

AQA Level 3 Technical Level IT Computer Programming

Unit Number: F/507/6465

Specimen Question Paper

Materials

For this paper you must have:

- Pens
- Pencils

Instructions

- Use black ink or black ball-point pen
- Answer **all** questions
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages
- Do all rough work in this book. Cross through any work you do not want to be marked

Information

- There are two sections to this paper
- Both sections should be attempted
- Learners should spend approximately 60 minutes on Section A and 60 minutes on Section B
- There are 80 marks available on this paper
- The marks for the questions are shown in brackets

Advice

- Please read each question carefully before starting

Please write clearly, in block capitals, to allow character computer recognition

Centre number Learner number

Surname

Forename(s)

Learner signature _____

SAMPLE QUESTION PAPER – COMPUTER PROGRAMMING


Section A


Answer **all** question(s) in this section

Only **one** answer per question is allowed.

For each answer completely fill in the circle alongside the appropriate answer.

CORRECT METHOD  WRONG METHODS    

If you want to change your answer you must cross out your original answer as shown. 

If you wish to return to an answer previously crossed out, ring the answer you now wish to select as shown. 

0 1

Which one of the following is a feature of a high-level language?

- A It deals with memory addresses and call stacks
- B It provides little or no abstraction
- C It runs directly on the processor
- D It deals with variables and arrays

[1 mark]

0 2

Which one of the following is a feature of a pseudocode?

- A It is invisible and only the computer can see it
- B It is code that outputs misleading results
- C It is intended for human reading rather than machine reading
- D It is executed directly by a computer's central processing unit

[1 mark]

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0 3

Windows XP has come to the end of its lifecycle. Which one of the following statements is correct?

- A Users will have to upgrade or their computers will stop booting
- B The security risk increases as updates are no longer provided
- C The software is no longer licensed for use
- D It is no longer compatible with Office software

[1 mark]

0 4

Iterative design is a methodology which:

- A Requires the use of flowcharts to plan a project
- B Inserts statements in the loop which are never executed
- C Lowers the complexity for address decoding
- D Is based on a cyclic process of testing and refining

[1 mark]

0 5

Modular application development is:

- A Where licences for each part can be granted separately
- B Concerned with components being separately developed
- C One where the user can choose which features to install
- D Programming where all modules have to be complete before testing

[1 mark]

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0 6

State three principles of good programming practice.

[3 marks]

0 7

Explain how you could demonstrate that user documentation meets the client's requirements.

[3 marks]

0 8

a) Describe the difference between a global and local variable.

[2 marks]

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b) State one way in which the limitations of a local variable could be overcome without changing its type.

[1 mark]

0 9

State two characteristics of patch software and give one risk of using it.

[3 marks]

1 0

a) In the software lifecycle, describe the difference between an open and closed beta.

[2 marks]

b) Give one benefit of a closed beta.

[1 mark]

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1 1

a) Explain how logging expected and actual results against a bug report might help an IT support desk identify a fault.

[2 marks]

b) Give one other type of information that could be important if an accurate diagnosis is to be made.

[1 mark]

1 2

A user can trigger an event in event-driven programming by interacting with the program, such as through use of a mouse or keyboard. State three more ways an event can be triggered.

[3 marks]

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1 3

a) Polymorphism is a characteristic of an object-orientated paradigm. Describe one other characteristic.

[2 marks]

b) Describe two main benefits of object-orientated programming.

[4 marks]

1 4

a) Explain the principle of familiarity when designing a user interface.

[2 marks]

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b) Describe how familiarity could be achieved when designing a user interface in an application for an operating system.

[4 marks]

1	5
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a) Describe the technique of pair programming.

[2 marks]

b) Justify two possible pairings for a pair-programming task.

[4 marks]

1	6
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a) Describe the purpose of workflow testing.

[2 marks]

b) State two advantages and two disadvantages of black box testing.

[4 marks]

Section B

Answer **ALL** question(s) in this section

1 7

a) Using appropriate symbols and flow lines, draw a flowchart to represent the following algorithm:

[3 marks]

Algorithm:

Start

Get values x, y, z

Calculate the mean of x, y, z.

- **Mean = $(x + y + z) / 3$**

If the mean:

- **is greater than or equal to 62 display pass**
- **If less than 62 display fail**

Stop

Space for flowchart below:

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b) Describe two benefits of using flowcharts to represent algorithms or processes.

[4 marks]

c) Compare and contrast the advantages and disadvantages of the Waterfall and Spiral development approaches.

[8 marks]

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1	8
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- a) State two possible efficiencies gained by moving blocks of code that are being repeated, to functions and subroutines.

[2 marks]

- b) The following pseudocode has been written to outline a program to input football results and output a league table and top scorers.

Some areas have been copied and pasted to repeat the code, and already the structure is beginning to look inefficient.

Look through the pseudocode and answer the question that comes after it.

```

// this is a comment. Note the // to show this is not part of the logic
// let's collect this round of game data

OUTPUT "WHICH LEAGUE? [1-4]"
INPUT NumLeague

OUTPUT "HOW MANY GAMES TO INPUT?"
INPUT NumGames

Initialise counter to 1
    WHILE counter is less than or equal to NumGames
        INPUT GameDetails
        Process GameDetails into TEAM/SCORE/SCORERS
        Calculate points for game
        Add the points to the team's total
        Increase team's games played by 1
        Add the goals to the scorer's total
    WEND

sort league table (NumLeague, hi to lo on points)
print league table (NumLeague)

Set NumScorers to 5
Initialise counter to 1
    WHILE counter is less than or equal to NumScorers
        display player number (counter)
    WEND

// let's display another league and sort it a different way

OUTPUT "WHICH LEAGUE DO YOU WANT TO DISPLAY?"
INPUT NumLeague

OUTPUT "HOW WOULD YOU LIKE IT SORTED?"
    
```

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```
INPUT Method

sort league table (NumLeague, Method)
print league table (NumLeague)

// and finally let's input more games for a different league

OUTPUT "HOW MANY GAMES TO INPUT?"
INPUT NumGames
OUTPUT "WHICH LEAGUE? [1-4]"
INPUT NumLeague

Initialise counter to 1
    WHILE counter is less than or equal to NumGames
        INPUT GameDetails
        Process GameDetails into TEAM/SCORE/SCORERS
        Calculate points for game
        Add the points to the team's total
        Increase team's games played by 1
        Add the goals to the scorer's total
    WEND

sort league table (NumLeague, hi to lo on points)
print league table (NumLeague)

Set NumScorers to 5
Initialise counter to 1
    WHILE counter is less than or equal to NumScorers
        display player number (counter)
    WEND
```

- b) Rewrite the pseudocode to move the duplicate code into separate modules, such as functions and subroutines.

The rewritten pseudocode should include:

- Functions/subroutines (or other method of not repeating code).
- A method of passing parameters to the subroutine.

[10 marks]

- c) Insert comments to explain the elements or structures.

[3 marks]

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Space for rewritten pseudocode:

SAMPLE QUESTION PAPER – COMPUTER PROGRAMMING

**DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED**