

**THE OPEN UNIVERSITY OF SRI LANKA
B.SC. DEGREE PROGRAMME: LEVEL 05
OPEN BOOK TEST 2005/2006**



CSU 3279-OBJECT ORIENTED PROGRAMMING

DURATION: 1 1/2 HOURS

Date: 10/08/2006

Time: 3.30 pm-5.00 pm

Answer All Questions.

Question 1

- (i). Following identifiers are written in C++ and some of them are syntactically incorrect. Find these identifiers and precisely write down each error.
- (a) 2addvalues (b) Default (c) return
(d) no of lines (e) My-first_programme
- (ii). What data types would you use to represent the following data items? Briefly explain why you selected a particular data type for each of them.
- (a) Number of students in the class
(b) The average rainfall for the month of January.
(c) Population of a city
(d) Gender of a person
(e) Planck's constant (6.62559×10^{-27})
- (iii). If $a = 5$, $b = 10$, $c = 15$ and $d = 0$, what are the truth values of the following expressions?
- (a) $c == a+b$ (b) $a != 8$ (c) $a+d >= c-b$
(d) $a+1 \&\& b$ (e) $!(b <= 15) || a\%2 == 0$
- (iv). Bracket the following logical expressions to show the order of execution of the operators.
- (a) $a+d >= c-b$ (b) $c == a+b || c == d$
(c) $a != 7 \&\& c >= 6 || a+c <= 20$
(d) $!(b <= 12) \&\& a \% 2 == 0$
(e) $!(a > 5) || c < a+b$

Question 2

What would be the outputs of the following C++ program segments? Briefly explain step by step what happens in each program segment.

```
(i). int a,b;
    a = 5; b = ++a;
    cout << " a = " << a;
    cout << " b = " << b;
```

```
(ii). int sum = 0;
    for (int i = 5; i <=50; i+=5 ) {
        cout << i << (i == 50 ? " = " : " + ");
        sum += i; }
    cout << sum << "\n";
```

```
(iii). char line[128];
```

```
    cout << "Type in a line of text and press Enter" <<endl;
    cin.getline(line, sizeof(line));
    cout << "You typed: " << line << endl;
```

```
(iv). {
    unsigned short Width = 5;
    unsigned short Length;
    Length = 10;
    unsigned short Area = Width * Length;
    cout << "Width:" << Width << "\n";
    cout << "Length: " << Length << endl;
    cout << "Area: " << Area <<endl;
}
```

```
(v). int main(){
    cout << "The size of an int is:\t\t"<< sizeof(int)
        <<" bytes.\n";
    cout << "The size of a short int is:\t" << sizeof(short)
        << " bytes.\n";
    cout << "The size of a long int is:\t" << sizeof(long)
        << " bytes.\n";
    cout << "The size of a char is:\t\t" << sizeof(char)
        << " bytes.\n";
    cout << "The size of a float is:\t\t" << sizeof(float)
        << " bytes.\n";
    cout << "The size of a double is:\t" << sizeof(double)
        << " bytes.\n";
    return 0;
}
```

Question 3

(i). Write a C++ program, that allow users to enter 10 integers. It should also finally display the output.

(ii). (a). What is the difference between arrays and pointers?

(b). What is the difference between the following initializations?

```
char a[] = "string literal";  
char *p = "string literal";
```

(iii). Define an array to store the monthly sales of a shop with the following sales figures.
9600.00, 6259.30, 8015.25, 4563.25, 1500.20, 7415.00, 5241.50, 7426.25, 2563.12,
9636.00, 4536.50, 5269.00

Write C++ code to obtain the total sales of that year.

(iv). State whether the following statements are TRUE or FALSE.

- a) A pointer variable can hold the addresses of variables of different data types.
- b) The expression $!(x > 10)$ is equivalent to the expression $x < 10$.
- c) 'strcpy' can be used to copy a string into an array.
- d) 'do...while' loop does not execute its body at least once if its test expression is zero.
- e) An identifier must start with an alphabetic character, digit or an underline character.
- f) Bitwise operators can only operate on integral data types, not on floating-point numbers.

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