CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

COMPUTER STUDIES

7010/32

Paper 3 Alternative to Coursework

October/November 2013

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.

For Examiner's Use

This document consists of **13** printed pages and **3** blank pages.

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[Turn over

In this question you are asked to read about:

- an existing manual, paper-based system for parents to book and pay for their child to take part in a school trip,
- a web-based semi-automatic booking and payment system that is intended to be introduced as a replacement.

You are given a description of both the existing and the intended new web-based computerised system.

Description of the existing system

Students wishing to go on a school trip take a form home for their parents to complete. There is a standard form that gives details of the trip, asks for the parent's consent and shows a record of payments made.

> **The High School**
> **School Trip Consent form**
>
> **Trip Details**
> Destination FRANCE
> Activities CLIMBING, SAILING
> Dates of Trip 6th April 2014 – 13th April 2014
> Cost $1000.00
>
> **Student Details**
> Name of Student AMY TAN
> Class 7Y
>
> **Parent contact details**
> Name Louise Tan
> Address 77 High Street
> Telephone Number 697733
>
> I consent to my son/daughter taking part in the school trip detailed above.
> Signed A Tan
>
> **Payments**
>
> | | Paid | Total outstanding |
> |---|---|---|
> | Deposit required $350 | ✓ | $ 800 |
> | Payment 1 | $150 | $ 650 |
> | Payment 2 | | |
> | Payment 3 | | |
> | Payment 4 | | |
> | Payment 5 | | |
> | Final Payment due 4 weeks before start of trip | | |

In addition a record of payments received from each student is kept in an accounts book in the school office. When a student brings in a payment it is recorded in the accounts book and on the consent form. If the full amount has not been received 4 weeks before the start of the trip then a reminder letter is sent to the parent.

Description of the proposed computer-based system

The intention is to replace all the paperwork by introducing a web-based semi-automatic booking and payment system which will contain all the information described above, but will allow parents to log on securely to the school's intranet from a computer at home.

In the new system, a parent is given a unique secure logon to complete the online consent form and to make payments using a credit/debit card. Every payment is confirmed by email and, once confirmed, shown on the online form. If the full amount has not been received 4 weeks before the start of the trip then an email reminder is sent to the parent. The record of payments is automatically transferred to the spreadsheet kept on the school office computer.

A systems analyst is to be employed to review the existing manual method. The systems analyst will be responsible for drawing up an action plan for the new web-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.

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

Explain why the systems analyst has chosen to use a Gantt chart rather than a PERT chart to track the progress of this project.

....

....

....

....

.... [2]

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

- A questionnaire for the parents
- An interview for the school office staff

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

A questionnaire for the parents:

Explanation ....

....

....

....

....

An interview for the school office staff:

Explanation ....

....

....

....

.... [4]

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

....

.... [1]

(c) Use the following boxes to design two user-friendly screens for the web-based school trip booking and payment system. Screen 1 shows the details of the trip; screen 2 is the consent form.

Explain what you did to make each screen user-friendly.

(i)   **Screen 1 (school trip details)**

Explanation ....

....

....

....

....

.... [5]

(ii) **Screen 2 (consent form)**

Explanation ....

....

....

....

....

.... [5]

(d) The systems analyst wants to ensure that the school intranet is secure from unauthorised use.

Explain what steps the systems analyst needs to take.

....

....

....

....

.... [3]

(e) Draw a systems flowchart, with a key, to show how the web-based school trip booking
and payment system should work.

  (i) Include in the key:

- 4 symbols used in your flowchart
- A description of the purpose of each of these symbols

Key	
Symbol	**Description**

[4]

(ii) Include in your systems flowchart:

- Completing the consent form
- Making a payment
- Checking for final payment

[6]

(f) Write an algorithm, using pseudocode or a flowchart, which:

- inputs the amount to be paid by a parent (`AmountToPay`)
- adds this to the total amount already paid by that parent
- checks the total amount paid does not exceed the total price of the trip
- exits if this is the case
- outputs the amount now outstanding
- outputs appropriate prompts and messages

You can assume:

`Price` has already been set to the total price of the trip.

`Total` has been set to the total amount already paid by a parent.

[8]

(g) Given a value of \$600 for `Price` and a value of \$440 for `Total`, suggest **two** values for `AmountToPay` that you would use to test your algorithm. Give a reason why you chose each value.

Value ....

Reason chosen ....

....

....

Value ....

Reason chosen ....

....

.... [4]

(h) Which method should the systems analyst use to provide the software for the new web-based system?

Explain with reasons which method the systems analyst should choose.

Method ....

Reasons ....

....

....

....

.... [4]

(i) Describe a test strategy for the new web-based school trip booking and payment system.

....

....

....

....

.... [3]

(j) State **four** items that should be included in the technical documentation supplied with this new system. For each one explain why it should be included.

Item 1 ....

Reason ....

....

....

Item 2 ....

Reason ....

....

....

Item 3 ....

Reason ....

....

....

Item 4 ....

Reason ....

....

.... [8]

(k) State **three** ways to evaluate the new web-based school trip booking and payment system.

....

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....

....

.... [3]

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