

INSIGHT

Trial Exam Paper

2007

SOFTWARE DEVELOPMENT

Written examination

Answer book

This book presents:

- correct sample answers
- tips and mark allocations.

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Section A – Multiple-choice questions

Question 1

A marketing firm uses spreadsheet analysis to determine the best pricing for a new product by posing ‘what-if’ scenarios. What type of information system is the marketing company using?

- A. transaction processing system
- B. management information system
- C. expert system
- D. **decision support system**

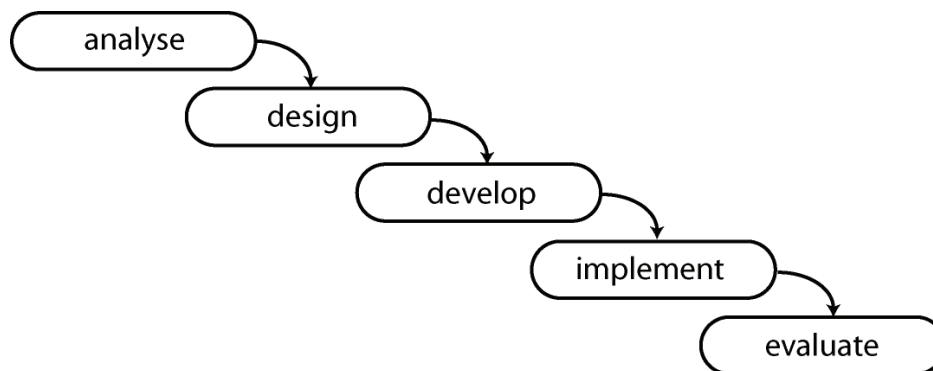
Answer is D.

Tip

- This is in a similar vein to the first question on last year’s Information Systems exam and is still the first knowledge point in the new study design. This question covers basic knowledge of types of information systems which all students should be able to clearly recognize.*

Question 2

The diagram below represents what information systems engineering model?



- A. software development life cycle model
- B. **waterfall model**
- C. agile model
- D. RAD model

Answer is B.

Tip

- The ability to know and understand the different models used in systems engineering is a new component of the study design. Students should be able to differentiate between the different models and use correct terminology to describe them.*

Question 3

Read the following description:

The function of this hardware is to identify and manage data traffic into a network by preventing unwanted data from entering the network, and to control outgoing traffic from a network by stopping unauthorised use of the network from within. This is designed to protect the integrity of the information system.

What hardware is described here?

- A. router
- B. switch
- C. **firewall**
- D. hub

Answer is C.

Tip

- *There is a renewed focus on security in the Software Development study design, and students must have a clear understanding of the functions and characteristics of not only general software and hardware but also specific security devices. This question tests that area of knowledge.*

Question 4

What type of data would be stored in a variable called Total_Cost?

- A. numeric
- B. real
- C. **currency**
- D. integer

Answer is C.

Tip

- *Students are required to have an understanding of data types and therefore should be able to determine what data type should be allocated to a variable based on its name.*

Question 5

In which network topology can only one signal travel along the cable at one time?

- A. **bus**
- B. ring
- C. star
- D. mesh

Answer is A.

Tip

- *Students should have a clear understanding of how each type of network topology functions and be able to identify a network topology from a simple description.*

Question 6

Bandwidth is

- A. the speed at which data is transmitted over a network.
- B. the amount of data that can be transmitted over a network in a measured time period.**
- C. the amount of data that can be transmitted over a network in a session.
- D. the speed at which data can be downloaded.

Answer is B.

Tip

- *Students should understand that bandwidth is measured in bits per second and therefore be able to identify bandwidth as being measured by the amount of data over time and not speed, or amount of data alone. A similar question has been on a previous Information Systems exam. The point here is for students to provide the most comprehensive response.*

Question 7

A denial of service attack will

- A. use software to try to uncover passwords and usernames.
- B. install software on a computer without the knowledge of the user.
- C. attempt to overload the system so that it crashes.**
- D. find a weakness in the system in order to exploit it.

Answer is C.

Tip

- *Students should be aware of threats to data and security in their many forms. These include viruses, malicious software and other deliberate acts. Denial of service attacks are one form of such threats.*

Question 8

Which combination of modelling tools would you use to show the physical components of an information system?

- A. context diagram and DFD
- B. system flow chart and context diagram
- C. system flow chart and DFD
- D. structure chart and system flow chart**

Answer is D.

Tip

- *Students should know which tools model the logical design (DFD and context diagram) and which tools model the physical design (structure chart and system flow chart) of a system. Both types of design are explicitly referred to in the study design.*

Question 9

Which of the following data acquisition methods will locate secondary data sources?

- A. observation
- B. researching similar systems**
- C. surveys
- D. interviews

Answer is B.

Tip

- Students are still required to understand the methods used to acquire data in the analysis phase and to evaluate the usefulness of that data. They should be able to differentiate between primary and secondary data sources.

Question 10

There are seven phases of software development. The diagram below is missing two of them; the missing two are



- A. testing and coding.
- B. documenting and debugging.
- C. testing and documenting.**
- D. debugging and coding.

Answer is C.

Tip

- Students should know and understand all phases of the software development methodology as outlined in the study design. This may differ from those represented in the text books, so it is important that this is clarified with them.

Question 11

Which of the following would not generally be considered to be a characteristic of a high-quality user interface design?

- A. easy to navigate
- B. logical and ordered presentation of information
- C. includes high-level multimedia such as sound and animation**
- D. uses complementary colours

Answer is C.

Tip

- Students should have a good understanding of what features make a good user interface, and therefore should be able to identify the use of too many distractions (sound and animation) as not generally being part of a high-quality user interface.

Question 12

If I were to evaluate my software on the basis that it was easy to use and therefore allowed for a greater number of transactions to be processed in a given time frame I would be testing for

- A. effectiveness.
- B. usability.
- C. reliability.
- D. **efficiency.**

Answer is D.

Tip

- *Students must be able to identify the criteria for evaluating software and be able to differentiate between them as outlined in the study design. In reference to the study design efficiency is measured in terms of time, cost and/or effort.*

Question 13

A program structure that allows for the testing of a condition before different courses of action are executed is a

- A. sequence.
- B. **selection.**
- C. iteration.
- D. subroutine.

Answer is B.

Tip

- *Students should have a good understanding of the constructs of programming languages. A selection structure is an 'if' statement.*

Question 14

A supermarket is looking to update its backup processes. Currently the supermarket's entire server is backed up to a RAID. The supermarket server's capacity is 80 GB, and approximately 10 MB of data is added to the server per day. The supermarket owner wants to invest in cost-effective secondary storage media that can be stored offsite. Which of the following options would best meet the organisation's needs?

- A. DVD-R
- B. CD-R
- C. **magnetic tape**
- D. CD-RW

Answer is C.

Tip

- *Students should have an understanding of storage media and backup options for businesses. They should be able to read this mini-case study and be able to determine that magnetic tape is the best option because of the size of the required backup and the fact that the owner wants to be cost effective.*

Question 15

A touch-screen terminal has been set up by a rural tourist board to support tourism in their area. What is the best form of user documentation for the tourists that will use this technology?

- A. user manual
- B. quick start guide**
- C. technical reference manual
- D. procedures manual

Answer is B.

Tip

- *It is a requirement for students to know and understand the role of user documentation and the different formats it can take. They should be able to identify the correct format for any given user.*

Question 16

A programmer, in his role for ABC software, develops a program for Waterworks Plumbing that generates quotes for their business; it will be used by all staff of the plumbing company. Waterworks Plumbing has commissioned ABC Software to produce this software exclusively for them under licence. In this instance, who owns the program?

- A. the ABC Software Programmer
- B. ABC Software
- C. Waterworks Plumbing**
- D. the staff of Waterworks Plumbing

Answer is C.

Tip

- *Students should understand how copyright and ownership laws work. In this instance, the programmer created the program in his role at ABC Software; this was done exclusively for the plumbing business, which through the commissioning of the software has paid for the software to be developed for them.*

Question 17

The e-Robot portal is an e-commerce site that trades in robot toys. Which of the following would not be a benefit of trading over the World Wide Web?

- A. the ability to update information on good, prices and availability immediately
- B. the ability to trade 24 hours a day, 7 days a week in all time zones
- C. the ability to reach a large customer base in a niche market
- D. the ability to avoid dealing with customers face to face**

Answer is D.

Tip

- *Students should have a clear understanding of the benefits and disadvantages of operating in a global environment. In this instance they should be able to identify that not dealing with customers face to face is in fact a disadvantage of trading via the World Wide Web. The other options are advantages.*

Question 18

Which element of a disaster recovery plan outlines the processes necessary to get the system up and functioning again?

- A. emergency plan
- B. recovery plan**
- C. backup plan
- D. test plan

Answer is B.

Tip

- *This study design outlines explicitly that students should have an understanding of the preparation of disaster recovery plans, and therefore a question that tests their knowledge in this area is warranted.*

Question 19

Which of the following factors influencing the acquisition of hardware would be considered a human factor?

- A. training requirements**
- B. reliability of suppliers
- C. compatibility of components
- D. reliability of components

Answer is A.

Tip

- *Students must understand the factors that influence the acquisition of both hardware and software and be able to evaluate these. This question asks them to recognise which categories the factors fall into.*

Question 20

A university is looking at security measures to protect its data. Which of the following would not be considered to be a software-based security measure?

- A. smart cards**
- B. activity logs
- C. usernames and passwords
- D. encryption

Answer is A.

Tip

- *Students should have a sound understanding of the options available for protecting data. They should know which are classified as software-based security measures as opposed to physical security measures. A smart card is considered to be a physical security measure.*

Section B – Short-answer questions

Question 1

Consider this list of terms relating to networks:

- peer-to-peer
- ring
- LAN
- bus
- client-server
- intranet

For each of the following statements, select the term from the list above which it describes:

- i. This represents a network where all nodes are geographically located together
- ii. This describes a network where each node is equal
- iii. This network is supported by a single cable to which all nodes are connected.

Answer

- i. LAN
- ii. peer-to-peer
- iii. bus

3 marks

Mark allocation

- 1 mark for each answer

Tip

- *Despite being a regular feature of the Information Systems course and now the Software Development course, students often find it difficult to differentiate the different terms relating to network types, topologies and architecture. This question is designed to basic knowledge of this area.*

Question 2

For each of the following types of threats to data and security, give one example of something that would constitute that type of threat:

Answer

Deliberate action – Examples would include malicious software (such as viruses), system scanning, hacking and denial of service attacks.

Accidental action – Examples would include human error through incorrect data entry, poor use of password protection, incorrect user behaviour, and hardware malfunction

Technical failure – Examples would include power loss, power surge and natural disaster.

3 marks

Mark allocation

- 1 mark per correct example given

Tip

- *Students should be able to give clear examples of the different types of threats to the data and security of a system. The simple structure of this question should provide students with a good opportunity to demonstrate their knowledge in this area.*

Question 3

Paul is a systems analyst brought in to develop a new information system for a local health club. He needs to collect data on the current system and wants to ensure that he obtains data from a good range of both primary and secondary data sources. Describe the difference between primary and secondary data sources and give an example of each.

Answer

A primary source of data is one in which the data is received first-hand. The data has not been changed or modified in any way and comes directly from the system or users of the system. A secondary data source is data that comes from outside of the system, and which may provide some information on the system. An example of a primary source of data would be an interview with a user of the system (for instance, a customer service representative), while an example of a secondary source of data would be a journal article about a similar system used in another health club.

4 marks

Mark allocation

- 2 marks for clearly describing the differences between the two sources of data
- 1 mark for each example provided.

Tip

- *Students need to be able to clearly describe the different types of data that need to be collected in an analysis phase and understand how they differ in their contribution and value to the process.*

Question 4

What is the role of internal documentation in a computer program? What should internal documentation include?

Answer

Internal documentation is designed to provide information within the program to allow future programmers working with the code to make appropriate modifications where necessary. The internal documentation should explain the function of key variables and procedures within the code and any other conventions and important information that would be necessary in order to alter the code in future.

2 marks

Mark allocation

- 1 mark for role of internal documentation, 1 mark for description of what it should include.

Tip

- *The purpose of internal documentation is an important component of the software development process. Students should be able to clearly describe what internal documentation is used for and what form it should take.*

Question 5

Fancy Pants is an online clothing store that produces custom-made jeans designed to fit a customer's size. The cost of a pair of custom-made jeans is calculated using the cost of the basic style as a starting point, and then altering the price as follows:

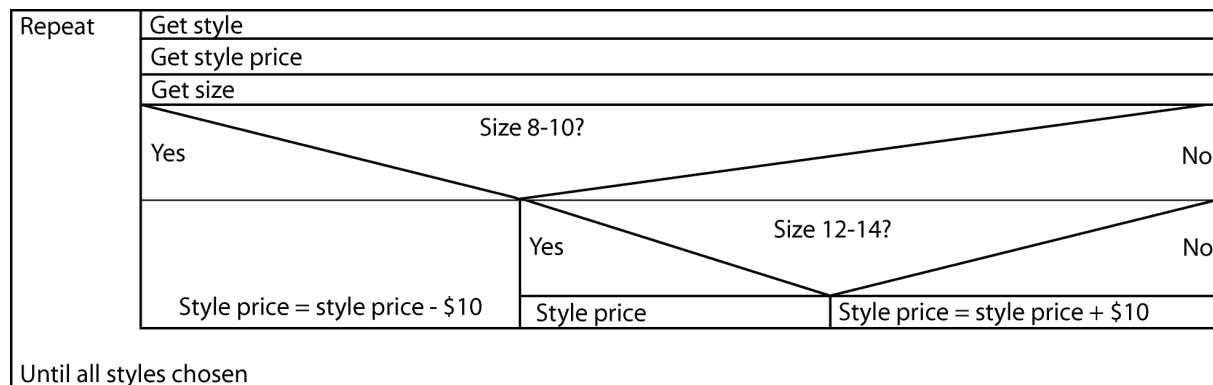
- If the customer is a size 8–10, then take \$10 off style price.
- If the customer is a size 12–14, then the cost of the jeans is the same as the style price.
- If the customer is size 16 or greater, then add \$10 to style price.

The following Nassi-Schneiderman diagram shows the process for calculating the cost of the jeans in the online store. Three items are missing from it.

From the following list choose only three items and write each of the three items in the correct place in the diagram:

- Size < 12
- Style_Price = Style_Price - \$10
- Style_Price = Style_Price * 0.1
- Size 8–10?
- Size >= 16?
- Style Price

Answer



3 marks

Mark allocation

- 1 mark for each correct entry in diagram

Tip

- *A similarly structured question relation to Nassi-Schneiderman diagrams was included in the 2006 Information Systems exam. Students still need to be able to understand the different methods of representing algorithms and this type of question is a good way for them to demonstrate their knowledge of Nassi-Schneiderman diagrams.*

Question 6

One way that an information system can allow an organisation to operate in a global environment is through a web portal or e-commerce site. Outline three benefits to an organisation of using such a facility.

Answer

Some of the benefits that would apply include:

- the ability to access a broader market
- the ability to access the market 24 hours a day, 7 days a week
- the ability to communicate and sell directly to the consumer
- the ability to engage in niche marketing
- the fact that the portal or site can be modified and updated simply and quickly

3 marks

Mark allocation

- 1 mark per benefit provided.

Tip

- *There continues to be an emphasis on understanding the nature of information systems in a global environment. Therefore it is important that students be able to identify the benefits in doing so and therefore be able to justify why an organisation might pursue this type of system.*

Question 7

Give a definition of the following project management terms:

Answer

Dependency – A dependency describes a task within the project that cannot be begun until the previous one is completed.

Milestone – A milestone is a point within a project where progress is reviewed. Milestones are identified at the commencement of the project.

2 marks

Mark allocation

- 1 mark per definition.

Tip

- *Each year, project management has featured prominently in the Information Systems exam, and it maintains an important role within the new study design. Therefore, it is important that students be able to define terms relating to project management.*

Section C – Case Study

Question 1

Some of the concerns that the Warringal Council have about the existing system are listed below. Identify each concern as an economic, social or technical factor prompting change.

Answer

Concern	Factor
Two staff members are required to manually enter infringements into the system.	<i>economic</i>
People are sometimes issued fines for infringements they did not commit.	<i>social</i>
The time between an infringement notice being issued and being entered into the system can sometimes be days.	<i>economic</i>
The current system will sometimes record the same infringements twice.	<i>technical</i>

4 marks

Mark allocation

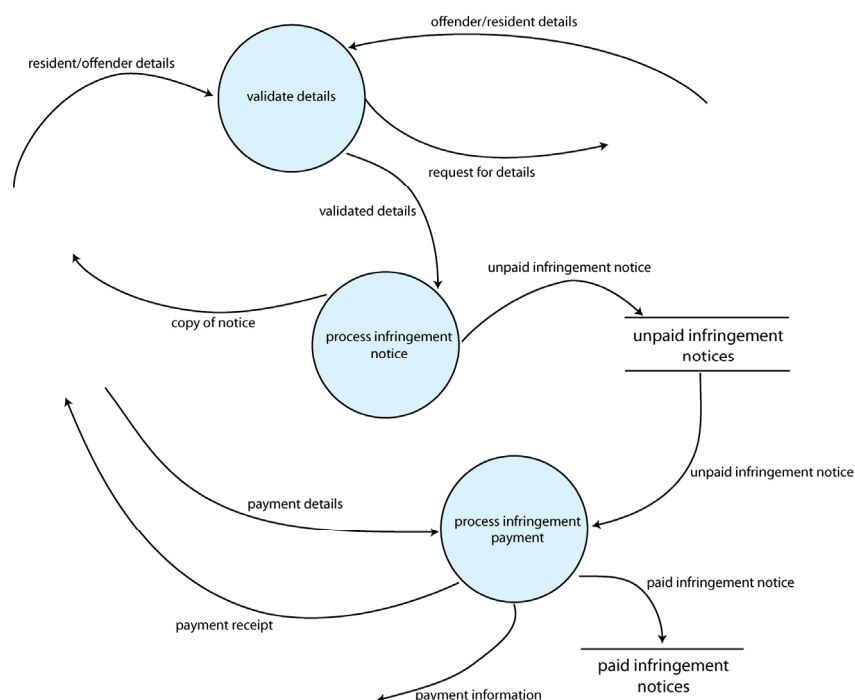
- 1 mark per accurate factor listed.

Tip

- It is important that students are able to identify and categorise the factors that influence change in an organisation's information system as this is the catalyst for the Software Development Life Cycle. A similarly structured question was contained in the 2005 Information Systems exam.*

Question 2

During the analysis Michael the systems analyst has produced the following DFD to document the processes involved in the current infringement system



- a. Identify the process that produces the data flow “Payment receipt”.

Answer

Process infringement payment

1 mark

Mark allocation

- 1 mark for identifying correct process

- b. Which element of a DFD does not appear in the diagram above?

Answer

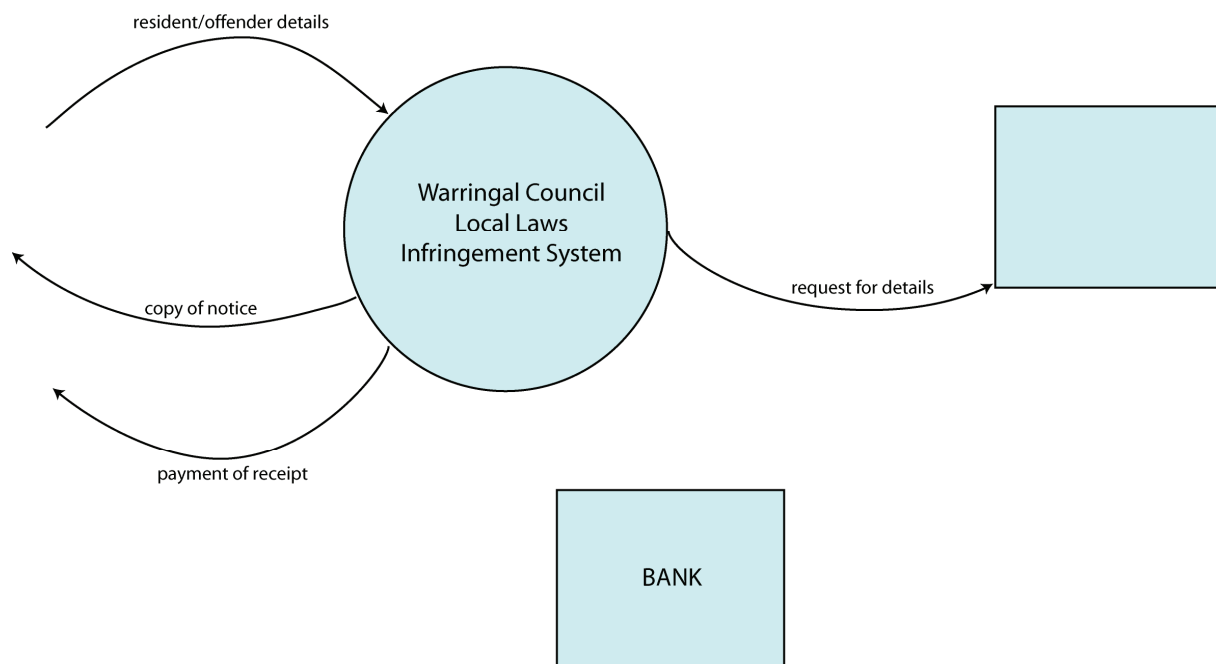
External entity

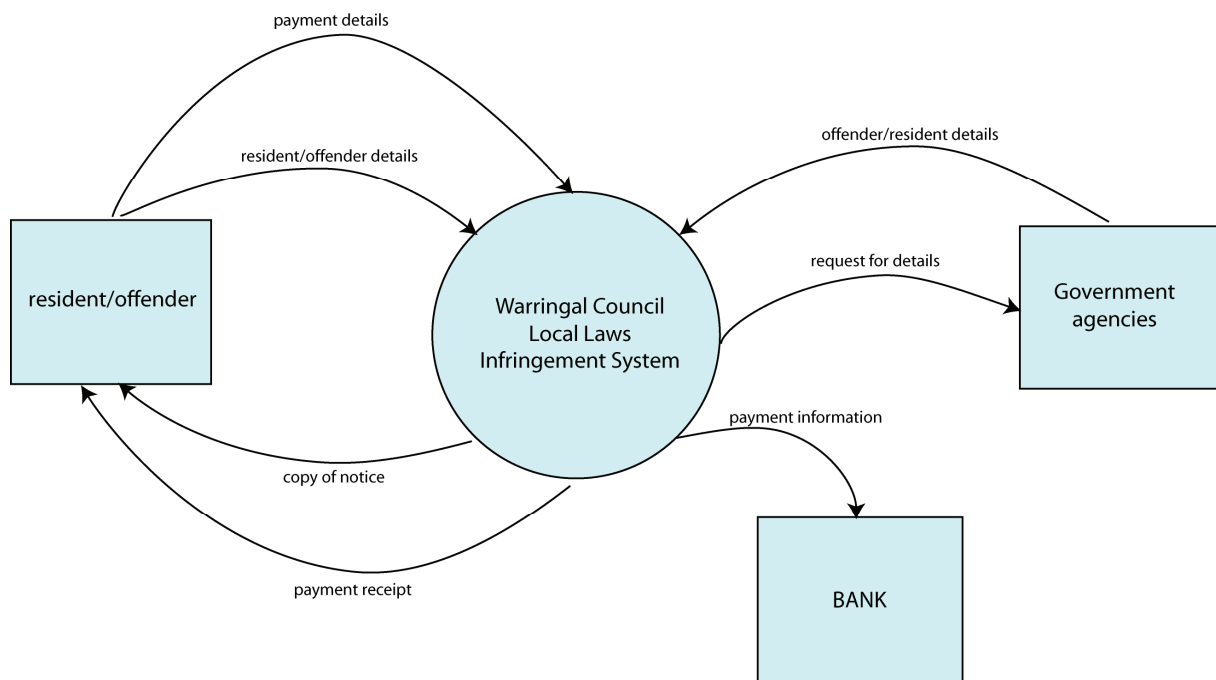
1 mark

Mark allocation

- 1 mark for identifying the external entity

- c. Complete the context diagram for this system.



Answer

5 marks

Mark allocation

- 1 mark for each of five missing components identified.

Tip

- *Last year's Information Systems exam required students to complete a context diagram based on information provided by a DFD. They were also required to answer basic questions about the DFD. The questions were not part of the case study section, but rather were included in the the short answer questions. This type of question traditionally resides in the case study and should be of sufficient complexity to test students' abilities in interpreting and representing a logical design.*

Question 3

Two different brands of handheld computers that meet the requirements of the Warringal council have been sourced from specialty dealers. Both of them have features that allow wireless connectivity, stylus writing and connection to EFTPOS facilities. They have built-in cameras, can function as telephones, and are able to print infringement notices.

Deciding between them is difficult. The specifications are as follows:

Model	Model A	Model B
Processor speed	520 MHz	400 MHz
RAM	64 MB	64 MB
ROM	128 MB	64 MB
Expansions	SDIO	Micro SD
WiFi	802.11b	802.11b
Bluetooth	Yes	Yes
Cellular wireless	GSM/GPRS/WCDMA	GSM/GPRS/EDGE/UMTS/HSDPA
Resolution	480 × 640	240 × 320
Size	13.2 cm × 8.1 cm	11.3cm × 5.8 cm
Battery power	1620 mAh	1350 mAh
Camera	VGA, 1.3 megapixels	VGA, 2 megapixels

The following features would be more useful to officers in the field than some of the others:

- battery life
- screen resolution
- camera quality

Using the table above to make a comparison, and taking into consideration the features listed above, state which of the two models would be best for the Warringal council and justify your choice.

Answer

Choice: Model A

Justification: Battery life is important to the local laws officers as they work out of the office for the entire day. Model A has a longer battery life and is therefore the better choice in that regard. Model A also has a greater screen resolution which will be useful when working on a handheld – a small screen may be difficult to navigate, and looking at a small screen for too long may cause health issues. Model B has the better of the two cameras; however, 1.3 megapixels should be sufficient for the needs of the officers in the field. Therefore Model A is the better choice.

4 marks

Mark allocation

- 1 mark for giving the correct choice of model, and 1 mark for each reference made in the justification to a feature to be considered (up to a maximum of three features).

Tip

- *Questions relating to hardware specifications have been common on past exams, and as there is an emphasis on types and specifications of portable computing devices this type of question has every possibility of arising on an exam under the new study design. Students need to be able to understand what each of the features of the computer does and be able to make informed choices about hardware on this basis.*

Question 4

The Warringal Council has employed a programmer, Samantha, to develop the software that will reside on the handheld computers and interface with the current system at the council offices. Michael the systems analyst has asked Samantha to provide designs for user interfaces to be used in the software.

- a. If a local laws officer is giving an infringement notice to a person who is present, they are required to get that person's signature electronically using a stylus. The screen for doing this appears as follows:

- Identify the major fault with this screen.
- Suggest how this fault could be corrected.

Answer

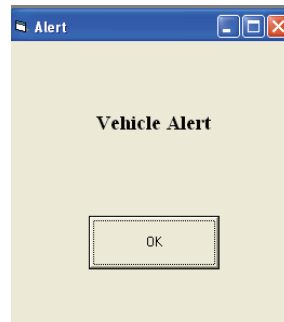
- There is no explanation of which screen area to sign in and what should be placed in the other screen area.
- This fault could be corrected by appropriate labelling of each of the screen areas so that the person signing knows where to sign and what information to include.

1 + 1 = 2 marks

Mark allocation

- 1 mark for the fault and 1 mark for how this can be corrected.

- b. The following screen is shown if a car has outstanding parking fines or has broken another law. Michael believes there is a fault with the screen also.



- i. Identify the major fault with this screen.
- ii. Suggest how this fault could be corrected.

Answer

- i. There is no detail about the problem with the vehicle. This screen does not provide enough information to make any further decisions.
- ii. Include sufficient detail about whether the car has sufficient fines owing that it can be towed, or whether police need to be notified about something more serious such as a stolen vehicle.

1 + 1 = 2 marks

Mark allocation

- 1 mark for the fault and 1 mark for how this can be corrected.

Tip

- *Interface design has taken greater prominence in the last two Information Systems exams and features specifically in the new study design. Students need to be able to identify design flaws in user interfaces.*

Question 5

Samantha has been working on the program and has been having trouble getting one part of it to function. She has been trawling the developer sites on the Internet and found a small shareware program that she is going to incorporate into her program to fix it up. Discuss the potential issues that might arise from this course of action and discuss Samantha's legal and ethical obligations as a programmer.

Answer

Samantha has an ethical obligation to provide the council with the best program possible and ensure that all bugs are removed from it. Samantha also has a legal obligation to ensure that there are no malicious elements to her software and that she has met all requirements in relation to copyright and privacy laws. By using a program that she's located on the web, Samantha cannot be 100% sure that the code is free from malicious software or any other bugs. She would also need to ensure that she and the council have the right to use the program. As the code that Samantha has found is shareware, she will probably have to negotiate a contract with the programmer to either purchase copyright for the code or to pay licence fees for using it. If the code is licensed then the responsibility of the original programmer to provide updates and bug fixes will need to be clearly stated.

3 marks

Mark allocation

- 1 mark for each point discussed.

Tip

- *The legal and ethical obligations of programmers are still a feature of the new study design. Similar questions appear regularly on the exams and are often poorly answered. Students need to be able to clearly explain the obligations.*

Question 6

When processing parking infringements, the new software will search the infringement notices database to see whether a vehicle has any outstanding fines.

If the vehicle has more than three fines, or has any fine that is greater than 90 days overdue then the system will record this information and calculate an additional fine of \$300 plus 20% of the value of the current fines on top of the one being administered. The officer will then have the vehicle towed.

The following algorithm has been developed to search for and then calculate the fine of a serial offender.

Start

```

Total_Fine = 0
Get Vehicle_Registration
Get Parking_Violation
Get Fine_Value

Total_Fine = Fine_Value

Search for Vehicle_Registration in infringement notices database
If Vehicle_registration is found in database then
    Get Number_of_Fines, Days_Overdue for Vehicle_Registration from database
    If Number_of_Fines > 3 And Days_Overdue > 90 then
        Total_Fine = Fine_Value + 300 + Fine_Value*0.20
    End If
    Print infringement notice
End If

```

End

- a. Use the following test data to test the algorithm. Fill in the blank spaces.

Answer

Vehicle_Registration	Fine_Value	Match	Number_of_Fines	Days_Overdue	Expected Total_Fine	Actual Total_Fine	Printed?
URE567	\$45.00	No	-	-	\$45.00	\$45.00	No
WES846	\$80.00	Yes	3	45	\$396.00	\$80.00	Yes
HAR382	\$45.00	Yes	2	12	\$45.00	\$45.00	Yes
MON383	\$60.00	Yes	4	120	\$372.00	\$372.00	Yes

8 marks

Mark allocation

- 1 mark for each correct entry into the table

- b. There is a logic error in the algorithm that will cost the Council lost revenue. Identify and correct this error.

Answer

The error is in the line:

If Number_of_Fines > 3 And Days_Overdue > 90 then

The line should read:

If Number_of_Fines > 3 Or Days_Overdue > 90 then

2 marks

Mark allocation

- 1 mark for identifying error, 1 mark for providing correction.

- c. There is another logic error within the algorithm. Identify that error and explain how to correct it.

Answer

The fine will only be printed if the vehicle registration matches with one in the current unpaid infringement notices database. If this is not the case, this part of code will not execute.

The line:

Print infringement notice

should appear after the last 'End If' but before the algorithm ends. This will ensure that all fines print.

2 marks

Mark allocation

- 1 mark for identification of error, 1 mark for correction.

Tip

- *Every year an algorithm is provided on the exam that must be bench tested and checked for errors. This question takes the same format. Students should be able to determine what the program should return using test data and an English-language description of the program requirements, and then bench test the algorithm using the test data to see what actually occurs. This is an important component of the Software Development course.*

Question 7

The Warringal Council Local Laws Penalty System will be transmitting some very sensitive and valuable data by wireless means. Privacy laws require that this data be kept secure at all times. Explain one way in which the Warringal Council can ensure that the data they are transmitting with the handhelds is secure.

Answer

There are two options that can be used to ensure the security of the data being stored and transferred on portable devices.

The first is to ensure that the correct transmission method is being used. The most secure transmission for portable devices such as these is to use the cellular wireless feature rather than wi-fi or Bluetooth, which are both vulnerable to interception. This would also mean ensuring that the device was not able to be identified by other Bluetooth devices.

The second way would be to install encryption software on the devices and encrypt any data being sent wirelessly, so that if it were intercepted, it would be useless.

2 marks

Mark allocation

- 1 mark for identification of method, 1 mark for explanation of how it works.

Tip

- *Security of data continues to be a strong theme in the Software Development study design. The focus on portable devices also means a focus on their security capabilities. It is therefore reasonable to expect students to understand the strengths and weaknesses of the communications technologies that are part of these devices.*

Question 8

The data on the main server of the Warringal Council will need to be backed up regularly to ensure that records of fines and payments are not lost. Brian, the head of Information Technology within the Council, is weighing up the options for doing this.

He has received a quote from a data security company for \$600 per month. For this amount of money, they will complete an incremental backup each evening over the Internet and a full backup each weekend. The data will be stored in secure premises with backups for the last 12 months being kept at any one time.

The other option is for the council to utilize the internal network and perform backups in-house. Incremental backups during the day would be made to a mirrored server with RAID capacity, with full backups to tape being performed at the end of each week.

- What would be the advantages and disadvantages of using the outsourced data security company?

Answer

There are many benefits to outsourcing the backups for the council. Firstly, it is a job that they will not have to complete themselves. The backups will be kept off-site, which is important as this means they will not be vulnerable to internal problems.

There would also be disadvantages. Restoring data from the backups might be a lengthy, time-consuming process. Security might be an issue. If the outsourcing provider went bankrupt, the council might not be able to retrieve their backups. It would also be a costly process over time.

2 marks

Mark allocation

- 1 mark for discussion of advantages and 1 mark for discussion of disadvantages

b. What would be the advantages and disadvantage of doing their own backups?

Answer

An advantage of doing the backups on site is the control you would have over the backups, but they would still be vulnerable unless you found a secure, off-site location for them. Cost-wise, it would most likely be cheaper to run the backups in house as any outlay would be for equipment and media initially and then very little outlay afterwards.

2 marks

Mark allocation

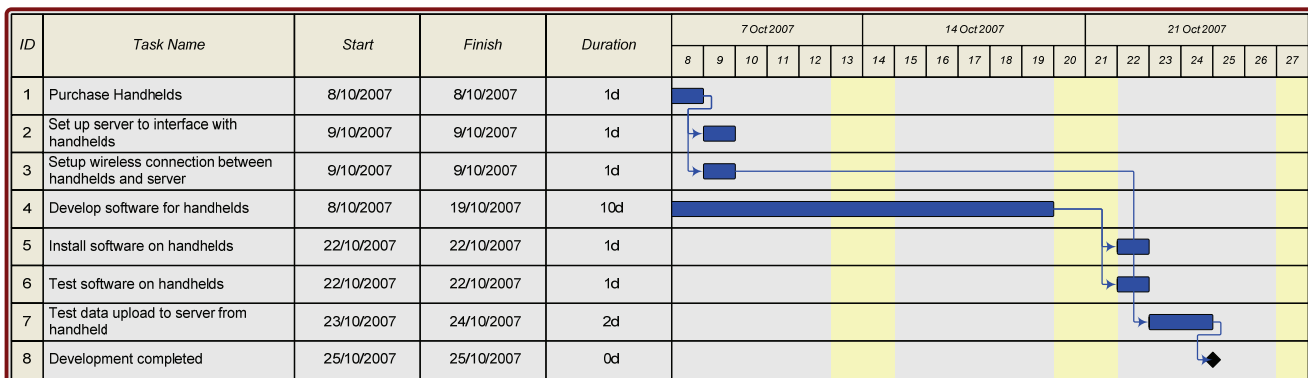
- 1 mark for discussion of advantages and 1 mark for discussion of disadvantages

Tip

- *Backup procedures continue to have a place in the Software Development study design. It is important for students to be able to evaluate options and make recommendations based on their knowledge.*

Question 9

The following Gantt chart has been created for the development phase of the project.



a. On what date is a milestone achieved?

Answer

25 October 2007.

1 mark

Mark allocation

- 1 mark for identification of milestone

b. On what dates do concurrent tasks occur?

Answer

9 October and 22 October 2007.

2 marks

Mark allocation

- 1 mark for identification of each date.

c. How many working days are on the critical path?

Answer

13 days.

1 mark

Mark allocation

- 1 mark for identifying length of critical path.

Tip

- *Project management takes a little more prominence in the new study design and it is therefore important that students understand the tools used in project management and how to decipher the information held within them.*

Question 10

The Warringal Council local laws officers have decided to trial one handheld in the field for a month before all of their local laws officers begin to use them.

a. What type of changeover method has the Warringal Council decided to use?

Answer

Pilot

1 mark

Mark allocation

- 1 mark for correctly identification of method.
- b. Provide one other strategy the council could have used to change over to the new system. Explain in detail how the strategy would have worked and why you think it was not chosen.

Answer

One of the possible explanations of a strategy could be given:

The council could have implemented a direct changeover by having all of the local laws officers start using the new handheld devices at the same time.

However, if there were any problem with the handheld devices communicating with the main server, then the council would not be able to issue any infringement notices until the problem was fixed. A direct changeover strategy would provide no opportunity to iron out any problems.

OR

The council could have used a parallel changeover strategy, by having the local laws officers issue both an electronic and a paper-based infringement notice until the system has been determined to be accurate and fully operational.

However, this is a great waste of time and effort. Every infringement notice would require twice the work to issue, data entry would still have to be performed and be checked against the electronic entry, and finally one of the notices would need to be deleted off the server. It would get really messy.

3 marks

Mark allocation

- 1 mark for identifying an alternative changeover method
- 1 mark for discussion of how it would work
- 1 mark for discussing why it would not have been chosen

Tip

- *A key knowledge point within the study design is an understanding of the different changeover methods in the implementation phase. This question requires students to not only recall the different types but to actively apply two of them to the case study scenario.*

Question 11

Brian has been working with Samantha developing the user documentation and training programs for the local laws officers in the use of the new handheld ticketing devices. Brian thinks that all of the information on how to use the software should be contained within a user guide; Samantha wants to develop an online help option within the program itself.

- a. Describe **one** advantage of having a published user guide.

Answer

This would allow the local laws officers to physically follow instructions from the user guide as they read it; they would not have to switch between multiple display windows on the handheld, which has a very small screen.

1 mark

Mark allocation

- 1 mark for identifying an advantage.
- b. Describe **one** advantage of providing an online help option.

Answer

The local laws officers would not have to carry around a large and heavy user guide with them everywhere they go. Instead it will all be located within the unit.

1 mark

Mark allocation

- 1 mark for identifying a disadvantage
- c. What other piece of user documentation would the local laws officers need to assist them with the new system?

Answer

A technical guide to using the handheld device

1 mark

Mark allocation

- 1 mark for identifying user documentation.

- d. Suggest a suitable training strategy for the users of the new Infringement Notice software.

Answer

- The users that require training are the local laws officers.
- They need to learn how to use the handheld devices and also how to use the software developed for them.
- Training in the use of the handhelds should be done by a representative of the manufacturer, while the training in the use of the software should be done by a representative of the developer.
- The training should take a couple of days, with follow-up provided once the local laws officers are out on the job.
- The training should take place on a normal work day in the work environment with practical application out in the field also.

5 marks

Mark allocation

- 1 mark for each element of the training strategy that is identified.

Tip

- *User documentation and the training of staff are key knowledge points within the software development study design. Students should be able to discuss specific types of user documentation and demonstrate knowledge of what is most suitable for given situations. They should also be aware of the requirements of a training strategy and be able to apply them to a case study.*

Question 12

The Warringal Council wants to be able to evaluate the new system once it is operational in the field. For each of the evaluation criteria listed in the table below, identify a piece of data that the council could collect to determine if the criteria are being met.

Answer

Evaluation criteria	Evaluation data
Infringements notices are produced in real time	Statistics on the time taken to write the details of the fine to the database on the server
Time taken to record a fine is halved	Interviews with local laws officers on how long it takes to record fines electronically compared to previously
Errors in fines are reduced by 90%	Customer complaints records – fewer complaints about inaccuracies should indicate fewer errors
Equipment is robust and functioning with minimal downtime	Equipment breakdown logs to indicate the amount of time for which the handheld devices are out of service

4 marks

Mark allocation

- 1 mark for each area of evaluation data identified.

Tip

- *Criteria for evaluating information systems are again a feature of the Software Development study design. Students need to know what suitable evaluation criteria are and what data would be collected to determine whether the criteria are being met. This question tests that area of knowledge.*