bridge
UP HOLLAND
WN8 9PI

Dear Mr Ashton

You have expressed a wish to update your range of appliance servicing skills by adding air conditioning servicing to your existing qualifications. We have new courses planned for all regions. The next course for the East region will be course reference AC1E Basic air conditioning servicing. This will start on 15-May-20 and last for 3 days. The course will be led by Ms Wright.

You will be given leave to attend this course by your line manager and should report to the course location Peterborough offices at nine o'clock on the start date.

Yours sincerely

Candidate Name
Training Manager

Name, centre number and candidate number

Euro Services
Home Farm Offices
Chelmsford
CH12 0PT

25 September 2018

Mr Henry Chan
56 Rowland Rd
ORLETON
WR6 8FW

Dear Mr Chan

You have expressed a wish to update your range of appliance servicing skills by adding air conditioning servicing to your existing qualifications. We have new courses planned for all regions. The next course for the South region will be course reference AC1S Basic air conditioning servicing. This will start on 15-May-20 and last for 3 days. The course will be led by Ms Wright.

You will be given leave to attend this course by your line manager and should report to the course location Peterborough offices at nine o'clock on the start date.

Yours sincerely

Candidate Name
Training Manager

Name, centre number and candidate number

Mail merge
Three correct letters merged and printed 1 mark

Regular servicing saves lives
Presentation by: A Candidate
Candidate details

Safety in the home

- Gas appliances
- Electric wiring appliances
- Air conditioning

Candidate details

Last slide moved to slide 2 1 mark

First slide - title slide layout, centred, no bullets, with name entered 1 mark

Gas appliances

- Have these serviced at least once a year
- Use a carbon monoxide detector
- If you smell a gas leak, ring us on our urgent service line

Candidate details

Electric supply

- Have wiring checked
- Get an electrician to replace old or unsafe wiring
- Make sure your appliances and their wiring are in good condition

Candidate details

5 slides imported in title and bullet layout, no changes to text, no blank slides 1 mark
Printed with layout six slides per page 1 mark

Air conditioning units

- Keep vents clean
- Have the units serviced regularly by one of our qualified service engineers
- Do not cover the unit or it may overheat.

Candidate details

Gas appliances

- Have these serviced at least once a year
- Use a carbon monoxide detector
- If you smell a gas leak, ring us on our urgent service line

Candidate details

Carbon monoxide is a colourless and odourless gas.

Text inserted as presenter notes for correct slide, single slide printed as notes 1 mark
Presenter notes text entered with 100% accuracy 1 mark

Evidence 3

M2120CUSTOMERS	
Field Name	Data Type
Title	Short Text
GivenName	Short Text
FamilyName	Short Text
 CustomerNumber	Number
StreetAddress	Short Text
City	Short Text
PostCode	Short Text
EmailAddress	Short Text
TelephoneNumber	Long Text
Date	Date/Time
Session	Short Text
Service	Short Text
Price	Currency
EngineerRef	Short Text

Table structure

- All fields imported with suitable data types, *TelephoneNumber* text 1 mark
- CustomerNumber* chosen as primary key field 1 mark
- Date imported in DMY format in report 1 1 mark
- Price* set as Currency/Number data type 1 mark

Evidence 4

Service visits for fifth March		Engineers	
Field Name	Data Type		
 EngNo	Short Text		
FirstName	Short Text		
LastName	Short Text		
Gas	Yes/No		
Electric	Yes/No		
Aircon	Yes/No		
GasRegNo	Short Text		

Engineers Table structure

- EngNo* chosen as primary key field 1 mark
- All 3 fields set as Boolean/logical data type and displayed as Yes or No in report 2 1 mark

Evidence 5

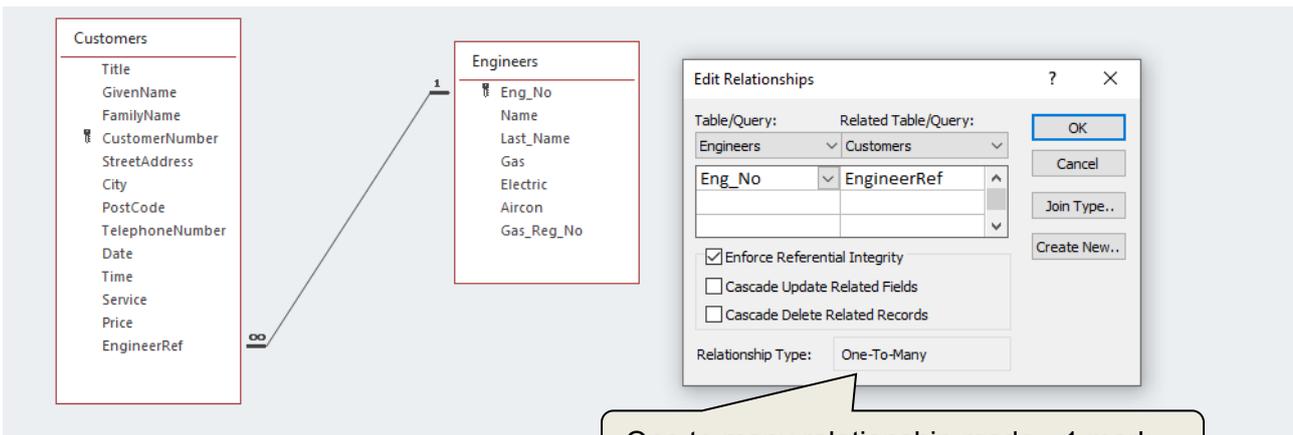
Safety engineers and their qualified skills

Eng_No	E27	This is a un employee
Name	Ewan	
Last_Name	Barrett	
Qualified for gas systems servicing	Yes	
Qualified for electricity servicing	Yes	Eng skills
Qualified for air conditioning servicing	No	
Gas registration number	GRN541643	Qualified gas engineers must have a per

Form structure
 Uses all 7 fields from engineer table 1 mark
 Columnar data entry form 1 mark
 User-friendly features 1 mark
 E.g.s Relevant title (not file name)
 Box resize related to contents
 Helpful field titles
 User notes
 Use of colour
 Navigation buttons
 Company logo

New record added to form 100% accurate 1 mark

Evidence 6



One to many relationship made 1 mark

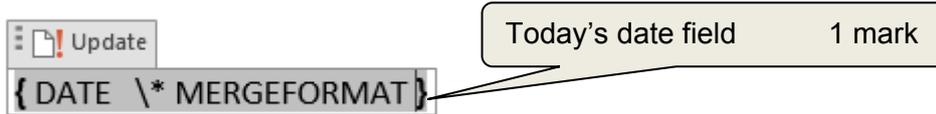
Evidence 7

Daily total	=Sum([Price])	Sum of Price 1 mark
-------------	---------------	---------------------

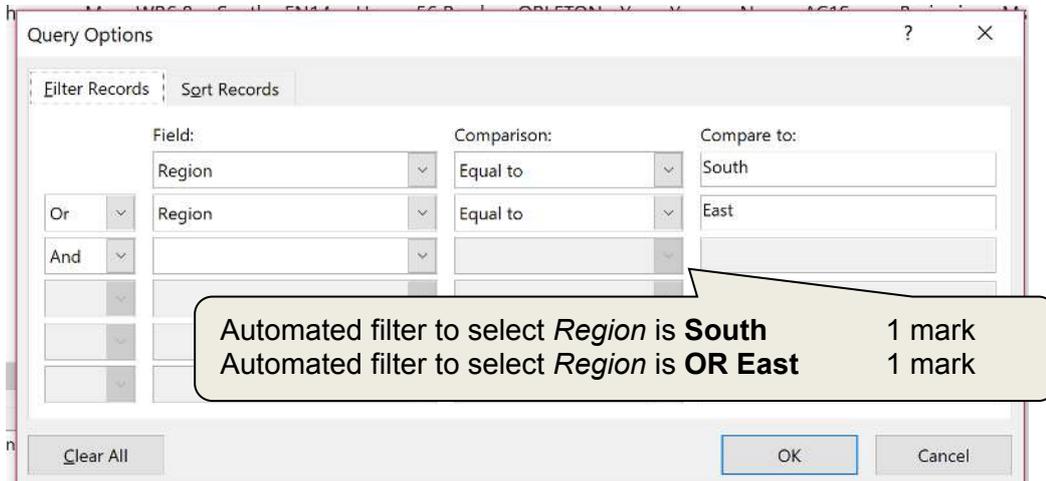
Evidence 8

Engineer visits to be made	=Count([Gas])	Count of records 1 mark
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Evidence 9

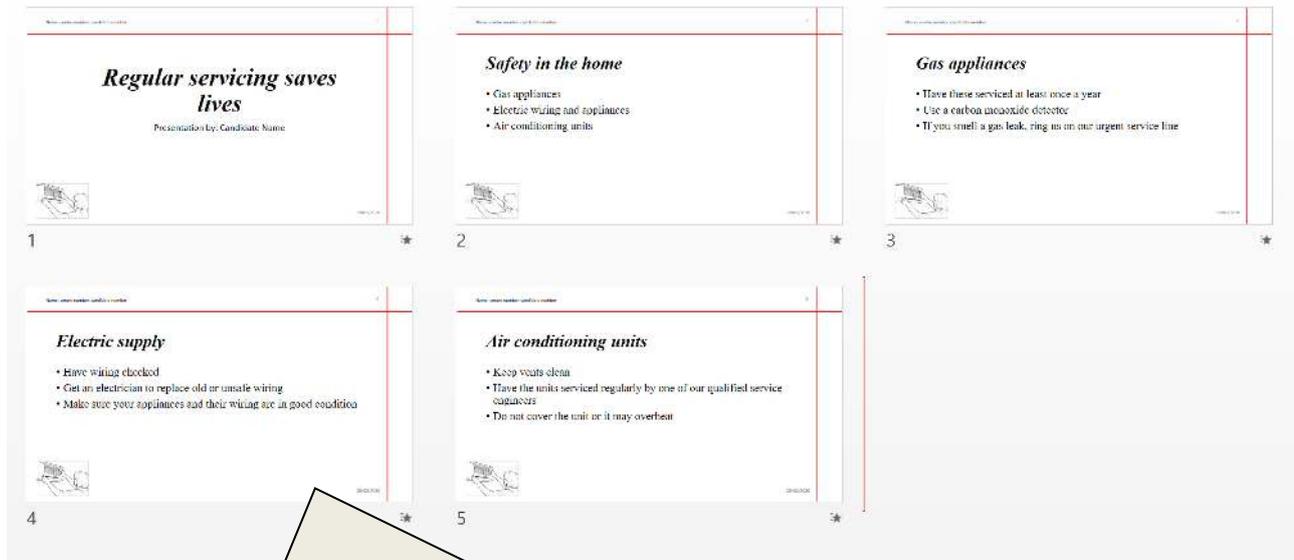


Evidence 10



Evidence 11

Evidence of slide master design features



Master slide shows four different features applied in addition to candidate details 4 marks
Master slide items applied to all slides 1 mark

Features could include:
Slide numbers, lines, shapes, colour or design theme, animations, transitions