

THE OPEN UNIVERSITY OF SRI LANKA
B.Sc DEGREE PROGRAMME: LEVEL 04



NO BOOK TEST - 1: 2015/2016

CPU2242: OBJECT ORIENTED PROGRAMMING USING C++ AND JAVA

DURATION: ONE AND HALF HOUR (1 ½ HOUR)

Date: 03rd April, 2016

Time: 10.30 am – 12.00 noon

Answer ALL questions.

Q1.

- a) Which of the following variable names are incorrect in C++?
- Age
 - lex
 - R79J
 - TotalIncome
 - Invalid
- b) What would be the correct declaration in which to store the following information in C++?
- A variable to hold your age
 - A variable to hold the area of your backyard
 - A variable to hold the number of stars in the galaxy
 - A variable to hold the average rainfall for the month of January
 - A constant to hold the minimum age to poll the coming election
 - A constant for π as 3.14159
- c) Determine the value of each of the following expressions if $a = 5$, $b = 10$, and $c = -6$. Write your steps clearly.
- $a > b \ \&\& \ a < c$
 - $a + 1 \ \|\ \ b$
 - $b > 15 \ \&\& \ c < 0 \ \|\ \ a > 0$
 - $!(b \leq 12) \ \|\ \ a \% 2 == 0$
 - $!(a > 5) \ \&\& \ c < a + b$

d) What would be the output of the following C++ program?

```
#include <iostream>
using namespace std;

int main()
{
    int age = 25;
    int noOfVisit = 4;
    float visitPerYear;
    int a, b;

    visitPerYear = age/noOfVisit;
    cout << "visitPerYear = " << visitPerYear << "\n";

    a = age++;
    b = ++age;
    cout << "a = " << a << "\n b = " << b << "\n";

    return 0;
}
```

e) Write a complete C++ program that defines the following;

- i. Read two lines of text from the keyboard.
- ii. Concatenate the strings using " * " to separate the two parts of the string.
- iii. Write a code to output the new string on screen.
- iv. Write a function that contains the following character sequence, and displays the length of the string.

"I have learned something"

Q2.

a) Differentiate between *while* and *do...while* loops.

b) The following code segments have some errors. Identify each error and rewrite the code segment.

i.

```
int counter = 0
while (counter < 10)
{
    cout << "counter: " << counter;
}
```

ii.

```
for (int counter = 0; counter < 10; counter++);
cout << counter << " ";
```

- c)
- i. Write a complete C++ program to read 10 integers to an array.
 - ii. Write a function to print the array elements in ascending order.
- d) What is the difference between the *arrays* and *structures*?
- e) Define a structure to store the following information (Table 1), and write a complete C++ program to print the details of these persons.

	Name	Age	Salary
Person 1	Anoma Priyadarshanie	22	22500
Person 2	Nuwan Amarasiri	25	30400

Table 1: Person information

Q3.

- a) Briefly explain the following terms in object oriented programming.
- i. Private
 - ii. Public
 - iii. Protected
 - iv. Constructor
 - v. Destructor
- b) Define the class named *Date* which includes following data members and member functions. Write a complete C++ program to print the current date.

Data members:

`day, month, year`

Member functions:

`initDate()` default constructor

`initDate()` three parameterized constructor

`printDate()` method to output date in the format *month-day-year*

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