Rewarding Learning

Centre Number

71

Candidate Number

ADVANCED
General Certificate of Education
2009

Applied Information and Communication Technology

Assessment Unit A2 7

assessing

Unit 7: Investigating Systems

[A6J11]

A6J11

FRIDAY 15 MAY, MORNING

TIME

2 hours.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.
Answer **all eleven** questions.

INFORMATION FOR CANDIDATES

The total mark for this paper is 100.
Quality of written communication will be assessed in **all** questions.
Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.
This paper is accompanied by a Case Study. You must **not** use your own annotated copy of this Case Study.

ADVICE TO CANDIDATES

You are advised to take account of the marks for each part question in allocating the available examination time.

For Examiner's use only			
Question	**Marks available**	**Marks**	**Remark**
1	5		
2	3		
3	3		
4	9		
5	13		
6	12		
7	13		
8	17		
9	13		
10	8		
11	4		
Total	**100**		

1 TIP TOP TOES has now been in operation for five years and is clearly a very successful business. The owner, Janet Legg has discovered that as the business grows the administrative processes are becoming more difficult to manage.

In the table below, identify with a tick (✓) **five** valid reasons for developing a computer based solution to solve the problems at TIP TOP TOES.

Cancellations are difficult to process.	
Customers will always be pleased with their treatments.	
A lot of data needs to be recorded and updated.	
Therapists will be able to work quicker.	
The business premises will be kept tidier.	
Janet Legg needs to be able to produce management information.	
TIP TOP TOES does not open on Saturdays.	
Foot care products are frequently out of stock.	
Secretary wants to have a longer lunch break.	
TIP TOP TOES needs to keep up with other similar businesses.	

[5]

Only
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2 As the owner of the business, Janet has decided to enlist the help of a computer consultancy firm. She must be certain that they will be able to deal with the complete management of the development process.

In the table below, identify with a tick (✓) **three** areas of expertise which would be **most** important for the consultancy firm to have:

Systems analysis experience	
Web development skills	
Maintenance experience	
Project management skills	
Business administration awareness	
Beauty therapy skills	

[3]

3 Following several meetings with consultancy firms, Janet has decided to employ DYNAMIC DESIGNS to coordinate the development process. This company claims to use a range of development methodologies. In this case they are considering the use of either SSADM or DSDM.

(a) Choose the most appropriate methodology for the development at TIP TOP TOES.

____ [1]

(b) State **two** reasons for your choice.

1. ____

____ [1]

2. ____

____ [1]

4 Chris Smith from DYNAMIC DESIGNS has been identified as the Senior Systems Analyst and will be Janet's first point of contact throughout the project. In order to compile a problem definition, Chris has asked to speak to some of the end-users of the proposed new system.

(a) Identify with a tick (✓) **three** people from the list below who are possible "end-users" of the new system at TIP TOP TOES.

Therapists	
Suppliers	
Clients	
Cleaners	
Janet	
Secretary	

[3]

(b) Complete the table below, specifying the fact finding technique that Chris would use to obtain the information described and identifying where it should be obtained. Write your answer in the spaces provided.

Fact Finding Technique	Information	Obtained from
Observation	Monthly stock taking is very time consuming.	TIP TOP TOES premises
	Writing can be difficult to read on the appointment books.	
	Secretary finds it difficult to record appointment details on multiple documents.	
	Treatments are very enjoyable.	

[6]

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(Questions continue overleaf)

[Turn over

5 Janet has asked the consultants to provide a breakdown of all planned investi ities and expected timescales.

Activity	Description	Predecessor	Duration (hours)
A	Create interview plan	None	4
B	Interview Janet Legg	A	3
C	Interview Secretary	A	3
D	Review interview documentation	B, C	6
E	Design questionnaire	None	5
F	Administer questionnaire	E	4
G	Analyse questionnaire data	F	5
H	Observe TIP TOP TOES staff	None	4
I	Document observation findings	H	5
J	Prepare report and presentation	D, G, I	5
K	Present findings to Janet Legg	J	2

(a) Complete the GANTT chart below to show all activities from the above table.

Activity																					
A																					
B																					
C																					
D																					
E																					
F																					
G																					
H																					
I																					
J																					
K																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21

Duration (hours)

[11]

Examiner Only	
Marks	Remark

(b) How long will the project take in total?

____ [1]

(c) Identify **one** area of float within the above project plan:

____ [1]

---

6 At the end of the presentation about the investigation process, the consultants mentioned some further documentation that would be produced at various stages of the project. Janet has asked for details about these documents. Complete the following table to show who each document is intended for. You should also suggest **two** items of content which could be included in each document.

	To be produced for	**Content 1**	**Content 2**
Feasibility Study			
System Specification			
Technical Guide			
User Guide			

[12]

Only
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7 Jemima Shields is the developer who has been assigned to work alongside Chris on the project. She has asked for a context diagram and a level 1 diagram to be produced.

(a) Give **two** reasons for drawing a context diagram.

Reason 1

____

____ [1]

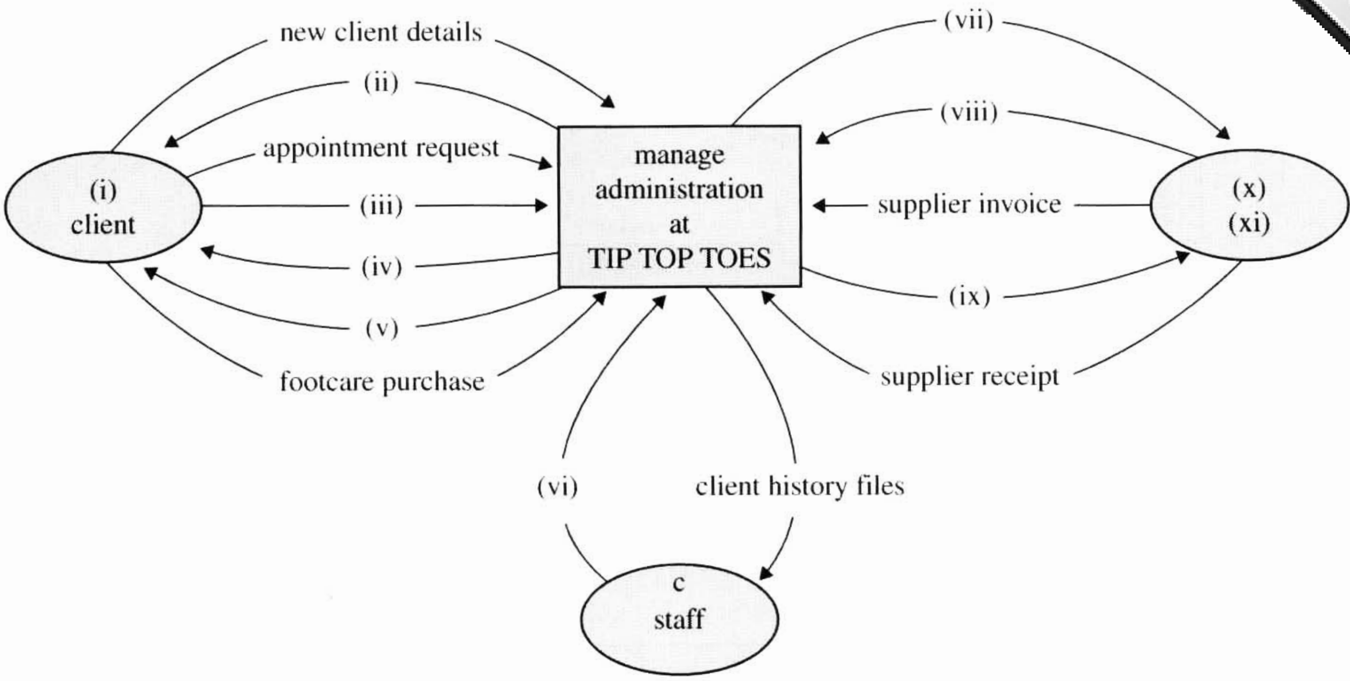
Reason 2

____

____ [1]

(b) Complete the diagram by identifying the missing elements. Write your a[...] the spaces provided.

Context Diagram – Manage Administration at TIP TOP TOES



Examiner Only	
Marks	Remark

(i) ______________________________ [1]

(ii) ______________________________ [1]

(iii) ______________________________ [1]

(iv) ______________________________ [1]

(v) ______________________________ [1]

(vi) ______________________________ [1]

(vii) ______________________________ [1]

(viii) ______________________________ [1]

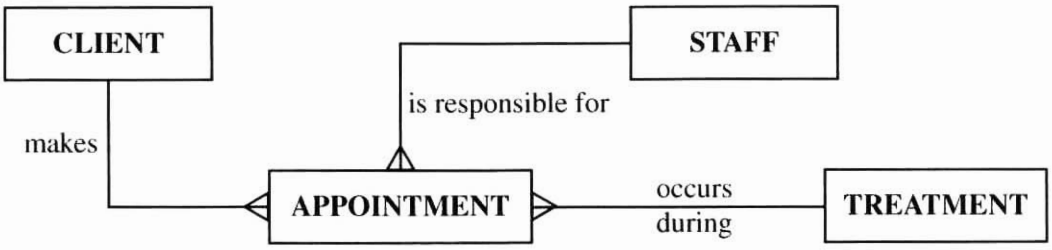
(ix) ______________________________ [1]

(x) ______________________________ [1]

(xi) ______________________________ [1]

8 Jemima has decided to set up a database to store appointment data. She has examined the existing data within the company and has started to compile a list of fields for the proposed system.

The proposed table structure is as shown below:



(a) Identify with a tick (✓) which data items belong to each table.
Note some data items may exist in more than one table.

Field Name	CLIENT	STAFF	APPOINTMENT	TREATMENT
Client Number				
Client Name				
Client Telephone				
Client DOB				
Date				
Time				
Duration				
Staff ID				
Cost				
Payment Method				

[12]

(b) Suggest **two** other fields which should be included in the STAFF table:

Field 1:

____ [1]

Field 2:

____ [1]

(c) What is the purpose of a primary key?

____

____ [1]

(d) Which of the fields listed on the previous page would be the primary key in the **CLIENT** table?

____ [1]

(e) What is the purpose of a foreign key?

____

____ [1]

9 Testing is carried out at various stages within the system development life cycle.

(a) (i) For the TIP TOP TOES project, who should carry out system testing?

____ [1]

(ii) For the TIP TOP TOES project, who should carry out program testing?

____ [1]

(iii) For the TIP TOP TOES project, who should carry out acceptance testing?

____ [1]

(b) Identify with a tick (✓) **one** type of testing appropriate for each of the following actions.

	Program Testing	**System Testing**	**Acceptance Testing**
Check that therapist cannot be double-booked.			
Check user manual is correct.			
Check all printers are working correctly.			
Check that all user requirements have been addressed.			
Check that appointment data is easily entered.			

[5]

Now that all the data models have been designed, Chris needs to create a test pl... start by testing inputs to the **STOCK** table.

Proposed structure for **STOCK** table:

Field Name	Data Type/Size	Required?	Comments	Sample Data
Stock Number	Text, 5	Yes	Primary key. Prefixed with S-	S-05
Description	Text, 20	Yes	Product description	Peppermint Foot Cream
Supplier Code	Text, 4	Yes	Foreign key – links to SUPPLIER table	FR09
Cost Price	Currency	Yes	Must be >0 and less than £25	£1.75
Quantity in Stock	Number	Yes	Cannot fall below 5	7

The following set of test data has been compiled.

(c) For each record, in the table below, state whether it will be accepted or rejected when entered into the new system.

Stock No	Description	Supplier Code	Cost Price	Quantity in Stock	Test Result
S-05	Peppermint Foot Cream	FR09	£175	7	
09	Camomile Wax	FR09	£2.25	10	
S-10	Exfoliator Scrub	TG87	£1.95	6	
	Nail Clippers	TG87	£1.90	20	
S-07	Verruca Gel	FY78	£3.10	9	

[5]

Examiner Only	
Marks	Remark

10 Janet is very keen to make sure that the new system works efficiently and is accepted by all members of staff. She has decided to introduce the new system during the month of August when the business is usually quite quiet. At this time, her daughter will also be home from university and is keen to earn some extra money. Janet has had the idea that she could work alongside the secretaries.

(a) What method of changeover would you recommend?

____ [1]

Janet is receiving conflicting messages about the changeover process.

(b) Complete the table below by stating whether each statement is either TRUE or FALSE.

Parallel changeover enables very fast implementation.	
Parallel changeover is an efficient way of testing the new system.	
Pilot changeover is suitable for larger organisations with several departments or branches.	
Phased changeover involves different parts of the system being introduced at different times.	
Direct changeover can be very confusing for the users as they have to do things using the old method and the new method.	

[5]

(c) Chris is aware of the fact that none of the existing staff at TIP TOP TOES has had very much computer experience. He has decided to develop a prototype system.

Give **two** reasons why this approach will be beneficial to the staff at TIP TOP TOES:

Reason 1

____

____ [1]

Reason 2

____

____ [1]

11 Janet is very happy with the proposals for the new computer system. She is aware that computer systems and technology are constantly changing. She is unsure of what support systems she would be best advised to put in place within TIP TOP TOES.

(a) Suggest **two** possible ways of supporting a computer system within any organisation.

1. ____

____ [1]

2. ____

____ [1]

(b) Explain why each of the support systems you have selected would be appropriate for TIP TOP TOES.

1. ____

____ [1]

2. ____

____ [1]

THIS IS THE END OF THE QUESTION PAPER

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Applied Information and Communication Technology

Case Study
Assessment Unit A2 7
assessing
Unit 7: Investigating Systems

[A6J11]

FRIDAY 15 MAY, MORNING

A6J11CSI

You must use **this** clean copy of the Case Study in the examination and not your own annotated copy.

TIP TOP TOES

TIP TOP TOES provides the ultimate in foot care for the public. Opened in Bangor in 2 the TIP TOP TOES private clinic has now more than 1000 clients. The owner of the busine Janet Legg, a highly qualified chiropodist, came up with the idea of providing more than just a chiropody service to the public. Along with all of the normal facilities offered by this kind of practice, she decided to make a total range of foot care available to the public. The services include chiropody services, foot therapies and treatments. A full range of foot care products is also available for purchase.

Janet put a great deal of effort and money into launching the business and there is no doubt that it is hugely successful. The clinic is open Monday to Friday from 8am until 8pm. Janet believed that this would be very helpful to people who would have to make arrangements to leave work to attend appointments. This has proved to be absolutely correct and is one of the many advantages the clinic offers. The clinic also provides a home visit service which is of particular benefit to elderly clients. Home visits are conducted in the mornings on Monday, Wednesday and Friday and in the afternoons on Tuesday and Thursday. Janet is also considering the possibility of Saturday opening.

The clinic is staffed by Janet and four other fully trained chiropodists as well as a therapist, two secretaries and two cleaning staff. The secretaries work either from 8am until 2pm or from 2pm until 8pm. At any one time there are at least two trained chiropodists working in the clinic with a third one doing the home visits. The therapist is available every day from 2pm until 8pm.

There is a huge demand on the resources of the clinic because of its popularity. The staff are stretched to the limit and on a day when someone is sick it is sometimes necessary to reschedule times by trying to fit clients in with one of the other chiropodists or to just cancel the appointment. The secretary will first of all try to accommodate the client with another chiropodist and if that does not work will try to cancel the appointment and agree an alternative one over the phone. This is not very satisfactory for the client and there have been occasions when it has not been possible to contact a client and they have turned up. This is not good for the business and if this happens, Janet allows the next appointment free of charge.

When the therapist is off, there is no alternative other than to reschedule the appointment.

Clients can make appointments for chiropody services (15 minute duration), foot treatment services (30 minute duration) or therapy services (30 minute duration). Sessions can be booked in multiples of these time slots if a double session or more is required for a particular service.

Appointment books are kept beside the telephone in the reception area. There is one book for Chiropody Treatment and one for Therapy services. Time is marked in 15 minute intervals on the left hand side of the page. The secretary has a weekly schedule on the notice board indicating which staff members are working in each time slot for that week. Every Monday, the secretary will blank out the times each staff member is not available for each day of that week and indicate who is doing the home visits for that week.

The secretary must also indicate the type of appointment by writing C (chiropody (treatment) or TH (therapy) after the name.

When a client first makes an appointment, usually by telephone, the name, address, teleph number and type of appointment is recorded in a 'New Client' notebook and an appointment is sent out. The appointment is then recorded in the relevant appointment book.

Existing clients can book further appointments on the day of their treatment or by telephone. These are recorded in the same way.

When a new client attends for the first time, an extra 15 minutes is assigned to the appointment time. This is to allow time for a client history to be recorded as a file has to be created for each client. This file has to be updated each time the client attends thereafter. The secretary must have these records filed by either 2pm or 8pm each day. In addition, the files for the next day must be selected and placed in order of appointment time for each member of staff. The client history files must be updated by the staff member at the end of each appointment and left for filing by the secretary.

Clients can pay immediately after their appointment by cash, cheque, debit card or credit card. They are given a receipt of payment and the transaction is noted in a payment ledger book. This book is organised by date and the secretary records the client name, the amount and the transaction type (CA cash), (CH cheque), (D debit card), (CC credit card).

Alternatively, clients who are having a course of treatment receive an invoice at the end of their treatment. Payment may be made in person or by post using any of the methods noted already. The transactions are recorded in exactly the same manner and receipts are issued accordingly.

Clients wishing to purchase foot care products make their request and if the product is available, they pay the secretary by cash, cheque, debit card or credit card. Again these transactions are recorded in the payment ledger book (P – purchase) and a receipt issued. If the required product is not in stock, the secretary notes the item and places it on a stock out list. The secretary is responsible for ordering stock at the end of each month and must record the orders in a stock order book. The secretary must also take care of stock deliveries and ensure that the original orders match the delivery details. Sometimes this is not the case and the supplier must be notified. Invoices are also received from suppliers and the supplier payment issued. Supplier receipts are recorded.

Management of the stock is problematic because there is often quite a delay from when an item is out of stock until when it is replaced. Clients are generally not too happy about this especially since the chiropodists and therapist will frequently recommend particular products to them.

The secretaries find the whole process very tedious and time consuming. In addition to this, Janet is not keen to carry too much stock. Space is an issue as well as the unpredictability of sales and the worry of being left with a lot of expensive items.

The secretary must also deal with cancellations and clients who do not attend. W
cancellation is made, the secretary crosses out the client name in the appointment bo
makes a note of the time slot and available staff member on a 'spare appointment' list.
often, clients will ring up looking for an immediate appointment. Their details are recorde
a 'waiting list'. The secretary tries to allocate the available cancellations on a 'first come firs
served' basis unless a genuine emergency arises.

Cancellations are accepted up to 24 hours before the appointment, otherwise a cancellation fee of £10 is imposed. This amount must be paid before any further appointments can be made. Clients who cancel without appropriate notice and clients who do not attend for an appointment are billed for this amount. Payments can be made in the same way and are recorded in the payment ledger book (B – bill). The client details are recorded in a Non Attendance book. When the payment is made, the client name is crossed off. Sometimes clients manage to make further appointments in spite of having an outstanding fee to pay because the secretary does not remember. This is unsatisfactory and can lead to some embarrassment for the secretary who has to request payment before the appointment can proceed. Some clients actually claim that they have made the cancellation payment and this is even more difficult to deal with.

Janet is facing a range of issues that must be addressed to ensure that her business continues to be successful. She is aware that there is significant manual effort involved in all of the administrative processes associated with the business. She is also very aware that the only way she can obtain any useful management information is by physically looking through records and files. She cannot generate useful reports. She cannot track client history, money or stock. Janet has decided to seek advice!