

**THE OPEN UNIVERSITY OF SRI LANKA
DEPARTMENT OF MATHEMATICS & COMPUTER SCIENCE
B.Sc. DEGREE PROGRAMME : LEVEL 03
CPU1141- INTRODUCTION TO COMPUTER PROGRAMMING
FINAL EXAMINATION – 2015/2016**



DURATION: Two Hours (2 Hours)

Date: 18.07.2016

Time: 1.00 p.m. – 3.00 p.m.

ANSWER FOUR QUESTIONS ONLY.

QUESTION 01

- a) State the three logical operators in C language.
b) Following is an expression of a C program. What is the value of 'a' after this expression is executed.

$$a = 8 + 16 / (5 + 3) - 2;$$

- c) State the meaning of each of the following backslash codes.
1) \n
2) \t
d) What is the output of the following program?

```
int main()
{
    int a[8] = {1,2,3,4,5,6,7,8};
    int b[7];
    int c,d;

    for( c=0; c<7; c++)
        b[c] =a[c]*a[c+1];

    for(d=0; d<7; d++)
        printf("%d\n", b[d]);
    return 0;
}
```

QUESTION 02

- a) What is a pointer?
b) What are the two fundamental operators used with the pointer? Briefly explain the task of each.
c) State the two constant declaration methods in C language.
d) Write a complete C program to read a word (only characters) from the keyboard and display the character count of that word.

QUESTION 03

- a) What are the three classes of data types supported by the C language?
- b) What are the two characteristics that can be altered in a data type by using a modifier?
- c) Give two modifiers for each of the characteristic mentioned in part (b).
- d) Write a complete C program to read examination marks of 10 students from keyboard for CPU1141 subject and display the marks which are greater than 40.

QUESTION 04

- a) State the difference between gets() and scanf() functions.
- b) If the variable x=10 and variable y=2, write the values of x and y after the execution of each of the following statements.
 - 1) y +=x;
 - 2) x -=y;
 - 3) y *=x;
 - 4) x /=y;
- c) What are the two types of parameter passing schemes used for functions in C language?
- d) Give line by line explanation for the following program segment. (Assume that you input the value 5 for 'a' and 20.1 for 'b')

```
int main()
{
    int a;
    float b,x;
    scanf("%d %f", &a, &b);
    x=a*b;
    printf("The product of %d and %.2f is: %.2f\n",a,b,x);
    return 0;
}
```

QUESTION 05

- a) What is a structure?
- b) Suppose you want to store data about a car. You want to store its brand (a string), its model year (an integer), and engine power (a float). Create the structure to hold the above information.
- c) If the variable 'b' has the value 21, what are the values of 'b' and 'a' after each of the following statements is executed separately.
 - 1) a = b--;
 - 2) a = --b;

- d) Write a program to read marks of 3 tests of 5 students. Finally print the marks of each test for each student separately as follows.

```
Student1
    Test1: mark
    Test2: mark
    Test3: mark
Student2
    Test1: mark
    Test2: mark
    Test3: mark
```

QUESTION 06

- a) State the main difference between structure and union in C language.
- b) Convert the following statement into if else statement.
 $Z = (X > Y) ? X : Y;$
- c) Describe the task of each of the following functions.
- 1) strcpy(S1, S2)
 - 2) strcat(S1, S2)
 - 3) strcmp(S1, S2)
- d) What would be the outputs of the following programs?

<u>Program A</u>	<u>Program B</u>
<pre>int main() { int i=10, j=5; cal (i, j); printf("\n %d %d", i, j); return 0; } cal (int i, int j) { i = i*10; j = j*5; }</pre>	<pre>int main() { int i=10, j=5; cal (&i, j); printf("\n %d %d", i, j); return 0; } cal (int *i, int j) { *i = *i*10; j = j*5; }</pre>

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