

Surname					Other Names				
Centre Number					Candidate Number				
Candidate Signature									

Leave blank

General Certificate of Education
 June 2005
 Advanced Subsidiary Examination



COMPUTING
Unit 3 Practical Systems Development

CPT3

Wednesday 18 May 2005 Afternoon Session

In addition to this paper you will require:
 your completed Practical Exercise for CPT3.
 You may use a calculator.

For Examiner's Use			
Number	Mark	Number	Mark
1			
2			
3			
4			
5			
6			
7			
Total (Column 1)	→		
Total (Column 2)	→		
TOTAL			
Examiner's Initials			

Time allowed: 1 hour 30 minutes

Instructions

- Use blue or black ink or ball-point pen.
- Fill in the boxes at the top of this page.
- Answer **all** questions in the spaces provided. All working must be shown.
- Do all rough work in this book. Cross through any work you do not want marked.

Information

- The maximum mark for this paper is 65.
- Mark allocations are shown in brackets.
- You will be assessed on your ability to use an appropriate form and style of writing, to organise relevant information clearly and coherently, and to use specialist vocabulary, where appropriate.
- The degree of legibility of your handwriting and the level of accuracy of your spelling, punctuation and grammar will also be taken into account.

At the end of the examination

- Hand in **both** this question paper **and** your Practical Exercise documentation to the invigilator.
- **Warning:** If you do not hand in both documents it may not be possible to issue a result for this unit.

Answer **all** questions in the spaces provided.

Answer this paper using the documentation you have prepared for the Terry’s Turkeys practical exercise as requested in the 2005 specification. A copy of the brief for this practical exercise has been included at the end of this paper if you need to refer to it.

Many of these questions require you to give the page number in your documentation, where the evidence for the answer may be found. You **must** write the number and part of your question in the margin of that page in your documentation.

At the end of this examination your documentation **must** be handed in with this question paper.

1 This question relates to the DESIGN process.

(a) You were told that each turkey is identified by a unique number.

(i) Give a page number where there is a reference to this unique number.

Page (1 mark)

(Write Q1a in the margin, in the correct place, on that page.)

(ii) Explain how you ensured that this number was unique.

.....
.....
(1 mark)

(b) Each customer order is identified by an order number.

Give a page number where there is a reference to an allocated order number.

Page (1 mark)

(Write Q1b in the margin, in the correct place, on that page.)

(c) Each customer can place an order for up to five turkeys.

(i) Give a page number of an order for one or more turkeys.

Page (1 mark)

(Write Q1c in the margin, in the correct place, on that page.)

(ii) Explain how your solution connects a turkey with the customer purchasing it.

.....
.....
(1 mark)

(d) State what data type you have used for each of the following items, and explain your choice in each case.

(i) Contact Telephone Number

Data type

Why?

.....

(2 marks)

(ii) Weight of Turkey Ordered

Data type

Why?

.....

(2 marks)



TURN OVER FOR THE NEXT QUESTION

Turn over ►

2 This question relates to the IMPLEMENTATION process.

(a) You were told to produce a list of customer names and bill/order numbers.

(i) Where in your documentation is your **coding or equivalent instructions** to produce this list?

Page (1 mark)

(Write Q2 (a)(i) in the margin, in the correct place, on that page.)

(ii) Give the steps in your solution to produce this list.

.....
.....
.....
.....

(3 marks)

(b) You were told to produce a turkey list.

(i) Where is there a **hard copy** of such a list in your documentation?

Page (1 mark)

(Write Q2 (b)(i) in the margin, in the correct place, on that page.)

(ii) Give the steps in your solution to produce this list.

.....
.....
.....

(2 marks)

(c) You were told to keep a record of the money taken including the final total calculated on December 24th.

(i) Where in your documentation is your **coding or equivalent instructions** to calculate the final total?

Page (1 mark)

(Write Q2 (c)(i) in the margin, in the correct place, on that page.)

(ii) Explain how your solution totalled up the money taken.

.....
.....
.....
.....

(4 marks)

(d) You were told that customer orders cannot be changed, only cancelled.

(i) Where in your documentation is evidence of an order that has been cancelled?

Page (1 mark)

(Write Q2 (d)(i) in the margin, in the correct place, on that page.)

(ii) Explain how your solution cancelled this order.

.....
.....
.....
.....

(3 marks)

3 This question relates to the DESIGN and TESTING processes.

(a) How did your solution prevent a customer buying more than five turkeys?

.....
.....
.....
.....

(2 marks)

Where is this made clear in your documentation?

Page (1 mark)

(Write Q3 (a) in the margin, in the correct place, on that page.)

(b) (i) How did your solution prevent a customer ordering a turkey weighing more than 10 kilograms or under 5 kilograms?

.....
.....
.....
.....

(2 marks)

(ii) What test data did you use to test for over 10 kilograms?

.....

(1 mark)

(iii) Give the page reference giving evidence of this test.

Page (1 mark)

(Write Q3 (b) (iii) in the margin, in the correct place, on that page.)

(iv) What test data did you use to test for under 5 kilograms?

.....

(1 mark)

(v) Give the page reference giving evidence of this test.

Page (1 mark)

(Write Q3 (b)(v) in the margin, in the correct place, on that page.)

TURN OVER FOR THE NEXT QUESTION

Turn over ►

4 This question relates to the DESIGN and OUTPUT of the bill.

- (a) (i) On which page of your documentation is a hard copy of a customer bill with no discount applied?

Page (1 mark)

(Write Q4 (a)(i) in the margin, in the correct place, on that page.)

- (ii) On which page of your documentation is a hard copy of a customer bill with a discount applied?

Page (1 mark)

(Write Q4 (a)(ii) in the margin, in the correct place, on that page.)

- (iii) List the steps in your solution, which test and if necessary apply a discount to the bill.

.....

.....

.....

.....

(3 marks)

- (b) (i) Give **two** criteria that you have considered for the design of the presentation and layout of the customer bills and say how you have used each of them.

Criterion 1 (1 mark)

Use (1 mark)

Criterion 2 (1 mark)

Use (1 mark)

(ii) Which page(s) of your documentation demonstrates this aspect of your design?

Criterion 1 page (1 mark)

(Write Q4 (b)(ii) 1 in the margin, in the correct place, on that page.)

Criterion 2 page (1 mark)

(Write Q4 (b)(ii) 2 in the margin, in the correct place, on that page.)

11

TURN OVER FOR THE NEXT QUESTION

Turn over ►

5 This question relates to the ANALYSIS process.

- (a) Turkey and Customer are two entities in this system. Draw the Entity Relationship Diagram (ERD) showing the relationship between them.

(1 mark)

- (b) Terry wants to extend his computerised system for 2005. Explain what method a systems analyst might use to investigate how his current system works and why this method would be appropriate.

Method.....

Why appropriate?.....

.....

.....

(2 marks)

- (c) Terry has decided to extend his range of turkeys available for 2005. He wishes to contact all his previous customers to let them know. What extra information should he collect from his customers and how could he use this, with the assistance of the computer system, to tell them about the extended range of turkeys?

Information

Use

.....

.....

.....

(3 marks)

6 This question relates to the LEGAL use of computers.

(a) Name the legislation that applies to the customer data that Terry's computer system will store and process.

.....
(1 mark)

(b) State **three** requirements of this legislation relating to Terry's customer data.

1
.....
(1 mark)

2
.....
(1 mark)

3
.....
(1 mark)

(c) Describe a technique that Terry should have in place to prevent loss or damage to the data.

.....
.....
.....
.....
.....
(2 marks)

6

Turn over ►

7 In this question, consider how you might EXTEND your solution.

Terry is expanding his business and he has decided to allow orders for more than five turkeys in 2005. The cost of turkeys will go up to £4.99 per kilogram, but if a customer orders more than five turkeys they will pay one preparation fee of £10.00.

(a) Explain how you would modify your solution to allow for regular changes in the price per kilogram. (If your solution already does this explain how it achieved it.)

.....
.....
.....
.....
.....
.....
.....
.....

(4 marks)

(b) Explain the changes you would need to make to your solution to allow for the new method of calculating the total cost of orders containing more than five turkeys.

.....
.....
.....
.....
.....

(3 marks)

(c) Explain why some customers may feel disadvantaged by the new pricing policy.

.....
.....
.....

(1 mark)

END OF QUESTIONS

This question paper has been based on the Practical Exercise – Terry’s Turkeys – which was given in the 2005 specification. A copy of this exercise is given below for reference purposes only.

AS Practical Exercise**(CPT3) – Terry’s Turkeys**

Background

Terry’s Turkeys is a small farm which supplies fresh, homegrown turkeys at Christmas.

You have been asked to create a computer application, **either programmed or using a relational database or using a combination of both**, to replace the current manual record-keeping system. Initially, at least, there will be only one stand-alone workstation with a printer attached. This is to be kept locked in the farm office.

Current System

1. The farm rears a small number of turkeys each year and customers place their orders from November onwards. The turkeys are collected and paid for between the 22nd and 24th of December. Orders are dealt with in the order that they have been received.
2. Customers place their orders by visiting or telephoning the farm office. When a customer places an order the following information is recorded on the numbered order form:

customer name, contact telephone number, date of order, list of turkeys and their approximate weights to the nearest half kilogram.

Customers can place orders for turkeys weighing between 5 and 10 kilograms.
3. The price per kilogram of turkey for December 2004 is £4.78 and a charge of £2.50 is added for preparing each turkey for sale. As this is a small business no customer can order more than 5 turkeys. No order once placed can be changed; it can only be marked as cancelled and a new order placed.
4. Once an order is accepted, the customer is guaranteed a turkey but told that the weight may vary from that requested. The earlier that a customer orders a turkey the more likely it is to be approximately the right weight.
5. A copy of each order is kept in the farm office and a copy given to the customer, who is told to bring this with them when collecting their turkey. Customers who order by telephone are told the order form number.

Turn over ►

6. When the time comes to collect the turkeys, each turkey is labelled with a unique number and with its weight in kilograms to the nearest 5 grams. Both of these items are also recorded in a list called the turkey list.
7. The orders are then gone through in date order, matching the customer requirements with the list and writing the customer name and order number beside the turkey number on the list.
8. Terry tries to match the weight that the customer requested with the weight of the turkeys available. If a turkey is supplied that is more than one kilogram over or under the requested weight then a discount of 5% is applied to the price per kilogram. The matching of weights does not have to be very precise. Terry likes to match the customers' orders to the turkeys available himself.
9. The customer name and order number are added to the turkey label and the turkeys are stored in the cold room in alphabetical order of customer name for ease of collection.
10. Bills are prepared for each customer using the orders and the turkey list. Each bill is written on headed paper with the farm name, address and telephone number. It contains the following details: bill number (same as the order number), customer name and telephone number, list of turkeys, with their weights and prices, any discount applied, total amount due. These bills are kept in the farm office in bill number order. A list of customer names and bill/order numbers is prepared in case the customer forgets to bring their copy with them.
11. When the turkeys are sold a record is kept of the money taken and this is totalled up at close of business on 24th December.

Testing

Test data for 40 turkeys and at least 12 customers should be used. Assume that there are only 40 turkeys available. Testing should ensure that the bill calculations produce the correct results, together with a discount, when a larger or smaller turkey has to be supplied. The system should be tested for any problems that may arise, including trying to place an order when no turkeys are left.

Requirements of the Practical Exercise

Candidates will need to design and implement an appropriate computing system and provide sufficient documentation to demonstrate the following practical skills.

- Design
- Implement/Test.

The task may be undertaken by:

either writing a program in a chosen high level language

or using a suitable relational database

or using a combination of both.

Candidates are expected to produce brief documentation including some or all of the following, as appropriate.

Design

- Definition of data requirements
- User interface design including output, forms and reports
- Method of data entry, including validation
- E-R diagram, table design, queries
- Record structure, file organisation and processing
- Security and integrity of data
- System design.

Implementation/Testing

- Details of test plan with explanation, and evidence of testing having been carried out
- Hard copy output of the final turkey list, customer list and a summary of the total takings from sales, **samples** of orders and bills (with and without discount)
- Hard copy of solution, e.g. annotated program listing or annotated copies of database tables, forms, reports queries etc. in design view.

THERE ARE NO QUESTIONS PRINTED ON THIS PAGE