



# Mark Scheme (Results)

Summer 2023

Pearson Edexcel International Advanced Level  
In Information Technology (WIT14)  
Paper 01 Relational Databases

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## General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

## Unit 4 Summer 2023– Mark Scheme

### Note to examiners

Where example screenshots are included, these are indicative content only and not a definitive answer. Students should receive credit based on the marking instructions in the answer column.

Question number	Answer	Additional Guidance	Mark	
<b>1(a)i</b>	<b>Format check for postcode</b>			
	<b>A1</b>	Input mask on postcode field LLO 0LL LLO\ 0LL	Accept any mask that is correct  Must see field it applies to	1
	<b>A2</b>	Forced to uppercase >	Must see field it applies to	1
	<b>Total</b>		<b>2</b>	
<b>1(a)ii</b>	<b>Presence check for staff name field</b>			
	<b>A3</b>	Presence check on staff name field Validation rule of 'Is Not Null'	Allow Required set to <b>yes</b>  Must see field it applies to	1
	<b>A4</b>	Suitable error message e.g. 'You must input the staff name'	Must also have suitable validation rule to achieve this mark	1
	<b>Total</b>		<b>2</b>	
<b>1(a)(iii)</b>	<b>Identification and correction of data type error</b>			
	<b>A5</b>	StartDate changed to Date/Time		1
	<b>Total</b>		<b>1</b>	

Question number	Answer	Additional Guidance	Mark	
1(b)	<b>Add staff member form</b>			
	<b>B1</b>	Form opens a new record	1	
	<b>B2</b>	StaffID OR StartDate disabled	1	
	<b>B3</b>	<b>Three</b> from: <ul style="list-style-type: none"> <li>• Form labels are appropriate (not database field names)</li> <li>• Form has meaningful title</li> <li>• Entry boxes on form are resized appropriately to reflect the expected data</li> <li>• Instructions on how to use</li> <li>• Asterisk on any field except StaffID AND StartDate</li> <li>• Combo box for Staff Type</li> </ul>	1	
	<b>B4</b>	Combo box source Full Time; Part Time	May also include Full	1
	<b>B5</b>	Button present and suitably labelled e.g. Save	May be an save icon	1
	<b>B6</b>	StaffID generated e.g.  DMAX("StaffID","tblStaff")+1  MAX([StaffID])+1	Do not accept auto number	1
	<b>B7</b>	StartDate is automatically set to today's date		1
	<b>B8</b>	Name, telephone, street, postcode, start date, staff type would save in staff table		1
	<b>B9</b>	Save message would display		1
	<b>B10</b>	Save message would display only if record has saved		1
<b>Total</b>			<b>10</b>	

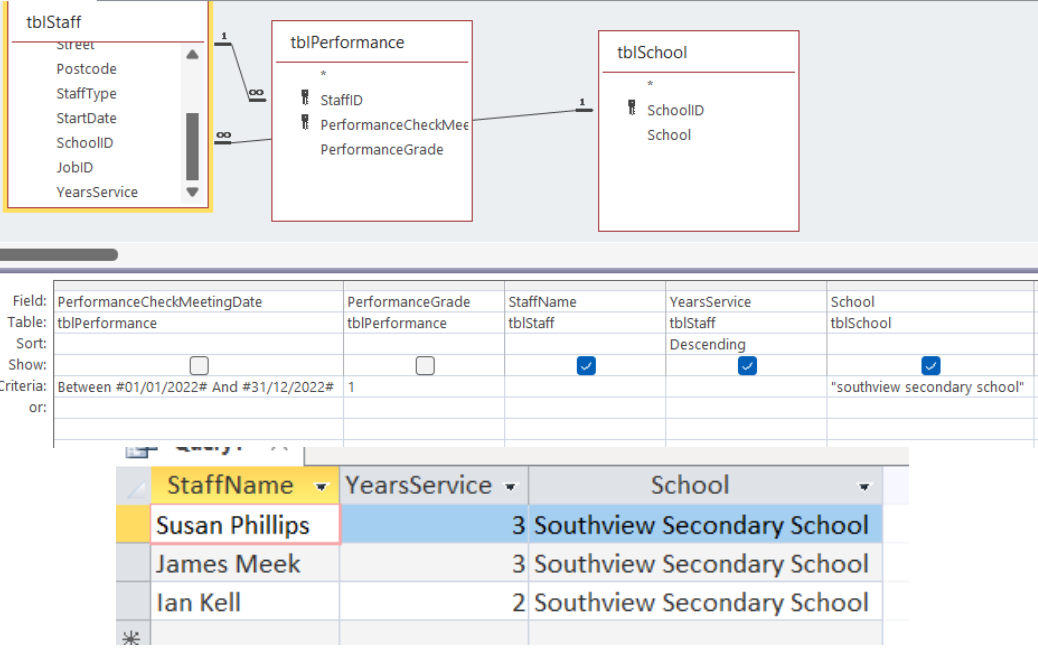
Question number	Answer	Additional Guidance	Mark	
1(c)	<b>Table Structure</b>			
	<b>C1</b>	Use of appropriate table and field names and naming conventions		1
	<b>C2</b>	Performance table is present with suitable fields		1
	<b>C3</b>	Job table is present with suitable fields		1
	<b>C4</b>	School table is present with suitable fields		1
	<b>C5</b>	1:M relationship between Job and Staff		1
	<b>C6</b>	1:M relationship between Staff and Performance		1
	<b>C7</b>	1:M relationship between School and Staff		1
	<b>C8</b>	Appropriate primary key used for Job table		1
	<b>C9</b>	Appropriate composite key used for Performance table		1
	<b>C10</b>	Appropriate primary key used for School table		1
	<b>C11</b>	Number is used for PerformanceGrade		1
<b>Total</b>			<b>11</b>	

Question number	Answer	Additional Guidance	Mark	
1(d)	<b>Import</b>			
	<b>D1</b>	Job table – 5 records		1
	<b>D2</b>	Performance table – 53 records		1
	<b>D3</b>	School table – 3 records		1
<b>Total</b>			<b>3</b>	

Question number	Answer	Mark
1(e)	<p><b>Indicative content</b></p> <p><i>Analysis</i></p> <ul style="list-style-type: none"><li>• Telephone number<ul style="list-style-type: none"><li>○ not atomic</li><li>○ some of the staff have two telephone numbers in the same field. Example Tom</li><li>○ not all of the telephone numbers are recorded fully. Example Chloe Clarke</li><li>○ different types of telephone numbers some mobile some with area code. Example Tom</li></ul></li><li>• Staff name<ul style="list-style-type: none"><li>○ not atomic</li><li>○ the field includes both names</li><li>○ not all staff have their full name recorded. Example Tom</li></ul></li><li>• Staff type has an anomaly<ul style="list-style-type: none"><li>○ Anomaly - Full, which should be Full Time. Example Stuart Catterill</li></ul></li><li>• Years Service<ul style="list-style-type: none"><li>○ will not always be accurate. As time passes it will be incorrect. Example Jane Austen started 28/06/2020 but only has 2 years service</li></ul></li><li>• 1:M relationship between the staff and telephone numbers because a member of staff may have more than one telephone number</li></ul> <p><i>Recommendations</i></p> <ul style="list-style-type: none"><li>• Telephone number<ul style="list-style-type: none"><li>○ create a new table called tblContact.</li><li>○ put the StaffID in the new table as part of a composite key</li><li>○ put the telephone number in the new table as the other part of the composite key</li><li>○ delete the telephone number from the staff table</li><li>○ format check to accept either format of telephone number</li></ul><hr/><li>○ have two fields in the staff table one for a home telephone and one for a mobile telephone</li><li>○ format check on each</li></li></ul> <li>• Staff name<ul style="list-style-type: none"><li>○ split the field into two, one for first name and one for last name</li></ul></li> <li>• Years Service<ul style="list-style-type: none"><li>○ delete as it can be generated</li></ul></li> <li>• Staff type<ul style="list-style-type: none"><li>○ create a table called tblStaffType</li><li>○ add a primary key StaffTypeID</li><li>○ add the two staff types as records</li><li>○ add StaffTypeID as a foreign key in tblStaff</li><li>○ select the correct StaffTypeID for each staff member</li><li>○ delete the field staff type</li><li>○ add a table lookup from tblStaffType to tblStaff</li></ul></li>	9

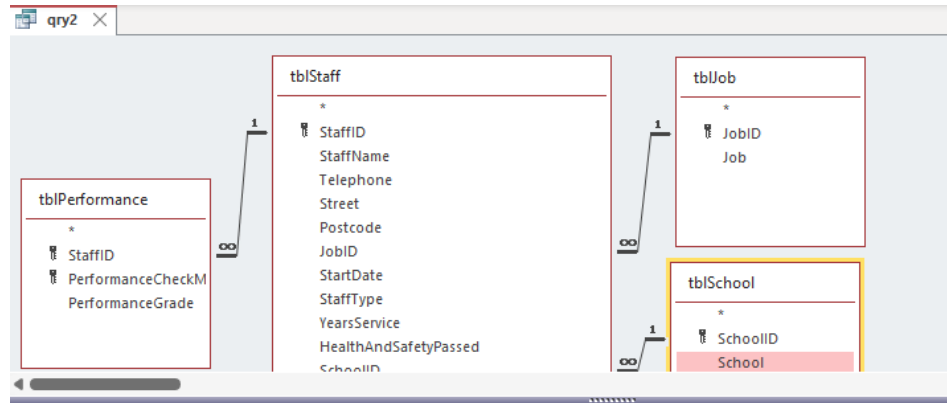
<b>Level</b>	<b>Mark</b>	<b>Descriptor</b>
	0	No Awardable content
Level 1	1-3	<ul style="list-style-type: none"><li>• Analysis is flawed or superficial, containing simple statements that show limited understanding of the subject matter.</li><li>• Solution may contain some aspects that are appropriate, but is generally ineffective.</li></ul>
Level 2	4-6	<ul style="list-style-type: none"><li>• Analysis is sound, containing minor inaccuracies or omissions, showing some understanding of the given issue.</li><li>• Solution is workable but may have minor issues.</li></ul>
Level 3	7-9	<ul style="list-style-type: none"><li>• Analysis is sound and developed, containing ideas that are linked together in a fluent and logical way, showing a thorough understanding of the given issue.</li><li>• Solution is appropriate and workable.</li></ul>
<b>Total for question 1</b>		<b>38</b>



Question number	Answer	Additional Guidance	Mark
2(a)	<p><b>Best performing staff query</b></p> 		
A1	<p>PerformanceCheckMeetingDate</p> <ul style="list-style-type: none"> <li>Between #1/1/2022# and #31/12/2022#</li> <li>&gt;=#1/1/2022# and &lt;=#31/12/2022#</li> <li>&gt;#31/12/2021# and &lt;#1/1/2023#</li> <li>*2022</li> </ul>	<p>Allow for international date format month, day</p> <p>Allow 4th April to 4th December 2022 as the range</p>	1
A2	Performance grade 1		1
A3	SchoolID 1 or School Southview Secondary School		1
A4	YearsService sorted into descending order		1
A5	Datasheet columns not truncated		1
A6	Correct results shown	May also include records added as part of their testing.	1
<b>Total</b>			<b>6</b>

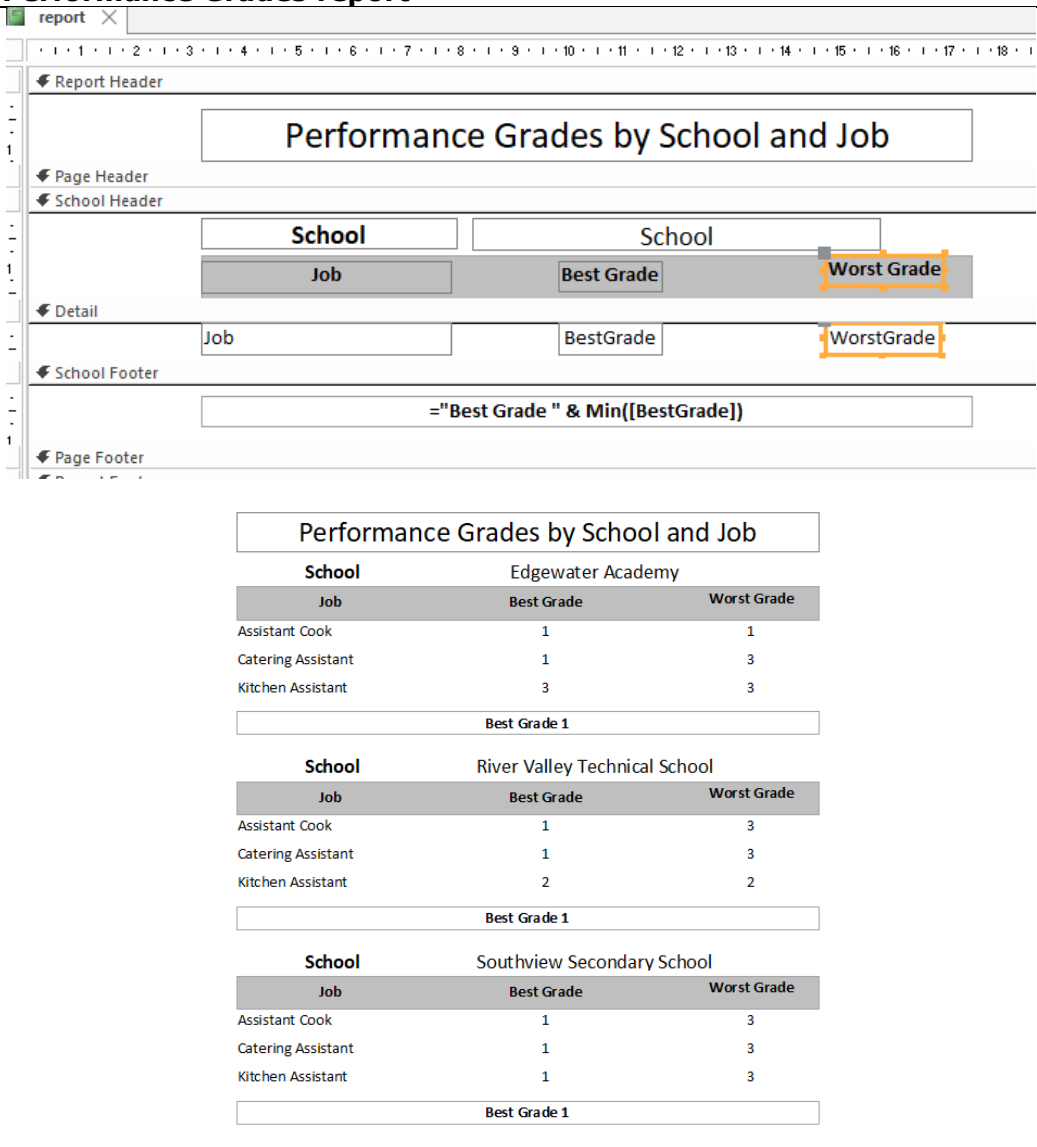
Question number	Answer	Additional Guidance	Mark
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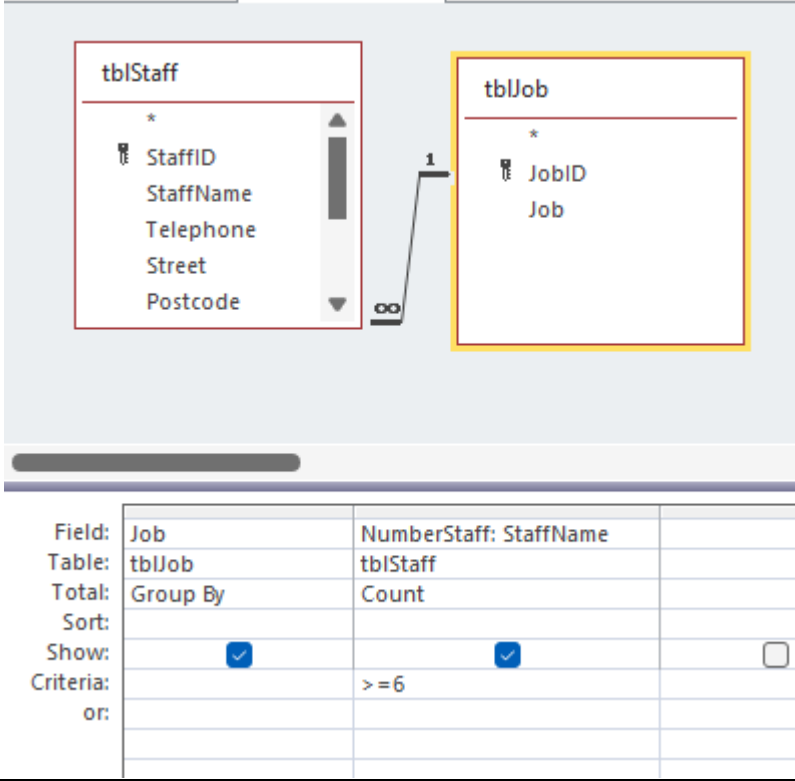
**2(b)(i) School and performance grade queries**



Field:	School	Job	BestGrade: PerformanceGrade	WorstGrade: PerformanceGrade
Table:	tblSchool	tblJob	tblPerformance	tblPerformance
Total:	Group By	Group By	Min	Max
Sort:				
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:		Like "*assistant*"		
or:				

<b>B1</b>	Relevant tables added		1
<b>B2</b>	Criteria correct for Job or JobID <ul style="list-style-type: none"> <li>• 2, 3, 4</li> <li>• "*assistant*"</li> <li>• "Kitchen Assistant" or "Catering Assistant" or "Assistant Cook"</li> </ul>		1
<b>Grades</b>			
<b>B3</b>	Min(PerformanceGrade) <b>OR</b> Max(PerformanceGrade)		1
<b>B4</b>	Best Performance: Min(PerformanceGrade) <b>AND</b> Worst Performance: Max(PerformanceGrade)		1
<b>Total</b>			<b>4</b>

Question number	Answer1	Additional Guidance	Mark
2(b)(ii)	<p><b>Performance Grades report</b></p> 		
B5	Title is in the page or report header – <b>mark from Design view only</b> (do not accept title in detail section)		1
B6	Title is as given OR Title is centred across the report	Ignore minor errors in spelling	1
B7	Grouped by School– <b>mark from Design view only</b>		1
B8	Rectangle used around Report header or Best Grade footer		1
B9	Centre alignment used on at least one of the fields <b>and</b> the relevant value		1
B10	Best Grade per school correct Min(BestGrade)		1
B11	Best Grade per school in the correct footer	Best grade must be the correct calculation	1

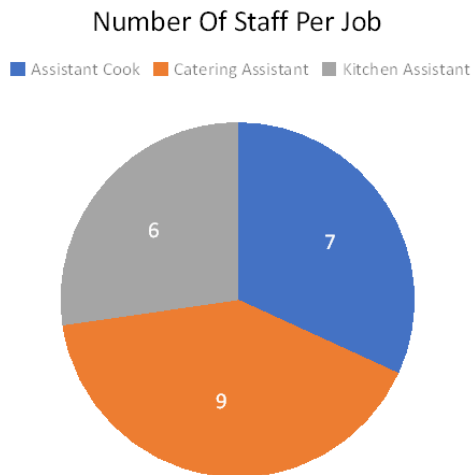
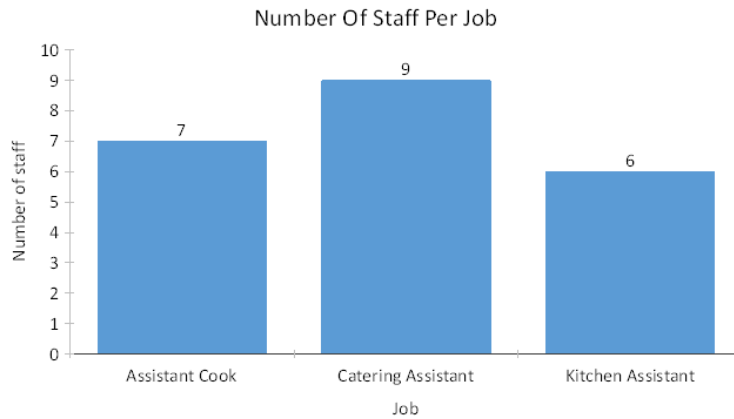
	<b>B12</b>	Report and formatting are as given		1																											
			<b>Total</b>	<b>8</b>																											
<b>Total for question</b>				<b>18</b>																											
<b>Question number</b>	<b>Answer</b>	<b>Additional Guidance</b>	<b>Mark</b>																												
<b>3a</b>	<p><b>Query for Chart</b></p>  <table border="1"> <tr> <td>Field:</td> <td>Job</td> <td>NumberStaff: StaffName</td> <td></td> </tr> <tr> <td>Table:</td> <td>tblJob</td> <td>tblStaff</td> <td></td> </tr> <tr> <td>Total:</td> <td>Group By</td> <td>Count</td> <td></td> </tr> <tr> <td>Sort:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Show:</td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Criteria:</td> <td></td> <td>&gt;=6</td> <td></td> </tr> <tr> <td>or:</td> <td></td> <td></td> <td></td> </tr> </table>	Field:	Job	NumberStaff: StaffName		Table:	tblJob	tblStaff		Total:	Group By	Count		Sort:				Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Criteria:		>=6		or:					
Field:	Job	NumberStaff: StaffName																													
Table:	tblJob	tblStaff																													
Total:	Group By	Count																													
Sort:																															
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																												
Criteria:		>=6																													
or:																															
<b>A1</b>	No inappropriate fields included			1																											
<b>A2</b>	Number of staff calculated correctly e.g. <ul style="list-style-type: none"> <li>Count(StaffName)</li> </ul>	Any field is appropriate for the count		1																											
<b>A3</b>	Criteria correct for number of staff <ul style="list-style-type: none"> <li>&gt;=6</li> <li>&gt;5</li> </ul>			1																											
<b>A4</b>	Generated field has a suitable field name			1																											
			<b>Total</b>	<b>4</b>																											

Question number	Answer	Additional Guidance	Mark
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**3b** **Chart**

Chart data

Job	NumberStaff
Assistant Cook	7
Catering Assistant	9
Kitchen Assistant	6



<b>B1</b>	Bar/column/pie chart created		1
<b>B2</b>	Meaningful chart title used		1
<b>B3</b>	Axis/segments shows job (e.g. Assistant Cook etc)		1
<b>B4</b>	Bar/column <ul style="list-style-type: none"> <li>At least one axis has suitable label (e.g. Number of Staff OR Job)</li> </ul> Pie <ul style="list-style-type: none"> <li>Suitable legend</li> </ul>		1
<b>B5</b>	Bar/column <ul style="list-style-type: none"> <li>Axis contains suitable scale</li> </ul> <b>AND/OR</b> <ul style="list-style-type: none"> <li>Data values are shown</li> </ul> Pie <ul style="list-style-type: none"> <li>Data values are shown</li> </ul>		1

	<b>B6</b>	Chart is fit for purpose		1
		Bar/column <ul style="list-style-type: none"><li>• No legend</li><li>• Appropriate sizing of elements on page (e.g. title larger than axis labels, data labels)</li></ul> Pie <ul style="list-style-type: none"><li>• Appropriate sizing of elements on page (e.g. title larger than legend labels, data labels)</li></ul>		
			<b>Total</b>	<b>6</b>
<b>Total for question 3</b>				<b>10</b>

Question number	Answer	Additional Guidance	Mark
4	<p><b>Dashboard</b></p> <div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: fit-content;"> <p style="text-align: center;"><b>Menu</b></p> <p style="text-align: center;">Select the option you want</p> <div style="display: flex; flex-direction: column; gap: 10px;"> <div style="display: flex; align-items: center; gap: 10px;"> <div style="width: 30px; height: 30px; background-color: #add8e6; border: 1px solid #add8e6; border-radius: 5px;"></div> <span>Add a new staff member</span> </div> <div style="display: flex; align-items: center; gap: 10px;"> <div style="width: 30px; height: 30px; background-color: #add8e6; border: 1px solid #add8e6; border-radius: 5px;"></div> <span>View best performing staff</span> </div> <div style="display: flex; align-items: center; gap: 10px;"> <div style="width: 30px; height: 30px; background-color: #add8e6; border: 1px solid #add8e6; border-radius: 5px;"></div> <span>View the chart</span> </div> </div> </div>		
<b>A1</b>	Appropriate heading and 3 appropriately labelled buttons	Button labels must be written to help the user e.g. <b>not</b> Open query 2(a)	1
<b>A2</b>	Data entry form from 1(b) would open		1
<b>A3</b>	Query from 2(a)(i) would run		1
<b>Grade query</b>			
<b>A4</b>	Message box with appropriate message would appear when button clicked	Must be a single button	1
<b>A5</b>	Both options work correctly <ul style="list-style-type: none"> <li>Chart would open in print preview</li> <li>Message <b>Operation cancelled</b> appears</li> </ul>		1
<b>Total</b>			<b>5</b>
<b>Total for question 4</b>			<b>5</b>

Question number	Answer	Mark
5	<p><b>Indicative content</b></p> <p>Note: Analysis and recommendations must be based on the content of Figure 2.</p> <p><b>Analysis</b></p> <ul style="list-style-type: none"> <li>• The staff table already contains               <ul style="list-style-type: none"> <li>○ Staff name</li> <li>○ Staff date</li> <li>○ JobID. The job can be determined already from the JobID</li> </ul> </li> <li>• The performance table already contains               <ul style="list-style-type: none"> <li>○ the meeting date</li> <li>○ grades that have been previously achieved</li> </ul> </li> <li>• The database does not currently store               <ul style="list-style-type: none"> <li>○ Performance areas and grades</li> <li>○ Comments</li> </ul> </li> </ul> <p><b>Recommendations</b></p> <ul style="list-style-type: none"> <li>• tblPerformance needs to be extended.               <ul style="list-style-type: none"> <li>○ These fields need adding to store the individual performance grades                   <ul style="list-style-type: none"> <li>▪ Time Management</li> <li>▪ Verbal Communication</li> <li>▪ Team Work</li> <li>▪ General Performance Comments</li> </ul> </li> <li>○ Performance grade awarded no longer needs to be stored as it is calculated as the average of the grades awarded (rounded up)</li> <li>○ No new data is needed to be stored to find the performance grade awarded the previous year. This can be generated using Max</li> <li>○ No new data is needed to be stored to determine how the grade compares to the previous grade. This can be generated and compared using a if statement</li> </ul> </li> </ul>	9

Level	Mark	Descriptor
	0	No Awardable content
Level 1	1-3	<ul style="list-style-type: none"> <li>• Analysis is flawed or superficial, containing simple statements that show limited understanding of the subject matter.</li> <li>• Solution may contain some aspects that are appropriate, but is generally ineffective.</li> </ul>
Level 2	4-6	<ul style="list-style-type: none"> <li>• Analysis is sound, containing minor inaccuracies or omissions, showing some understanding of the given issue.</li> <li>• Solution is workable but may have minor issues.</li> </ul>
Level 3	7-9	<ul style="list-style-type: none"> <li>• Analysis is sound and developed, containing ideas that are linked together in a fluent and logical way, showing a thorough understanding of the given issue.</li> <li>• Solution is appropriate and workable.</li> </ul>
<b>Total for question 5</b>		<b>9</b>



