SOUTH EASTERN UNIVERSITY OF SRI LANKA

FIRST EXAMINATION IN BACHELOR OF INFORMATION AND COMMUNICATION TECHNOLOGY - 2015/2016

SEMESTER – I, JULY 2017

SWT 11012 - FUNDAMENTALS OF PROGRAMMING

Answer all Questions **Time: 02 hours.**

Question 01:

a) Define the programming language and list TWO (02) types of programming languages with example.

(07 Marks)

b) Write down the 'C' Program Structure, and define each component of the 'C' program structure.

(10 Marks)

c) Define the following terms:

i. Source code
ii. Executable / binary code
iii. Interpreter
iv. Assembler
v. Compiler
vi. Library
vii. Linker
viii. Pseudocode

(08 Marks)

[Total 25 marks]

Question 02:

a) Describe the types of control statements

(09 Marks)

b) Given the following code fragment

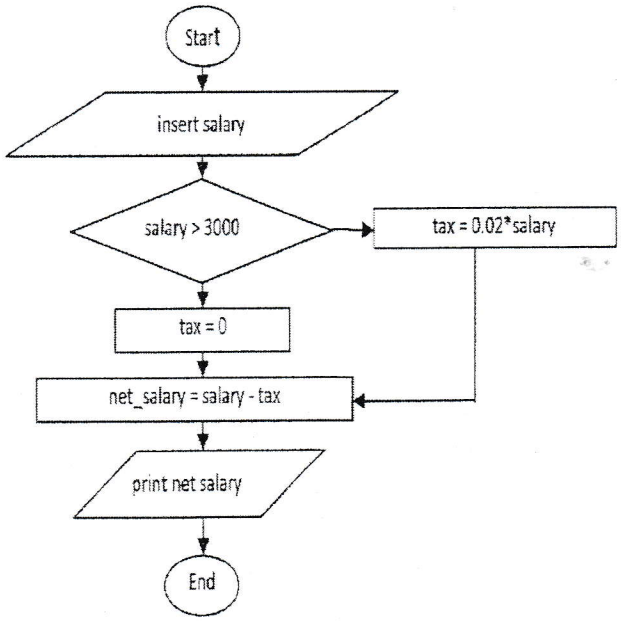
```
int      total = 0, counter = 7;
while (counter <20)
{

        total = total + counter;
        counter = counter +3;
        printf ("%d   =>  %d \n", counter, total);

}
```

i. How many times the loop will be executed?

ii. What is the output after the code is executed?

(06 Marks)

c) By referring the following flow chart, write a C program to calculate the net salary system.



(10 Marks)

[Total 25 marks]

Question 03:

a) Why are comments required in a program? Why must you write comments before or while you write the program, never after?

(05 Marks)

b) The program below contains errors. Find the errors and rewrite this program with the correct code.

```
int main {}
(
   int i = 0, sum = 0;
   while (i <= 5)
      {
      sum +=i;
      printf ('sum [%d] = %d\n", i, sum);
      i++
      return 0;
}
```

(05 Marks)

c) Carryout a program that ask user to enter the total of 100 marks and then display the letter grade and GPA based on the below diagram.

Marks Range	Grade	Grade Point
85-100	A+	4.00
70-84	A	4.00
65-69	A-	3.70
60-64	B+	3.30
55-59	B	3.00
50-54	B-	2.70
45-49	C+	2.30
40-44	C	2.00
35-39	C-	1.70
30-34	D+	1.30
25-29	D	1.00
00-24	E	0.00

(15 Marks)

[Total 25 marks]

Question 04:

a) Write 'C' codes for the following:

i. To generate and display the following output

```
1 * 1 = 1
2 * 2 = 4
3 * 3 = 9


10 * 10 = 100
```

(03 Marks)

ii. To find minimum from the given one-dimensional array.

(03 Marks)

b) Write 'C' programs for the following:

i. To sort an array of numbers in descending order with function

(03 Marks)

ii. To create a structure called 'Student' having following members.
IndexNo, Name, Marks.
Find the student getting maximum marks assuming there are 60 students.

(09 Marks)

c) Answer the following questions based on the declaration below.

int n = 80

i. Declare a pointer **next** of **double** type

(01 Marks)

ii. Declare a pointer **ptr** of **integer** type and assign it to variable **n**

(02 Marks)

iii. Write a command to display **ptr** value

(01 Marks)

iv. Declare a pointer **ptr2** of **float** type

(01 Marks)

v. Write a command to display the address of **ptr2** pointer

(02 Marks)

(07 Marks)

[Total 25 marks]