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**OXFORD CAMBRIDGE AND RSA EXAMINATIONS
ADVANCED GCE**

G063

**INFORMATION AND COMMUNICATION
TECHNOLOGY**

Systems, Applications and Implications

THURSDAY 23 JUNE 2011: Morning

DURATION: 2 hours

SUITABLE FOR VISUALLY IMPAIRED CANDIDATES

Candidates answer on the question paper.

OCR SUPPLIED MATERIALS:

None

OTHER MATERIALS REQUIRED:

None

READ INSTRUCTIONS OVERLEAF

INSTRUCTIONS TO CANDIDATES

- **Write your name, centre number and candidate number in the boxes on the first page. Please write clearly and in capital letters.**
- **Use black ink. Pencil may be used for graphs and diagrams only.**
- **Read each question carefully. Make sure you know what you have to do before starting your answer.**
- **Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).**
- **Answer ALL the questions.**

INFORMATION FOR CANDIDATES

- **The number of marks is given in brackets [] at the end of each question or part question.**
- **The total number of marks for this paper is 120, of which marks are allocated to the assessment of the quality of written communication where an answer requires a piece of extended writing.**

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SECTION A

Attempt ALL the questions in this section.

1 State FOUR items that should be included in a design specification.

1. _____

2. _____

3. _____

4. _____

_____ [4]

2 Identify TWO members of a project team and describe the role of each.

1. _____

2. _____

[6]

3 (a) Identify ONE characteristic of a single-user operating system.

[1]

(b) Identify THREE characteristics of a multi-tasking operating system.

1. _____

2. _____

3. _____

[3]

4 Describe how colour should be considered when designing a Human Computer Interface (HCI).

[4]

5 Describe TWO limitations of interactive television.

1. _____

2. _____

[4]

6 Describe the involvement of the client when a custom-written computer-based system is being produced for them.

[6]

7 Staff within a school use a Management Information System (MIS) to track pupil progress, write reports and monitor behaviour.

(a) Explain when adaptive and perfective maintenance would be needed on this MIS.

[4]

The school has decided to upgrade the software.

(b) Explain TWO factors that should be taken into account when upgrading the software.

1. _____

2. _____

_____ **[4]**

8 It is important that information is exchanged accurately and in a timely manner between departments in a business.

(i) Using an example, explain why it is important that information is exchanged ACCURATELY.

[2]

(ii) Using an example, explain why it is important that information is exchanged in a TIMELY MANNER.

[2]

SECTION B

Attempt ALL the questions in this section.

QUESTIONS 9–17 CONCERN A MOUNTAIN RESCUE TEAM BASED IN A TOWN IN THE PEAK DISTRICT.

All members of the team are volunteers, living across a wide area including some remote locations. Not all team members have broadband internet access.

9 A member of the team, who lives in a remote location, has been offered a broadband internet connection.

Compare ADSL to a satellite connection for accessing the internet.

[3]

10 (a) The Mountain Rescue Team's emergency vehicles are to have a satellite tracking system installed in them.

Describe TWO advantages of tracking its vehicles in this way.

1. _____

2. _____

_____ **[4]**

The vehicles have also been equipped with satellite navigation systems.

(b) (i) Explain why the Mountain Rescue Team has done this.

[4]

11 During rescues the Mountain Rescue Team collect many different pieces of information from the casualty to pass on to medical personnel.

Describe how the quality of this information can be affected by accuracy, completeness and level of detail.

[6]

12 (a) The Mountain Rescue Team is to have a single, purpose built training facility. A local area network (LAN) will be installed.

Describe the role of a file server in a client-server network.

[6]

(b) The Mountain Rescue Team is going to offer internet tuition for members via a website.

Describe THREE advantages of using a graphical user interface (GUI) on the website.

1. _____

2. _____

3. _____

_____ **[6]**

13 The Mountain Rescue team is part of a regional Mountain Rescue Organisation which holds details of all its members in a regional database. This database needs to be distributed to each Mountain Rescue Team.

(a) Explain an advantage to the regional Mountain Rescue Organisation of using a central database with remote local indexes.

[2]

(b) Explain how the regional Mountain Rescue Organisation could make use of vertical partitioning.

[4]

14 The Mountain Rescue Teams use an expert system to forecast the weather.

(a) Identify THREE components of an expert system.

1. _____

2. _____

3. _____

_____ [3]

(b) Explain TWO advantages for the Mountain Rescue Teams of using an expert system to forecast the weather.

1. _____

2. _____

_____ [4]

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15 The regional Mountain Rescue Organisation requires a software application to store details of the equipment held by each team.

(a) Create a Critical Path Analysis diagram for the development of this software application using the data in the table below.

TASK	DESCRIPTION	ORDER	TIME
A	Initial interview	complete first	1 week
B	Definition of problem	start when A is complete	1 week
C	Investigation	start when A is complete	1 week
D	Analysis	start when B and C are complete	2 weeks
E	Nature of Solution	start when D is complete	2 weeks
F	Project Plan	start when E is complete	1 week
G	Software development	start when F is complete	3 weeks
H	Testing	start when G is complete	1 week
I	Re-testing	start when H is complete	1 week
J	Write User Guide	start when H and I are complete	2 weeks

K	Write Training documents	start when J is complete	2 weeks
L	Installation	start when J and K are complete	1 week

[4]

(b) Describe THREE implications for the regional Mountain Rescue Organisation of the software application not meeting their requirements.

1. _____

2. _____

3. _____

_____ **[6]**

16 The regional Mountain Rescue Organisation often sends members to assist in international relief operations.

Discuss the implications for members of the regional Mountain Rescue Organisation of being able to communicate using mobile technology whilst assisting with international relief operations.

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

[11]

[11]

END OF QUESTION PAPER

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