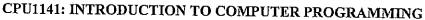
THE OPEN UNIVERSITY OF SRI LANKA B.Sc DEGREE PROGRAMME: LEVEL 03

CLOSED BOOK TEST - 2: 2011/2012





DURATION: ONE AND HALF HOURS (1 1/2 HOURS)

Date: 24th October, 2011

Time: 4.00 pm - 5.30 pm

Answer ALL questions.

Q1.

- a) Suppose a, b and c are integer variables that have been assigned the values a = 8, b = 3 and c = -5. Determine the value of each of the following C expressions.
 - 2*b+3*(a-c)
 - a*b/c ii.
 - a*(b/c)iii.
- b) Write a C program to read in a radius of a sphere and print the volume of it, which is given by the following equation,

Volume =
$$\frac{4}{3} \pi r^2$$
; r = radius

c) What is the output of the following C program segment, if a = 2, b = 3 and y = 2.

```
calculation part
      = a + (y++);
      = a + (++b);
m1
m2
      = a - ( ++b );
n2
      = a - (y++);
c = m1 / m2;
d = m1 % m2;
/* display output */
printf("suml : %d \n", m1);
printf("sum2 : %d \n", n1);
printf("subl : %d \n", m2) ;
printf ("sub2 : %d \n" , n2);
printf ("division : %d \n" , c);
printf ("Modulo division : %d \n" , d);
getch();
```

O2.

- a) What is the purpose of the do-while statement in C? How does it differ from the while statement?
- b) Describe the output that will be generated by each of the following C programs.

- c) Write a switch statement in C that will examine the value of a char-type variable called color and print one of the following messages, depending on the character assigned to color.
 - i. RED, if either r or R is assigned to color
 - ii. GREEN, if either g or G is assigned to color
 - iii. BLUE, if either b or B is assigned to color
 - iv. BLACK, if color is assigned any other character

Q3.

- a) State three (03) advantages to the use of functions in C.
- b) What are arguments in C? What is their purpose?
- c) Write an appropriate array definition in C, for each of the following problem situation:
 - i. Define a one-dimensional character array called point. Assign the string "NORTH" to the array elements. End the string with the null character.
 - ii. Define a one-dimensional, six element floating-point array called consts. Assign the following values to the array elements:

```
0.005, -0.032, 1.5, 2.2356, 0.167, 0.015
```

iii. Define a two dimensional, 3 * 4 integer array called n.