



Date: 04/10/2007

Time: 4.00 pm – 5.30 pm

Answer All Questions.

Q1

i). What data type would you use to represent the following data items?

- (a) Avogadro's Number ( $6.022 \times 10^{23}$ ).
- (b) Gender of a person.
- (c) weight of a mosquito.
- (d) Number of professors in an University.
- (e) The average temperature of a city during a month.

ii). If  $a=2$ ,  $b=4$ ,  $c=6$ , and  $d=10$ , what will be the values of the following expressions?

- (a)  $c == a+b$ .
- (b)  $(a+b+c+d) >= 'a'$ .
- (c)  $a < b \ \&\& \ c < d$ .
- (d)  $!(a++ < d)$ .
- (e)  $a > c \ || \ b < d$ .

iii). Briefly explain what will happen during the execution of each of the following expressions.

- (a)  $a = (b <= (c+d)) ? i : j$ ;
- (b)  $p = \text{sizeof} (--i)$ .
- (c)  $x = b+ = c$ .
- (d)  $y = b++$ .
- (e)  $m = \text{getchar} () ! = \text{eof}$ .

iv). Find all the errors of following C++ program segments.

```
(a) # program <iostream.h>
    {
        char a;
        begin
            a = A;
            cout << " The character is" << a;
            end;
    }
```

```

(b) # include <iostream.h>
    void main ( );
    {
        int m, s ;
        cout>> " The summation of 1 to 10 numbers are"
        cout>> "\n";
        s = m = 0;
        while (m<=10 ) do
            {
                s = s + m;
            }
        cout<< s;
    }

```

Q2.

(i). Write the C++ codes for the following parts.

- (a). Define A as type char and B as type integer. Initialize A to "Hello" and B to 25.
- (b). Define two char pointer variables X and Y. Initialize Y to the address of X.
- (c). Define two char array variables SUBJECT and CLASS. Initialize SUBJECT to CSU3279 and CLASS to Block8.
- (d). Define two string variables S1 and S2 and initialize them to "Hello" and "Dear Friends" respectively.
- (e). Assign the concatenated string S1 and S2 into S1.
- (f). Compare strings S1 and S2.
- (g). Find the length of the string S1.
- (h). Copy contents of S1 into another string S3.

(ii) A thermometer reads temperature values of a human body in degrees Celsius. If you were required to convert those values in Celsius in to degrees of Fahrenheit how would you do it using a C++ program? You may assume that the degrees of Celsius could be read from the user.  
(Help: Fahrenheit = 32 + 9/5 \* Celsius ).

(iii) Write C++ codes using '*while*' loop to find the following summation.

$$S = 1 + 3 + 3^2 + 3^3 + \dots + 3^{10} .$$

Q3.

(i) State whether the following statements are **True** or **False**.

- (a) A pointer variable can hold the address of another variable.
- (b) 'strcmp' returns 0 if the strings are same.
- (c) 'do...while' loop and 'while' loop are work similarly when the execution time.
- (d) 'break' statement and 'continue' statement are same in operation.
- (e) Constants do not have data types.

(ii) What would be the output of following two program segments.

```
(a) #include <iostream.h>
Void main( )
{
    int X,Y;
    X = 10;
    Y = X--;
    Cout<< " X = " << X;
    Cout<< " Y = " << Y;
}
```

```
(b) #include <iostream.h>
Void main( )
{
    int n;
    cout << " Enter the starting number";
    cin >> n;
    while (n <= 10 )
    {
        Cout << n << " ,";
        ++n;
    }
    Cout<< "END";
}
unû
```

(iii) During a game, players have to press a button among numbers 0 – 9. If he/she has chosen 1, 2 or 3 a message " go forward" should be displayed. Otherwise the message " try again" will be displayed. Write a C++ program for the above task.

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