

BOWEN UNIVERSITY, IWO
FACULTY OF SCIENCE AND SCIENCE EDUCATION
DEPT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY
B.Sc. DEGREE FIRST SEMESTER EXAMINATION, 2015/2016 SESSION
COURSE CODE: CIT 115 COURSE TITLE: Introduction to Computer
Programming I

COURSE CREDIT: 2 DATE : TIME: 2hrs

INSTRUCTION: ANSWER ALL QUESTIONS IN SECTION A, ONE IN SECTION B
AND ONE IN SECTION C

SECTION A

Q1a) Write down 5 good programming principles (7 ½ marks) (b) List 5 important steps in program development (7 ½ marks) (c) Distinguish between program debugging and program maintenance (4 marks) (d) List 3 categories of program errors. Give one example of each category (6 marks).

Q2 1a Write QBASIC statements to accomplish the following:

- i) Declare X, Y and Z as string, floating-point and integer variables respectively
- ii) Declare and read values to a floating-point variable X and string variable Addr respectively
- iii) Declare integer variables n1 and n2
- iv) Prompt users to input 2 numbers
- v) Read the 1st number in n1 and the 2nd in n2
- vi) Store the sum of n1 and n2 in variable Total
- vii) Output n1, n2, and their product on one line (11 marks)

b) 1b. Write each of the following in QBASIC notations

(i.) $\sqrt{(b^2 - 4ac)} / 2a$ (ii) $(a+b) / c(e-f - gh)$ (4 marks)

c) Write a QBASIC program to input 2 numbers m1 and m2 and output (i) the numbers, (ii) their sum (iii) their product (iv) their average. (10 marks)

SECTION B

Q3) The cost of sending an international fax is calculated as follows: Service charge N30, N5 per page for the first 10 pages and N3 for each additional page. (a) Design an algorithm that asks the user to enter the number of pages to be faxed and to output the amount due for faxing the document (7 marks). (b) Implement your design in QBASIC without test-running it (8 marks) (c) Modify your program to carry out similar operation for 10 users (10 marks)

4a) Write a program to convert the age of a man given in days to year, month and days, Assume all months are uniformly 30 days (10 marks)

b) Write a user-friendly program to input the names of a student and his/her scores in CIT115 and MAT115, and to compute the total and average scores. The program is to then output on a single the input data, the computed values and a remark of 'Pass' or 'Fail'. The remark is 'Fail' if the average score is less than 45% (15 marks)

SECTION C

5a) Distinguish between (i) a program and a subprogram (2 marks) (ii) a function and a subroutine. (3 marks)
(b) Define a BASIC subroutine that takes the length and breadth of a rectangle as parameters and compute the perimeter of the rectangle. (5 marks) (c) Code a main program that accepts the length and breadth of a rectangle, calculates and outputs its perimeter by invoking the subroutine defined above (5 marks). (d) Define a BASIC

function equivalent of the subroutine defined in (b) above (5 marks) (e) Modify your program in (c) to output the perimeter of a rectangle by invoking the function defined in (d) (5 marks)

Q6) Write separate program segment to accomplish each of the following:

- (i) Declare a 1-D array of 25 floating-point values
- (ii) Input values into the array declared in (i)
- (iii) Output the values of the array without using the For-Next statement
- (iv) Calculate and output the mean of all the elements of the array
- (v) Calculate and output the greatest of the values in the array (20 marks)

b). What is the output of the following program segment and how many times will the loop body be executed?

```
For i=1 To 10  
  PRINT i, " "  
NEXT i
```

(5 marks)