



**Professional Qualification in
COMPUTING AND INFORMATION SYSTEMS
Level 4 Diploma**

UNIT 2 – COMPUTER PROGRAMMING

Question 1

- (a) Describe the key features of the Java programming language. (5 marks)
- (b) Describe the key features of the Python programming language. (5 marks)

Question 2

- (a) Describe the strengths of a compiled language. (5 marks)
- (b) Describe the weaknesses of a compiled language. (5 marks)

Question 3

Discuss the factors affecting the suitability of a language for particular tasks. (10 marks)

Question 4

State how data is held in each of the following common data structures:

- (a) Arrays. (2 marks)
- (b) Linked lists. (2 marks)
- (c) Dictionaries. (2 marks)
- (d) Maps. (2 marks)
- (e) Trees. (2 marks)

Question 5

- (a) Illustrate the use of selection in programming. (5 marks)
- (b) Illustrate the use of iteration in programming. (5 marks)

Question 6

Discuss the principles of CPU architecture. (10 marks)

Question 7

(a) Describe how a machine code instruction is fetched and placed in the CPU. (5 marks)

(b) Describe how a machine code instruction is executed in the CPU. (5 marks)

Question 8

(a) Write an algorithm in pseudo-code to search a personnel file for a particular person's name. (5 marks)

(b) Draw a flowchart to illustrate your answer to Question 8a. (5 marks)

Question 9

(a) Describe the principles of object-oriented programming. (5 marks)

(b) Describe the history of object-oriented programming. (5 marks)

Question 10

(a) Describe the advantages of the object-orientated paradigm versus imperative and functional. (5 marks)

(b) Describe the disadvantage of the object-orientated paradigm versus imperative and functional. (5 marks)