Roll Number		

SET A

INDIAN SCHOOL MUSCAT
FINAL TERM EXAMINATION
COMPUTER SCIENCE

CLASS: XI | Sub. Code: 283 | Time Allotted: 3 Hrs

21.02.2019 | Max. Marks: 70

General Instructions:

- Answer all questions.
- Answer all the subdivisions of a question in sequence.
- Programming language is C++.
- Write programs neatly and clearly.

I. a.	Explain any two features of third generation computers.	1
b.	What do you mean by utility software?	1
c.	Give any one difference between CISC and RISC computers.	1
d.	Convert $(65.3)_8$ to (_____)$_{10}$	1
e.	Represent -30 in 2's complement form.	1
f.	What do you mean by Round Robin Scheduling?	1
g.	What is a Cache memory? Why it is considered crucial for a microprocessors performance?	2
h.	What do you mean by an operating system(OS)? Mention any two services performed by OS.	2
II.a.	What is Pretty printing?	1
b.	Write any two uses documentation.	1
c.	What do you mean by syntax errors and semantic errors? Give examples of each.	2
d.	Write any four characteristics of a good program.	2
e.	Explain any three stages of Program Development Process.	3
f.	Define : i) Guard code ii) Robustness iii) Runtime error	3

III.a. What do you mean by an identifier ? Give example. 1

b. Construct a logical expression to represent the following conditions: 1

i) Salary is greater than or equal to 10000 but less than 60000.

ii) Y is even.

c. Which C++ header files are required to run/execute the following C++ program? 1

```
void main( )
{ char WORD[ ] = "COBOL" ;
  cout<< "Characters = "<< strlen(WORD) ;
}
```

d. Write the corresponding C++ expressions for the following mathematical expressions: 2

i) $|e^{3x+2} - 15x|$ ii) $S = u + at$ iii) $\sqrt{\sin^2 x - \cos^2 x}$

iv) $w - 3y^7 + 5y$

e. Consider the following array declaration: 2

```
float Z[4][30] ;
```

i) Find the number of elements in the array.
ii) Find the total number of bytes required to store this array.

f. Identify the error(s) in the following program. Rewrite the corrected program. 2

```
#inclde<iostream.h>
void main( )
{ int  sal = 20000 , i
  cout<< "Sum ="">> sal + 30 ;
  return(0) ;
}
```

g. Write any two differences between an array and a structure. 2

h. Write a program to accept three integers. Find the smallest of the three and display it(use conditional operator). 3

IV.a. What do you mean by 'dangling else' problem? 1

b. What is the difference between local variable and global variable? 1

c. What is the purpose of using typedef command in C++? Explain with suitable examples 2

d. Differentiate between the actual and formal parameters with suitable examples 2

e. Give the output of the following program: 2

```
#include<iostream.h>
int Calc(int  W)
{
  if(W % 2 == 0)
     return(W + 12) ;
   else
     return(W * 3) ;
}

void Pattern (char  K,  int   D = 2)
{
  for( int  A = 0 ; A < D ; A ++)
   cout<< Calc(A) << K  ;
   cout<< endl ;
}

void  main ( )
{
  Pattern('&') ;
  Pattern('$',3) ;
}
```

f. Rewrite the following code fragments using switch statement: 2

```
if( ch== 'A')
 a++ ;
if( ch == 'C')
 c++ ;
if(ch == 'E')
  e++;
if(ch == 'R')
  r++ ;
else
  unknown++ ;
```

g. Define a structure **Bus** with the following data members: 3
Engineno(integer), Brand(string), Model(String) , Mileage(real number). Write a program to accept all the details given above and display all details.

h. Write a function definition void **FACT(** int num) to find the factorial of an integer and display the result within the function. 3

i. Write a program to find the sum of the following series. Accept the value for '**x**' and the number of terms '**t**' from the user and display the sum. 3

$$x - \frac{x^2}{2!} + \frac{x^3}{4!} - \frac{x^4}{6!} + \ldots\ldots\ldots\ldots\ldots \frac{x^n}{n!}$$

j. Write a program using functions to accept a string and a character in the **main( )** function. Pass this string and the character to a function named **check( ),** check how many times the character is present in the string and display the result within the function **check( ).** 3

k. Write a program to accept two matrices **A** and **B** of the order M x N and P x Q of integers. if possible multiply these two matrices and store it in another matrix **C**. Display the result matrix **C**. 4

l. Write a program to print the following pattern. Accept the number of lines '**n**' from the user: 4
Eg: If the number of lines is 4, the output is as follows:

@
@ @
@ @ @
@ @ @ @

m. Write a program to accept a **4 x 4** matrix **A** of integers and interchange the first and last row elements of the same matrix and display the elements of the matrix after the interchange. 4

Eg:

input	output
10 20 30	20 30 40
40 50 60	40 50 60
70 80 90	70 80 90
20 30 40	10 20 30

End of the Question Paper

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SET B

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General Instructions:

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- Programming Language is C++.
- Write Programs neatly and clearly

I..a. Define the term Throughput. 1

b. What is the difference between RAM and ROM? 1

c. What do you mean by Proprietary software? Give one example. 1

d. Give any two points about UNICODE. 1

e. Write any two functions of an operating system. 1

f. Write any two features of fifth generation computers. 1

g. How is compiler different from an interpreter? 2

h. Convert the following as instructed : 2

i) $(7642)_8$ = (_____)$_2$ ii) $(2A3)_{16}$ = (_____)$_{10}$

II .a. What is the role of comments and indentation in a program? 1

b. What do you mean by Syntax and Semantic errors? Give examples of each. 1

c. Explain any four characteristics of a good program. 2

d. Write a short note on the following: 2

i) Uses of documentation ii) Adaptive maintenance

e. Explain any three stages of Program Development Process. 3

f. Define the following terms: 3

i) Pretty Printing ii) Robustness iii) Guard code

III.a. Construct logical expressions to represent the following conditions: 1

i) Weight is greater than or equal to 135 but less than 165
ii) Y is odd.

b. Write the following C++ expression for the following mathematical expression: 1

i) $\frac{\sqrt{2x+3y}}{4m} - w^6$ ii) $(\cos x / \tan^{-1} x) + x$

c. What do you mean by type casting? Give example. 1

d. What is the difference between fundamental data types and derived data types. Give examples. 2

e. What do you mean by a pointer? Give an example. 2

f. Define the following terms: 2

i) Data type modifiers ii) Reference variable

g. Write a C++ Program to input three integers and print the largest of the three using conditional operator. 2

h. Answer the following: 3

i) What do you mean by cascading of I/O operators in C++?
ii) What are escape sequences in C++? Give an example.
iii) What do you mean by dynamic initialization of a variable? Give an example.

IV.a. Jaya has started learning C++ and has typed the following program. When she compiled the following code written by her, she discovered that she needs to include some header files to successfully compile and execute it. Write the names of those header files, which are required to be included in the code. 1

```
void main( )
{  float A, Number, Outcome;
   cin>>A>>Number;
   Outcome=pow(A,Number);
   cout<<Outcome<<endl;  }
```

b. Consider the following array declaration: 1

```
float  A[20][5] ;
```

i) Find the number of elements in the array .
ii) Find the total number of bytes required to store this array.

c. Write a C++ Program to generate the following pattern using nested loop : 2

1
1 3
1 3 5
1 3 5 7

d. Predict the output of the following program: 2

```
#include<iostream.h>
void main()
{
void  Display(int &,int);
int x= 25, y=2;
Display(x,y);
cout<<"x="<<x<<"y="<<y;
}
void Display(int &a, int b)
{a = a /10;
 b= a + b;
cout<<"a="<<a<<"b="<<b<<endl;
}
```

e. Rewrite the following program after removing the syntactical error(s), if any. Underline each correction: 2

```
#include<iostream.h>
void main
{ int x[6]={2,5,3,-5,2,};
for(i=0;i<6,i++)
cout>>x[i];
}
```

f. Rewrite the following code in for loop to equivalent while loop: 2

```
for(int x=1, s=0; x<=100; x+=2)
s+=x;
cout<<s;
```

g. Write a program to find the sum of the following series. Accept the value for '**x**' and the number of terms '**t**' from the user and display the sum. 3

$$x - \frac{x^2}{2!} + \frac{x^3}{3!} - \frac{x^4}{4!} + \ldots\ldots\ldots\ldots\ldots \frac{x^n}{n!}.$$

h. Write a program to accept an array of '**n**' integers. Accept another integer from the user and check whether that integer is present in the array or not and display proper message. 3

i. Write a program to accept a **3 x 3** matrix **A** of integers. Display the border elements in the matrix form 3

eg: input

```
1 2 3
4 5 6
7 8 9
```

output

```
1 2 3
4   6
7 8 9
```

j. Write a program to accept 5 integers in a **1-D** array and sort the array in ascending order using bubble sort method. Display the sorted array. 3

k. Write the definition of a function void **Alter**(int A[ ], int N) in C++, which should change all the multiples of 5 in the array to 5 and rest of the elements as 0. 4

l. Define a structure **EMP** with the following members: 4
empid(integer), name (string) and salary(real number). Write a program to accept 10 employee details as given above and find the total salary of total employees.

m. Write a program to accept a sentence and replace the first letter of each word in the sentence to uppercase and display the sentence after conversion. 4

End of the Question Paper