



1. a) Answer the following questions [10]

- i) strcmp() and strcpy()
- ii) islower() and tolower()
- iii) % and fmod()
- iv) cin and gets()
- v) cout and putchar()

b) Write the equivalent C++ expression for the following expressions: [3]

- i) $\sqrt{x^2}$
- ii) $\cos 2x + p^{2y}$
- iii) $(1-y^3)^{0.5} / (1+x^4)^{0.25}$

c) What are the limitations of size in arrays (write any two)? [2]

d) Write the values of i, ch, j and d from the following code:- [2]

```
char ch;
int d;
for(int i=1 ; i<=4 ; i++ , ch++ )
    {   ch ='A' ;
        for(int j=1 ; j<= i ; j+=2 , ch++)
            {   d = i+10 ;
                cout<<ch<< " * " << d ;
            }
        cout<< "\n" <<ch<< j ;
    }
cout<< "\n" <<i ;
```

e) Name the libraries/header files that shall be needed for the following code: [2]

```
void main()
{ char ch='b';
int x=45;
x = log10(x);
cout<<ch<<setw(15)<<strlen("HEllo");
}
```

2. Write output of the following (assuming all header files are included) :

a) (**Assume the values for variable T with every cin is "SaVEEArH2015."** each char respectively) [2]

```
void main ()
{ char T;
do { cin>>T;
    if (T=='A' || T=='E')
        T='#';
    else if (islower(T))
        T=toupper(T);
    else
        T='@';
```

```

    cout<<T;
}while(T!='. ');
}

```

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b) Select the correct option(s) out of the choices given below. Justify your answer. [2]

```

const int MIN = 25 ;
void main( )
{
    randomize ( );
    int SCORE = 10 , Num;
    for (int i = 1 ; i<= 4 ; i ++ )
    {
        Num = MIN + random (SCORE ) ;
        cout<<Num<< " : ";
        SCORE -= 2 ;
    }
}

```

- | |
|--|
| (i) 34:31:30:29:
(ii) 29:33:30:31:
(iii) 34:32:31:31:
(iv) 34:31:29:33: |
|--|

3. Write a program to display the following output. (using nested loop) [4]

```

0
0 3
0 3 6
0 3 6 9
G D A
D A
A
PROGRAM ENDS.

```

4. Write C++ program to print following pattern using loop and manipulator [2]

```

1
    -4
        7
            -10

```

5. Write a program that reads a character from the keyboard till the user press '\!' to terminate (while inputting character should not be printed on the screen). Implement the following on the inputted character. [4]

- If the character is an alphabet or a digit, print the previous character or digit.
Example : if input is 'H' then 'G' is printed on screen, if the character is '5' then '4' should be printed on screen.
- If the character is a special symbol, count them and print total special symbols entered.
- If the character is a white space character, print '@' character on screen.

6. Write a program to combine the contents of two equi-sized arrays A and B by computing their corresponding elements with the formula $2*A[i]+3*B[i]$; where value i varies from 0 to N-1 and transfer the resultant content in third same sized array. [3]

7. Write a program to compare two strings and check whether they are exactly equal or not. If the strings are equal print the message "String are equal" and also print its reverse.

Otherwise add the shorter string to the longer one and print the resultant string.

[4]

-x-x-x-x-x-x-