TECHNICAL UNIVERSITY OF MOMBASA

Institute of Computing & Informatics

UNIVERSITY EXAMINATION FOR:

BMCS 2017S Y1S1/ BSCC 2017S
EIT 4151 STRUCTURED PROGRAMMING
SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: SEPTEMBER, 2018

TIME: 2 HOURS

Instructions to Candidates
You should have the following for this examination
-Answer Booklet, examination pass and student ID
This paper consists of Five questions. Attempt Question One and any two other
Do not write on the question paper.

Question One

a) Define procedural programming techniques and its implications on logic design.   [4mks]
b) i)What is modular concept in structured programming?   [2mks]
ii) Mention any two benefits of modular programming.   [2mks]
c) Explain the following programming methods.   [4mks]
i)Top-down Design
ii)Bottom-up Design and Implementation
d) List any three debugging aids in programming.   [3marks]
e) Draw a flowchart that prints the sum of all odd numbers between 0 and 100.   [6marks]
f) Using a high level language implement the flowchart above into a program   [7marks]
g) Define pointers as used in programming.   [2marks]

Question Two.
   a) Define a variable as used in C programming language.   (2marks)
   b) A program is required for reading in a student's name and the scores obtained in two
       subjects. The output of the program will consist of the student's name, the two scores, the
       average of the two scores and a comment. The comment is based on the average as follows:

Average	Comment
≥ 70	Good
< 70	Poor

   Write a program to solve the problem using a high level language.   [10 marks)
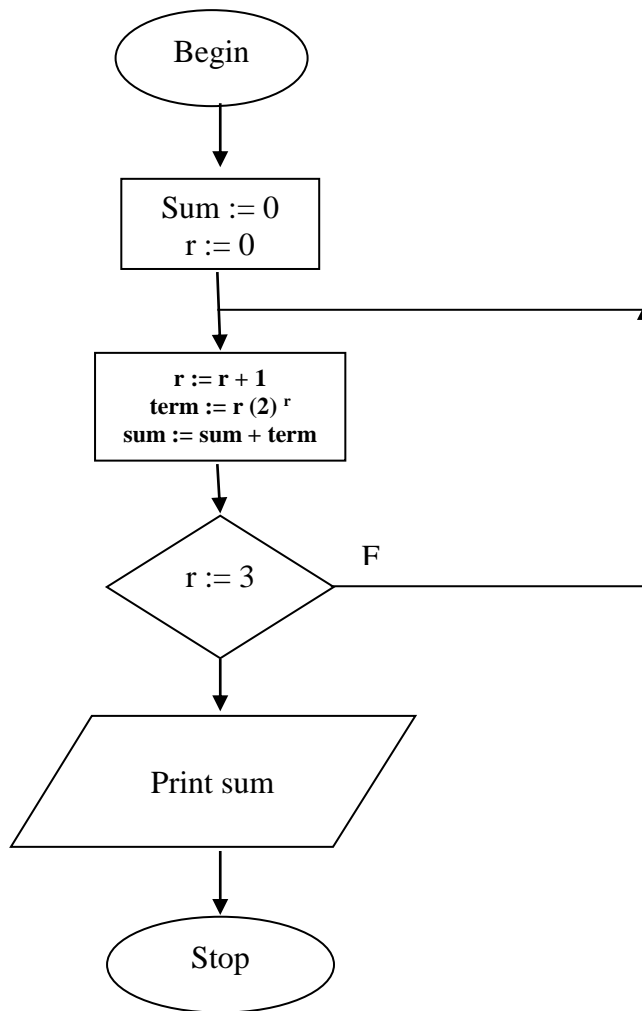   c) i)Explain your understanding to the concept 'scope of a variable' in programming [2marks]
       ii) Differentiate between local and Global variable   [4marks]

Question Three.
   a) Desk check the following flowchart, and establish the value of the sum when printed?

Show how you arrive at your answer. [4 marks]

b) Using a high level language implement the above flowchart into a program.   (6marks)

c) List and explain any three types of programming languages errors giving an example in each
(6marks).

d) Define structures as used in programming and give the general format of the struct statement.
[4marks]

Question Four

a) Write down the output what would be generated by the following program segment.
(2 marks)

```
sentinel := 1
repeat
        Sentinel := sentinel + 1;
        Write (sentinel);
Until (sentinel = 9);
```

b) What would happen to the programs execution if the statement

sentinel := 'sentinel + 1;' was changed to 's**entinel = sentinel – 1;'**   [2 marks]

c) Draw a program flowchart from the following program segment

```
Begin
        M := 0;
        While m < = 50 do
                Begin
                        M := m + 1;
                        N := 30;
                        Repeat
                                N := n – 1
                        Until (n=0);
                End;
        Writeln (m)
        Writeln (n)
End
```

d) Write a program segment for the flowchart using a high level language.   [8marks]

e) Differentiate between high level and low level language.   [2marks]

Question Five

a) Define an array structure   [2marks]

b) State any three characteristics of an array structure   [3marks]

c) Consider the following statements in the pseudo-code below, what list of elements would be in the array A. Dry run to show your answer.   [5marks]

```
Declare A[5] as integers
Index = 0
DOWHILE Index < 5
        A [index  = index * 2
        Index = index + 1
ENDDO
```

d) Using a high level language implement the above pseudo-code into a program.[6marks]

e) Define functions as used in structured programming.   [2marks]

f) Give the general form of a function definition in programming   [2marks]