OCR
RECOGNISING ACHIEVEMENT

OXFORD CAMBRIDGE AND RSA EXAMINATIONS

General Certificate of Education Advanced Subsidiary Level

INFORMATION AND COMMUNICATIONS TECHNOLOGY 3838/7838

2513

Structured Practical ICT Tasks

MAY 2006

Issued September 2005
Maximum Mark 120

INSTRUCTIONS TO CANDIDATES

You should attempt all tasks, working independently from other candidates.

There are no time limitations on the tasks other than that they must be submitted by the appropriate internal deadline set by the Candidate's Centre. This deadline will reflect the need for the Centre to complete marking of the tasks and submission of marks to OCR by 15th May 2006.

There are no restrictions on computing facilities, hardware or software, that may be used.

You are strongly advised to keep all your working notes as these may be required by the moderator.

Reasons for answers to tasks are expected to form part of the work submitted.

INFORMATION FOR CANDIDATES

Candidates are reminded of the need for good English and clear presentation in their answers. They will be expected to have used software tools, such as spellcheckers, to help achieve this.

Notice to candidates

1 The work which you submit for assessment must be your own.

However, you may:

(a) quote from books or any other sources: if you do, you must state which ones you have used;

(b) receive guidance from someone other than your teacher: if so you must tell your teacher, who will record the nature of the assistance given to you.

2 If you copy from someone else or allow another candidate to copy from you, or if you cheat in any other way, **you may be disqualified from at least the subject concerned.**

3 When you hand in your coursework for assessment, you will be required to sign that you have understood and followed the coursework and portfolio requirements for the subject.

ALWAYS REMEMBER – YOUR WORK MUST BE YOUR OWN

This question paper consists of 7 printed pages and 1 blank page.

Registered Charity Number: 1066969
[Turn over

Task 1 [Total 22 Marks]

This is a design and software development task.

EK Limited (Ltd) is a driving school in a large city with about 300 customers at any one time. Currently, 11 instructors are employed by EK Ltd. The driving school would like to produce some new stationery to provide a professional corporate image.

(a) Using software, produce a business card for Angela Keepax who is one of the instructors of EK Ltd. [7]

EK Ltd want to produce business cards for all the instructors. When producing the business cards, the driving school want to use mail merge to automatically place the data about each instructor onto their card.

(b) **(i)** Create and print the data source for Angela and the other **ten** driving instructors. [2]

(ii) Produce and print the standard business card showing merge fields. Show evidence of the merge field codes. [1]

(iii) Using mail merge, produce and print the **eleven** business cards on **two** sheets of A4 paper. [2]

Angela Keepax is the instructor responsible for purchasing vehicles for the driving school. Whilst looking for vehicles, she notes down details of those she is interested in purchasing. The information she records about each vehicle is:

- where it is being sold,
- registration mark (eg ZZ 05 ANG),
- year of first registration (eg 2005),
- current mileage,
- make (eg Ford),
- model (eg Fiesta),
- engine size (eg 1300 cc),
- power (eg 110 bhp),
- manual or automatic,
- colour,
- metallic or standard paint;
- whether or not it has:
  - air conditioning,
  - climate control,
  - electric windows,
  - central locking,
  - heated seats,
  - alloy wheels,
- the purchase price.

(c) Design a data collection form that Angela can use when she records details about vehicles. Do **not** use a computer for this part of the task. [10]

Task 2 [Total 32 marks]

This is a design, software development and implementation task.

EK Ltd have decided to install a touch screen in their business premises. The screen can be used by customers to select information about the driving school. They would like to include:

- an opening screen,
- contact details for the driving school,
- prices of lessons,
- pictures of some of their cars,
- pictures of their instructors,
- pass rate statistics,
- a video of a driving technique.

(a) Using a diagram, design the overall structure of a presentation that can be used on the touch screen showing how all the screens will link together. [6]

(b) Produce the presentation that can be used on the touch screen. Provide alternative evidence for features of the presentation that cannot be printed. [8]

Note: Alternative evidence can include printed screenshots of it being set up, or printed screenshots of different frames from a moving image, but not digital media. A video of a driving technique is available to download from http://www.ocr.org.uk/2513_2006/changinggear. You may use this if you wish.

The driving school want to be able to make changes to the presentation themselves when it becomes necessary.

(c) Produce user documentation to show how to:
- change the prices of lessons,
- take digital photographs of cars and instructors,
- include photographs in the presentation,
- add a new screen to the presentation. [12]

The titles and sub-titles for each section of the user documentation should be automatically numbered. The contents page should be linked automatically to the titles and sub-titles.

(d) **(i)** Produce annotated evidence of how titles and sub-titles were automatically numbered within the user guide. [3]

(ii) Produce annotated evidence of how the contents page for the user documentation was created so that the page numbers are automatically updated when the layout of pages changes. [3]

Task 3 [Total 22 Marks]

This is a design, software development and testing task.

As part of the touch screen presentation, EK Ltd would like a spreadsheet to be created to allow potential customers to see how much a lesson will cost. There are four different types of lessons. Lessons are charged at different amounts per hour, as shown in Table 3.1.

Lesson Type	Charge per hour
Beginner	£15
Test Retake	£13
Disqualified Retake	£25
Advanced	£10

Table 3.1 – Lesson Charges

Lessons can only be taken in full hours up to a maximum of 3 hours. The second hour has a discount of £1 and the third hour has a discount of £2. For example, a beginner taking a 3 hour lesson would be charged £15 + £14 + £13 = £42.

(a) Design a screen that will allow customers to select the lesson type and duration and display the total charge on the screen. You must include a design specification. The design must be hand drawn. [10]

(b) Produce the spreadsheet for use on the touch screen.

(i) Produce and print the data look-up table used for the screen. [1]

(ii) Print the screen. [2]

(iii) Print and annotate the formulae or macros used, explaining how they work. [3]

(c) (i) Produce a table of test data using the structure below. You should plan **three** different tests that could be used to test this model, clearly identifying any input values to be used and the expected output values. [3]

Test Number	Description of Test	Type of Test	Input Data Value(s)	Expected Output Value
1				
2				
3				

(ii) Print annotated evidence of using the test data from **(c) (i)**. [3]

Task 4 [Total 44 Marks]

This is a software development and testing task.

EK Ltd currently use a paper-based system for their records. When a customer books a lesson, their record card at the driving school is updated. An example of a record card is shown in Table 4.1.

Name:	*Nicola Long*	**Address:**	*65 Boldmere Drive* *Fradley* *Lichfield* *Staffordshire* *WS54 9UZ*
Telephone:	*0525 555 5555*		
Mobile:	*0725 321 121*		
Date of Birth:	*14 Dec 1986*		
Licence Number:	*LONG9 239138 NJ3NR*	**Date Passed Test:**	
Notes:	*Evenings only*	**Level:**	Beginner ~~Test-Retake~~ ~~Disqualified Retake~~ ~~Advanced~~
Passed Theory:	Yes / ~~No~~		
Usual Instructor:	*Merrick Woodward*	**Manual/Automatic:**	*M*

LESSONS

Date	Time	Length	Instructor	Vehicle	Price	Paid
22-6-05	*18:00*	*1hr*	*MW*	*BX03HMW*	*£15*	✓
29-6-05	*18:00*	*1hr*	*MW*	*BX03HMW*	*£15*	✓
6-7-05	*18:30*	*2hrs*	*MW*	*BX03HMW*	*£29*	✓
13-7-05	*18:00*	*1hr*	*PM*	*BR54URS*	*£15*	✓
20-7-05	*18:00*	*3hrs*	*MW*	*BX03HMW*	*£42*	✓
3-8-05	*18:30*	*1hr*	*MW*	*BA55WEP*	*£15*	
5-8-05	*20:00*	*1hr*	*MW*	*BA55WEP*	*£15*	

Table 4.1 – Driving School Record Card

The driving school also has record cards for its vehicles and instructors. The record card for each vehicle has information about its registration mark, make, model, year of registration, manual/automatic, availability and notes. The vehicle is either available or unavailable for use by the driving instructors at any one time. Notes for the vehicle are kept about its service history and any damage that is caused. The record card for each instructor has information about the instructor's name, date of birth, gender, date of first employment, date left (if appropriate) and National Insurance number.

EK Ltd have decided to use a database.

(a) Build a database table structure for the driving school.

(i) Produce printed evidence to show the:

- data types used for each attribute,
- relationships between each table,
- primary keys used for each table. [8]

(ii) Produce printouts of the tables with sample data, including the data used in Table 4.1, to show:

- at least 11 instructors,
- at least 10 customers,
- at least 20 lessons,
- at least 5 vehicles. [4]

(b) Give **three** different items of test data, with reasons, that could be used to test the input of the National Insurance number for the driving instructor. [3]

(c) (i) Describe **four** different and specific validation checks that could be created to validate the input of data into the database. [4]

(ii) Using validation checks from **(c) (i)**, produce **four** annotated printouts to show evidence of customised error messages that appear when invalid data is entered. Input data used should be clearly identified. [4]

The driving school want to be able to print various lists about the data.

(d) (i) Produce a report to show all future lessons for Nicola Long, including the finishing time of each lesson which is not stored in the database. You should provide annotated evidence of how the finishing time is calculated and include at least **three** lessons on the list. Identify clearly the date the report was printed. [3]

(ii) Produce a report to show all lessons on 29 June 2005 for Merrick Woodward who is one of the driving instructors. You should include evidence of any query structures that you use and there should be at least **five** lessons. [2]

(iii) Produce a report to show all future lessons **grouped** by driving instructor. As evidence there should be at least 20 lessons. Identify clearly the date the report was printed. [2]

Each customer will need a weekly invoice to show the lessons that have not been paid for and how much money is owed. EK Ltd show Value Added Tax (VAT) as a separate item on their invoices. The charges shown in table 3.1 include VAT.

(e) (i) Create an invoice that can be used for any customer. As evidence you should include annotated printouts of invoices for **three** different customers. At least **one** invoice must show more than **one** lesson. [3]

(ii) Print and annotate evidence of the calculations used for the invoices. [3]

(iii) Print and annotate the query and report structure or other methods used to display the data on the invoice. [2]

The driving school are concerned that the invoices contain accurate data.

(f) (i) Produce a testing plan for **three** formulae, to show that the results are accurate. Include a table of test data using the structure below. [3]

Test Number	Formula to Test	Input Data Value(s) for formula	Expected Output Value
1			
2			
3			

(ii) Using the test data in **(f) (i)** produce **three** annotated printouts to show evidence of using the test data. [3]

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