OCR
RECOGNISING ACHIEVEMENT

SPECIMEN

GENERAL CERTIFICATE OF SECONDARY EDUCATION

INFORMATION AND COMMUNICATION TECHNOLOGY **B063**

Unit B063: ICT in context

Candidates answer on the Question Paper

OCR Supplied Materials
- Pre-release material (inserted)

Other Materials Required:
- None

Duration: 1 hour

Candidate Forename		Candidate Surname	

Centre Number						Candidate Number				

INSTRUCTIONS TO CANDIDATES
- Write your name in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Answer **all** the questions.
- Do **not** write in the bar codes.
- Do not write outside the box bordering each page.
- Write your answer to each question in the space provided, however additional paper may be used if necessary.

INFORMATION FOR CANDIDATES
- The number of marks for each question is given in brackets **[ ]** at the end of each question or part question.
- The total number of marks for this paper is **60**.
- This document consists of **12** pages. Any blank pages are indicated.
- Your Quality of Written Communication is assessed in questions marked with an asterisk (*).

Examiner's Use Only:			
1		8	
2		9	
3		10	
4		11	
5		12	
6		13	
7			
Total			

1 Within the design office of Ambermill Construction Ltd. the staff uses specialised hardware and software. In the table below tick the boxes to show which items are general (found in any office) and which are specialised.

Equipment and Software	General item (✓)	Specialised item (✓)
'3D' Printer		
A0 Plotter		
C.A.D. package		
Graphics Tablet		
Monitor		
Mouse		
'QWERTY' keyboard		
Word processing package		

[4]

2 Ambermill Construction Ltd. uses a number of ICT methods to communicate.

Draw a line joining the name of the chart with the type of information needed to be presented.

Name of chart	Information to be presented
GANTT CHART	Trend of how much overtime is being worked throughout the project's life
PIE CHART	Number of employees on site each month
LINE GRAPH	Project progress
BAR CHART	Percentage of budget used on different raw materials

[4]

3

(a) State **two** advantages to the designers at Ambermill Construction Ltd. of using electronic drawings rather than traditional paper based drawings.

Advantage 1.....

Advantage 2..... **[2]**

(b) State **one disadvantage** to the designers at Ambermill Construction Ltd. of using electronic drawings rather than traditional paper based drawings.

Disadvantage ..... **[1]**

4 Explain **three** reasons why Ambermill Construction Ltd. might use videoconferencing to discuss the design of a new building.

Reason 1.....

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Reason 2.....

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Reason 3.....

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..... **[6]**

5 Ambermill Construction Ltd.'s management has decided to use 'Web 2.0' applications in the office as part of their on-line strategy.

Each of the company's project managers has been instructed to keep an on-line diary of project progress.

What is the usual name for this type of on-line diary on the internet?

..... **[1]**

6 State **two** other types of 'Web 2.0' application useful to Ambermill Construction Ltd.

Type 1 .....

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Type 2 .....

..... **[2]**

7 Ambermill Construction Ltd. uses a number of different types of software.

State the type of software that would be most suitable for each of the tasks shown in the table below.

You may use the same software more than once. Do **not** use brand names.

Task	Type of software
To store and search customer data	
To write a letter	
To calculate the cost of construction	
To modify a web page graphic	
To present data at a conference	

[5]

8 Ambermill Construction Ltd. promotes itself as an 'environmentally friendly' company. ICT is used both in the design of the building and within the building itself.

Explain **two** ways ICT can be used within the building to reduce its environmental impact.

Way 1 .....

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Way 2 .....

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..... **[4]**

9 In the table below tick **three** essential items of hardware or software that Ambermill Construction Ltd. would need in order to connect to and search the internet.

Hardware and software	**Essential item (✓)**
Digital camera	
Ethernet card	
Hard drive	
Network cable	
Printer	
Router	
Speakers	

[3]

10 ***Discuss how Ambermill Construction Ltd. could use a computer based 'Expert' System.

The quality of written communication will be assessed in your answer to this question.

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..... **[8]**

11 Ambermill Construction Ltd. uses a range of electronic methods to communicate to staff.

Describe how each of the following methods of electronic communication could be used by Ambermill Construction Ltd.'s staff as part of their work.

(i) SMS

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..... **[2]**

(ii) Chat

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..... **[2]**

(iii) Online discussion forums

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..... **[2]**

12 ***Discuss how **modelling techniques** can help a designer at Ambermill Construction Ltd. reduce the environmental impact of a new building.

The quality of written communication will be assessed in your answer to this question.

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..... **[8]**

13 Ambermill Construction Ltd. needs to purchase a new desktop system in order to carry out detailed computer models.

Explain the main system requirements.

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..... **[6]**

Paper Total [60]

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OCR
RECOGNISING ACHIEVEMENT

OXFORD CAMBRIDGE AND RSA EXAMINATIONS

General Certificate of Secondary Education

INFORMATION AND COMMUNICATION TECHNOLOGY B063

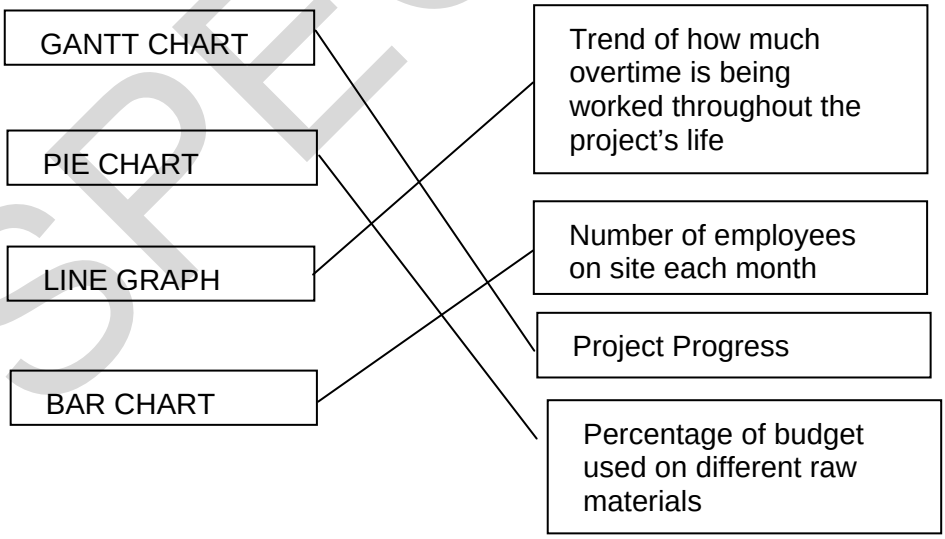
Unit B063: ICT in context

Specimen Mark Scheme

The maximum mark for this paper is **60**.

<table>
<tr><th>Question Number</th><th>Answer</th><th>Max Mark</th></tr>
<tr><td>1</td><td>
Within the design office of Ambermill Construction Ltd. the staff uses specialised hardware and software. In the table below tick the boxes to show which items are general (found in any office) and which are specialised.
One mark for each 2 correct ticks. Do not award marks if both options have been ticked.

<table>
<tr><th>Equipment and Software</th><th>General item (✓)</th><th>Specialised item (✓)</th></tr>
<tr><td>‘3D’ Printer</td><td></td><td>✓</td></tr>
<tr><td>A0 Plotter</td><td></td><td>✓</td></tr>
<tr><td>C.A.D. package</td><td></td><td>✓</td></tr>
<tr><td>Graphics Tablet</td><td></td><td>✓</td></tr>
<tr><td>Monitor</td><td>✓</td><td></td></tr>
<tr><td>Mouse</td><td>✓</td><td></td></tr>
<tr><td>‘QWERTY’ keyboard</td><td>✓</td><td></td></tr>
<tr><td>Word processing package</td><td>✓</td><td></td></tr>
</table>
</td><td>[4]</td></tr>
<tr><td>2</td><td>
Ambermill Construction Ltd. uses a number of ICT methods to communicate.
Draw a line joining the name of the chart with the type of information needed to be presented.
One mark for each correct line.

Name of chart Information to be presented


</td><td>[4]</td></tr>
</table>

Question Number	Answer	Max Mark
3(a)	**State <u>two</u> advantages to the designers at Ambermill Construction Ltd. of using electronic drawings rather than traditional paper based drawings.** 1 mark for each advantage that relates to Ambermill Construction Ltd. Marks can only be awarded if the candidate references the case study company and its needs. • Ability for construction drawings to be modified and saved • More accurate and clear as the designer can zoom in to see the detail • Can be transmitted electronically to remote building sites • Conveniently stored and backed up at head office • Can use stock components such as windows etc.	**[2]**
(b)	**State <u>one</u> disadvantage to the designers at Ambermill Construction Ltd. of using electronic drawings rather than traditional paper based drawings.** 1 mark for a disadvantage. A mark can only be awarded if the candidate references the case study company and its needs. • Cannot work outside the office as you need the software to view • Need a powerful computer as the designs of buildings will be very large in file size • Specialist equipment is needed to print large construction drawings • Specialist designer needed with both building and ICT knowledge.	**[1]**
4	**Explain <u>three</u> reasons why Ambermill Construction Ltd. might use videoconferencing to discuss the design of a new building.** 1 mark for each valid point, 1 mark for each explanation (*3) Marks can only be awarded if the candidate references the case study company and its needs. • People anywhere in the world on remote building sites can take part (1) without the need for expensive air travel (1) • PowerPoint and other visual aids can be shared (1) with the companies/other sites Ambermill work with (1) • Virtual whiteboards can be used (1) to allow any designers and builders to add their own thoughts or ideas (1) • Large numbers of construction people can take part (1) which is useful to a large construction company (1).	**[6]**
5	**Ambermill Construction Ltd.'s management has decided to use 'Web 2.0' applications in the office as part of their on-line strategy.** **Each of the company's project managers has been instructed to keep an on-line diary of project progress.** **What is the usual name for this type of on-line diary on the internet?** 1 mark for valid point - Weblog or 'Blog'.	**[1]**

<table>
<tr><th>Question Number</th><th>Answer</th><th>Max Mark</th></tr>
<tr><td>6</td><td>State <u>two</u> other types of ‘Web 2.0’ application useful to Ambermill Construction Ltd.
Marks can only be awarded if the candidate references the case study company and its needs.
• Chat room for conversations on specific construction projects
• Collaborative document publishing for building maintenance documents
• ‘Wikis’ to add construction facts
• Specific forums for electricians or plumbers etc
• Video-sharing so that the designers can help the construction workers with any problems they come across.
One mark for each valid ‘Web 2.0’ application. Max 2.</td><td>[2]</td></tr>
<tr><td>7</td><td>Ambermill Construction Ltd. uses a number of different types of software.
State the type of software that would be most suitable for each of the tasks shown in the table below.
You may use the same software more than once. Do <u>not</u> use brand names.
One mark for each correct software, no marks for brand names.
<table>
<tr><th>Task</th><th>Type of software</th></tr>
<tr><td>To store and search customer data</td><td>Database</td></tr>
<tr><td>To write a letter</td><td>Word processor</td></tr>
<tr><td>To calculate the cost of construction</td><td>Spreadsheet</td></tr>
<tr><td>To modify a web page graphic</td><td>Graphics program</td></tr>
<tr><td>To present data at a conference</td><td>Presentation software</td></tr>
</table></td><td>[5]</td></tr>
<tr><td>8</td><td>Explain <u>two</u> ways ICT can be used within the building to reduce its environmental impact.
1 mark for each point made with additional mark for the expansion explaining the concept. (*2)
• To control the heating and ventilation (1) to conserve energy/energy consumption/shut down areas of building when not in use (1)
• To control the lighting (1) so that lighting is used when ‘areas’ are occupied (1)
• Lights automatically switch on (1) when people detected (1).</td><td>[4]</td></tr>
</table>

<table>
<tr><th>Question Number</th><th>Answer</th><th>Max Mark</th></tr>
<tr><td>9</td><td>In the table below tick <u>three</u> essential items of hardware or software that Ambermill Construction Ltd. would need in order to connect to and search the internet.
Do not award marks if more than three boxes have been ticked.
<table>
<tr><th>Hardware and software</th><th>Essential item (✓)</th></tr>
<tr><td>Digital Camera</td><td></td></tr>
<tr><td>Ethernet Card</td><td>✓</td></tr>
<tr><td>Hard drive</td><td></td></tr>
<tr><td>Network Cable</td><td>✓</td></tr>
<tr><td>Printer</td><td></td></tr>
<tr><td>Router</td><td>✓</td></tr>
<tr><td>Speakers</td><td></td></tr>
</table></td><td>[3]</td></tr>
<tr><td>10*</td><td>Discuss how Ambermill Construction Ltd. could use a computer based ‘Expert’ System.

The quality of written communication will be assessed in your answer to this question.

This question to be marked as levels of response:
Level 1 (0-3 marks)
Candidates may only address some aspects of the question, and give basic descriptions of ‘expert’ systems.
Answers may be simplistic with little or no relevance.
There will be little or no use of specialist terms.
Errors of grammar, punctuation and spelling may be intrusive.
Level 2 (4-6 marks)
Candidates will address all aspects of the question and discuss/consider different aspects of expert systems although development of some of the points/implications/advantages/disadvantages/benefits/drawbacks of using expert systems may be one sided or limited.
There will be an attempt at a conclusion.
Candidates will reference the case study company and its needs.
For the most part the information will be relevant and presented in a structured and coherent format.
Specialist terms will be used appropriately and for the most part correctly.
There may be occasional errors in grammar, punctuation and spelling.
Level 3 (7-8 marks)
Candidates will address all aspects of the question and discuss different implications/advantages/disadvantages/benefits/drawbacks of using expert systems. The issues raised will be justified.
There will be a reasoned conclusion.
Candidates will reference the case study company and its needs.
Information will be relevant, clear, organised and presented in a structured and coherent format.</td><td></td></tr>
</table>

Question Number	Answer	Max Mark
10* Cont'd	Specialist terms will be used correctly and appropriately. There will be few, if any, errors in grammar, punctuation and spelling. The list below is indicative of the issues that a candidate may have covered in their research. **Points may include:** the designers will be able to access more information and expertise than available within the company expert system contains a large knowledge base storing much more data than a human can remember many experts will contribute to the data and rules giving the designers access to more data and skills than immediately available in their business data about current projects can be added to the system this data can be searched by a search engine the expert system has an inference engine that can derive new information from known facts using logic rules the construction company can use the expert system to identify potential issues about a project using the inference engine and the knowledge base the system will be tailored for use by the construction company the system can be accessed from anywhere by the employees.	**[8]**
11 **(i)**	**Ambermill Construction Ltd. uses a range of electronic methods to communicate with staff.** **Describe how each of the following methods of electronic communication could be used by Ambermill Construction Ltd.'s staff as part of their work**. Marks can only be awarded if the candidate references the case study company and its needs. **Possible points include:** **SMS** **eg** Real-time messaging format / uses mobile phones/ SMS is (less expensive as it) does not need specialist equipment (1) or internet access (1) SMS is a (cheap) easy way to report a problem on site (1) workers on a building site will not have computers with them at all times (1).	**[2]**

Question Number	Answer	Max Mark
(ii)	**Chat** **eg** A chat is a real time on-line conversation (1) which enables the construction workers and site managers to have a discussion with the designers at Ambermill (1) All participants must be in front of their computer at the same time (1) so site workers would need laptops or hand held computers (1) Anywhere from 2 to 200 people can be in a chat room(1), this is ideal for a large construction company (1) They can freely send, receive and reply to messages (1) from many chat users simultaneously(1), difficult construction problems could be communicated and resolved very quickly (1).	**[2]**
(iii)	**Online discussion forums** Discussion forums are really a slow-motion form of chat (1) and would be ideal for employees at Ambermill to share ideas (1) Forums are designed to build on-line communities of people with similar interests(1), the designers and construction workers at Ambermill would have many things to share (1) Also known as a 'discussion group', 'board' or 'newsgroup'/ a forum is an asynchronous service (1) where you can trade non-instant messages with other members/this would be ideal for sharing new materials or construction ideas (1) Discussion groups are synchronous (1) – people are on-line at the same time (1) so the builders and the designers could discuss developments in real time (1).	**[2]**
12*	**Discuss how <u>modelling techniques</u> can help a designer at Ambermill Construction Ltd. reduce the environmental impact of a new building.** **The quality of written communication will be assessed in your answer to this question.** **This question to be marked as levels of response:** **Level 1 (0-3 marks)** Candidates may only address some aspects of the question, and give basic descriptions of modelling techniques applied to building design. Answers may be simplistic with little or no relevance to the case study. There will be little or no use of specialist terms. Errors of grammar, punctuation and spelling may be intrusive. **Level 2 (4-6 marks)** Candidates will address all aspects of the question and discuss/consider different aspects of modelling techniques applied to building design although development of some of the points/implications/advantages/ disadvantages/benefits/drawbacks of using modelling techniques may be one sided or limited.	

Question Number	Answer	Max Mark
12* cont'd	There will be an attempt at a conclusion. Candidates will reference the case study. For the most part the information will be relevant and presented in a structured and coherent format. Specialist terms will be used appropriately and for the most part correctly. There may be occasional errors in grammar, punctuation and spelling. **Level 3 (7-8 marks)** Candidates will address all aspects of the question and discuss different points/implications/advantages/disadvantages/benefits/drawbacks of modelling techniques applied to building design. The issues raised will be justified. There will be a reasoned conclusion. Candidates will reference the case study. The information will be relevant, clear, organised and presented in a structured and coherent format. Specialist terms will be used correctly and appropriately. There will be few, if any, errors in grammar, punctuation and spelling. Only responses that are clearly linked to this concept should be considered. **Points may include:** **Design** looking at the position of the building relative to other buildings shade/shadow/wind etc exploring the different construction techniques exploring materials used eg cost, heat efficiency etc exploring weather conditions, modelling the effects over the year, day etc of different construction methods and designs modelling the use of the building, heat, light needs etc modelling different materials for insulation, heat retention etc modelling wiring layouts to reduce the amount of cabling etc. **Construction** reducing waste less energy construction methods recycling construction planning local sourcing of materials local sourcing of labour. **Energy** storage heat transfer solar cells.	**[8]**

Question Number	Answer	Max Mark
13	**Ambermill Construction Ltd. needs to purchase a new desktop system in order to carry out detailed computer models. Explain the main system requirements.** Candidate must include more than one requirement for full marks. **Processing issues** The system will need a large amount of RAM (1) to process the large amount of data used by these applications (1) The system will need a high specification processor (1) to deal with the large amount of processing associated with these applications (1). **Graphics issues** The system will require a high specification graphics card with a large amount of memory (1) to deal with the high resolution images / the amount of image processing required by these applications (1). **Output issues** The system will require a large high-resolution plotter (1) to output the detailed drawings required in the building industry (1). **Input issues** The system will require a digitising tablet (1) for inputting the drawings to these specialised systems (1) and a specialist keyboard for the specialised symbols and other inputs required in these applications (1). **Software issues** The system will require specialist design software (1) and specific training for designers on how to use this software (1). Max 2 marks for a list of points.	**[6]**
	Paper Total	**[60]**

Assessment Objectives Grid (includes QWC)

Question	A01	A02	A03	Total
1	4	0	0	4
2	2	2	0	4
3a	0	1	1	2
3b	0	1	0	1
4	0	4	2	6
5	1	0	0	1
6	2	0	0	2
7	5	0	0	5
8	2	2	0	4
9	3	0	0	3
10*	4	2	2	8
11	3	3	0	6
12*	4	2	2	8
13	3	3	0	6
Totals	33	20	7	60