



Professional Qualification in
COMPUTING AND INFORMATION SYSTEMS
Level 4 Diploma

UNIT 2 – COMPUTER PROGRAMMING

Question 1

Discuss the historic development of modern programming languages, from their origins to the present internet age. (10 marks)

Question 2

- (a) Explain why Java is commonly used to develop mobile apps. (5 marks)
- (b) Discuss **ONE** feature of PHP that makes it suitable for server-side web scripting. (5 marks)

Question 3

- (a) Identify **THREE** common primitive data types. (6 marks)
- (b) Identify **TWO** differences between composite and primitive data types. (4 marks)

Question 4

Write a segment of pseudo-code to illustrate each of the following program constructs:

- (a) A definite iteration. (5 marks)
- (b) An indefinite iteration. (5 marks)

Question 5

- (a) Describe the CPU in a computer system. (5 marks)
- (b) Describe **ONE** basic function of a CPU in program execution. (5 marks)

Question 6

Discuss the relative advantages and disadvantages of static and dynamic compilation. (10 marks)

Question 7

- (a) Describe **ONE** difference between algorithmic and functional programming. (5 marks)
- (b) Describe **ONE** change in design approach required for Object Oriented Programming (OOP) from algorithmic programming. (5 marks)

Question 8

Below is a program segment which defines a function 'SUM':

```
int SUM ( int a, int b)
{
    int c ;
    c = a + b ;
    return ( c ) ;
}
```

From the segment, identify each of the following function characteristics:

- (a) Function name. (2 marks)
- (b) Parameter list. (2 marks)
- (c) Return type. (2 marks)
- (d) Local declaration. (2 marks)
- (e) Return statement. (2 marks)

Question 9

- (a) Describe **ONE** advantage of using pointers in programming. (4 marks)
- (b) In C++,

& is the address-of operator, and can be read simply as "address of"
***** is the dereference operator, and can be read as "value pointed to by"
Copy the following lines of C++ code and write an explanatory comment on each one:

	Comment
MyNum = 40;	
Dom = &MyNum;	
Sub = *Dom;	

(6 marks)

Question 10

- (a) Describe the OOP principles of encapsulation and abstraction. (5 marks)
- (b) Describe **ONE** OOP language feature which handles the behaviour and state of object types. (5 marks)