

## Unit 7

1.

A developer is writing a program to record the results of examinations taken by students in a school.

(a) The program will be tested to make sure that it works.

There are three types of test data that can be used to test a system: normal, abnormal and extreme.

Explain what is meant by normal, abnormal and extreme test data.

Normal Data is within the range of acceptability

.....

Abnormal Data outside the range of acceptability

.....

Extreme Data that is on the boundary

.....

[3]

2.

Compare a test strategy with a test plan. Your answer should include similarities and differences.

Similarities

.....

Both are used in design

.....

Both are documents produced by the developers

.....

Differences

.....

Test plan is about the test being carried out whereas test strategy is a set of instructions which explains the test design.

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Test plan describes how to test/when to test/who will test whereas The test strategy determines how the test should be carried out.

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Test plan is about the test being carried out whereas Test strategy is more detailed.

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[6]

(b) An example of the date of birth stored on the database is: 15/05/2009

Describe **three** validation checks that could be carried out on the date of birth.

Format check

It Check that the format is dd/mm/yyyy

Range check

Month ranges from 01 to 12//Day range 01 to 31

Character check

The date of birth can only contain integers

[6]

3.

A company is designing a new computer system. After the system has been created and tested, it will be implemented.

(a) Compare parallel running and direct changeover. Your answer should include both similarities **and** differences.

Similarities

Both are methods of implementation.

Both involve the changing of the whole of the old system to a new system

Differences

With parallel running both systems operate together until the old one is removed.

With direct changeover the new system is implemented immediately.

With direct changeover benefits are immediate.

With parallel running the changeover is safer as the old system is still operating for a while

[4]

- (b) There is new software in this computer system that has to be evaluated.

Describe what needs to be considered when evaluating new software.

Compare the final solution with the original task to ensure that all elements of the solution have been met.

Identify any limitations of the software these are the problems that may have occurred during the testing/implementation.

Identify any necessary improvements that need to be made following testing and implementation, errors may be found that need to be improved.

Evaluate the user's responses to using the new software following the beta testing the users report back and these comments need to be taken into consideration.

[4]

4.

A new patient is attending a medical centre. He completes a form with his details and gives this to the secretary who enters the details into a database.

- (a) The secretary carefully checks the details entered into the database with those on the form.

State what this process is called.

visual verification

[1]

5.

The age of the patient is stored on the patient's medical record.

- (i) Explain why it is **not** sensible to store the age of the patient in the database.

The age of the patient changes every year

[1]

- (ii) Explain what change could be made to the database to solve this problem.

Use the field date of birth

Use a calculated field from date of birth

[1]

6.

The database includes primary and foreign keys.

A medical ID number is used as the primary key in the database. Examples of the medical ID number include:

556 442 8483

450 557 7104

485 777 3456

- (i) State **two** validation checks that could be used to check the medical ID number.

1 Range check

2 Character check

[2]

7. A company with many branches is implementing a new system. The manager is planning to implement the new system either by pilot changeover or parallel running.

(a) Contrast pilot changeover and parallel running.

**Parallel running**

Both systems operate together until the old one is removed. Staff can be trained on the whole system gradually. More time consuming to enter data into two systems.

If the new system fails then the old system is there for a while to be used.

It is more expensive as two sets of staff are needed.

**Pilot Changeover**

Each branch is implemented separately

Each branch changing over only uses the new system

Costs are reduced as only one branch is affected at a time

If there is an error in the new system only one branch is affected

[5]

(b) When the system is implemented, technical documentation is produced.

State **three** components that would be included in the technical documentation.

1 **Program flowcharts**

2 **Algorithms**

3 **System flowcharts**

[3]

8.

When a person changes their password they are asked to verify that it has been entered correctly by re-entering the password.

(a) State what this type of verification is called.

Double (data) entry

[1]

9.

Parallel running can be used as a strategy to implemented new systems.

(a) Describe what is meant by parallel running.

Parallel running is running both systems together until the new system works  
property/fully implemented

When the new system works the old system is removed

[2]

(b) Describe the benefits and drawbacks of using parallel running.

Benefits

If the new system fails the old one is still available for a time to be used

Less data will be lost during implementation

Training is gradual

New system can be easily tested with live data

Drawbacks

Implementation is expensive as two sets of staff are needed

Two systems are needed therefore more expensive

There will be duplication of data entry which can cause differences in the  
output of the two systems

[5]

10.

A shopkeeper sells fruit and has created a table containing the name of the fruit, its bar code number and an image of the bar code.

Part of the table is shown.

Type of fruit	Bar code number	Bar code
Apple – Fuji	977135120128	 9 77135 12012 8
Apple – Jona Gold	050023495154	 0 50023 49515 4
Apricot	050128440066	 0 50128 44006 6

(a) State and describe **two** validation checks that could be used for the bar code number.

1 Length check

Checks that there are only 12 characters

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 .....  
 .....

2 Presence check

Checks that the number exists in the table/not a null value

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

[4]