



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER

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COMPUTER STUDIES

0420/31

Paper 3 Alternative to Coursework

May/June 2012

1 hour 30 minutes

Candidates answer on the Question Paper.

No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
You may use a soft pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.
DO NOT WRITE IN ANY BARCODES.

There is one compulsory question on this paper.

Each part must be answered in the space provided.

No marks will be awarded for using brand names of software packages or hardware.

You are advised to spend at least 20 minutes reading the information at the start of question 1 since this information is needed to answer all the sections in this question.
All answers must refer to this information system.

The number of marks is given in brackets [] at the end of each part question.
The maximum number of marks is 60.

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| For Examiner's Use |
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This document consists of **15** printed pages and **1** blank page.

1 In this question you are asked to read about:

- an existing system for booking activities at a holiday park; this is manual and paper-based;
- the proposed replacement; this is to be a computer-based booking system.

You are given a description of both the existing and the proposed new computerised system.

Description of the existing system

Guests stay at holiday homes in the holiday park for a week at a time. When a guest wants to book an activity, they can phone the holiday park receptionist. Alternatively they can visit the reception area to look at the lists of activities. Each activity has a start and finish time and some have a maximum number of participants. Some also have age restrictions. For example Messy Play for the under-fives starts at 2pm and finishes at 4pm on Saturday and there are 15 places available. An activity can be booked for that week only and the booking has to be made at least one hour before the activity starts.

When a booking is made, the following details are **always** required:

- holiday home number
- number of participants
- the name of each participant

The following **may** be required:

- age of each participant

The lists for all activities are kept at reception. The receptionist checks the list for the selected activity to see if there are any spaces available. If spaces are available the receptionist asks for the details that are always required, and ages if required. These details are added to the list and the cost of the activity is added to the account for that holiday home.

Half an hour before the activity starts the list is collected from reception.

When the participants arrive to start the activity their names are crossed off the list.

Description of the proposed computer-based system

The proposal is to replace all the paperwork. A computer-based activity booking system will be used. It will contain all the information described above. It will allow guests to book their activities on the holiday park's intranet. They will do so using a touch screen in their holiday home or using the touch screens located in various places around the holiday park.

The holiday park will use a wireless Local Area Network (LAN). All of the activities have organisers. Each organiser and the receptionist will have access to a personal computer and a printer. There will be a personal computer with a touch screen in each of the holiday homes; all of these will communicate over the LAN.

In the new system, a guest uses the holiday park intranet to book an activity. Guests can book activities themselves. Bookings must be made at least half an hour before the start of the activity and places must still be available. For every activity booked, the cost is added automatically to the holiday home account.

Organisers can display or print a list of participants for any of that week's activities.

A systems analyst is to be employed to review the existing manual method. The analyst will be responsible for drawing up an action plan for the new computer-based system. This will then be designed, built, tested and implemented. Technical and user documentation will be produced. Six months after the introduction of the new system, a full evaluation of its performance will be made.

- (a) The systems analyst needs to ensure that the project is delivered on time and on budget.

What tools could the analyst use to monitor and track project progress?

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[3]

(b) The analyst has decided to use the following methods to gather information about the existing manual system.

- A questionnaire for the guests
- An interview for the reception staff

Explain why each of the methods used is appropriate for this manual system.

(i) A questionnaire for the guests.

Explanation

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(ii) An interview for the reception staff.

Explanation

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(iii) State **one** other method that the systems analyst could use.

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(c) State **two** items of hardware that would be needed to connect computers wireless LAN for the holiday park. Justify your choice for each item.

Item 1

Reason

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Item 2

Reason

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..... [4]

- (d) The first two screens for the activities booking system at the holiday park are below.

For
iner's

Screen 1

Activities Booking System
please touch the screen
to start

A large rectangular box representing a screen. Inside, the text is centered and reads: "Activities Booking System", "please touch the screen", and "to start" on three separate lines.

Screen 2

Please log on by
entering your holiday
home number here

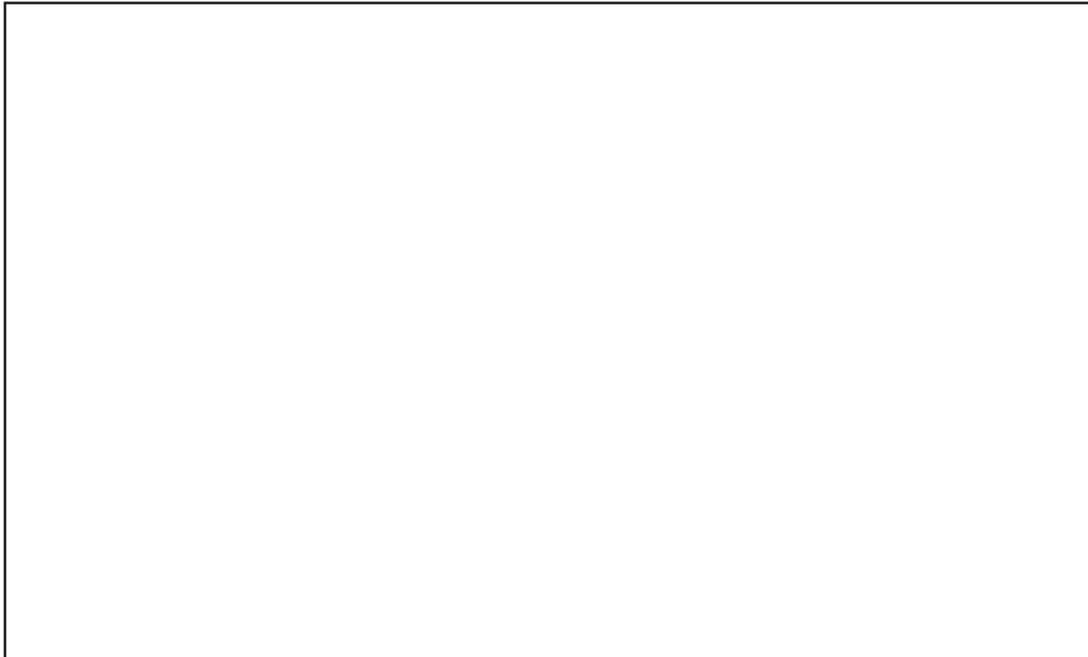
A large rectangular box representing a screen. In the upper right area, there is a horizontal rectangular input field. In the lower left area, there is a rounded rectangular box containing the text: "Please log on by", "entering your holiday", and "home number here" on three lines.



Use the spaces below to re-design both the screens so that they are more user-friendly for the guests to use. Explain what changes you made to improve each screen and why you made them.

(i)

Screen 1



Explanation

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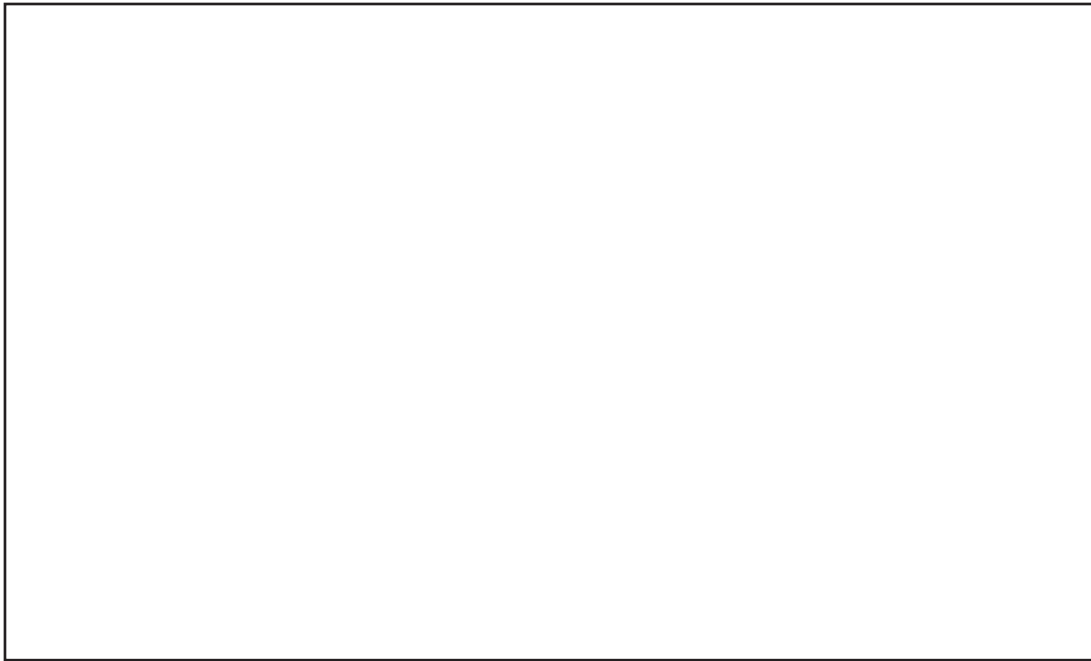
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(ii)

Screen 2



Explanation

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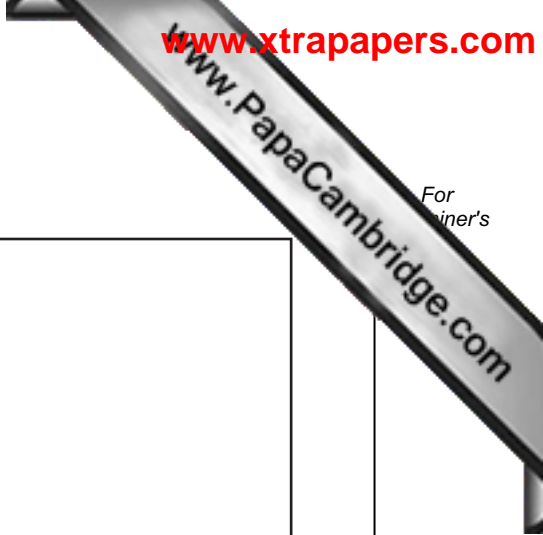
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(e) Draw the following system flowchart symbols.

Process

Keyboard Entry

Sort

Disk Storage

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(f) Draw a system flowchart to show how the activities-booking part of the computer system should work.

Include:

- what happens when a guest logs on
- selecting an activity
- updating the holiday home accounts
- printing a list of participants for an activity

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- (g) The systems analyst wants to ensure that the intranet is secure against users outside the holiday park.

Explain what steps he needs to take.

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- (h) The systems analyst is employing a programmer to write bespoke software for the new computer-based system.

State the benefits of this method of obtaining appropriate software.

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(i) The number of participants entered for an activity must be a positive whole number less than 50.

Give **three** examples of test data that could be used for the number of participants. Justify your choice for each example. Your reasons must be different in each case.

Example 1

Reason

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Example 2

Reason

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Example 3

Reason

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[6]

(j) State **four** items that should be included in the User Guide supplied with the system. For each one explain why it should be included.

Item 1

Reason

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Item 2

Reason

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Item 3

Reason

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Item 4

Reason

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..... [8]

(k) The new system is intended to be an improvement over the old paper-based system.

Describe **three** advantages of the new system. Use examples related to the holiday park.

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(I) Describe **two** ways in which the new system should be evaluated.

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[2]

