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Code Number 83



INDIAN SCHOOL MUSCAT
FINAL TERM EXAMINATION
COMPUTER SCIENCE (083)

CLASS: XI

Sub. Code: 083

Time Allotted: 3 Hrs

25.02.2018

Max. Marks: 70

General Instructions:

1. Answer all the questions and answer all the subdivisions of a question in sequence.
2. Programming Language is C++ and write Programs neatly and clearly

- 1 a. Arrange the memory units from smallest to biggest Giga Byte, Kilo Byte, Zeta Byte, Byte. 1
- b. Distinguish between a Compiler and an interpreter. 1
- c. Define the following terms : 1x2
- (i) Operating System (ii) Application software
- d. Convert the following as instructed : 1x2
- (i) $(215.63)_8 = ()_2$ (ii) $(E7.8D)_{16} = ()_{10}$
- e. Write a short note on the following 2x2
- (i) Hybrid computers.
- (ii) Explain the functional components of a Computer with a neat block diagram
- 2 a. Define the following terms : 1x2
- (i) Robustness (ii) Pretty printing
- b. Write a short note on the following: 2x2
- (i) Adaptive maintenance (ii) Explain any four characteristics of a good program
- c. Write an algorithm to input marks and print PASS if marks are more than 32 otherwise print FAIL. 3
- d. Draw a flow chart to print sum of first 50 even numbers. 3
- 3 a. Answer the following : 1x3
- (i) What do you mean by cascading of Input output operators in C++.
- (ii) What do you mean by logical errors. Give an example.
- (iii) What is the meaning of type casting.
- b. What are C ++ comments? Give example. 2
- c. What is the range and size in bytes of the following data types: (i) int (ii) char 2
- d. What are derived data type and name any two of them. 2

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

f. Answer the following questions : 3

(i) Evaluate the expression $((++c + a > b) \ || \ (c \% 2 + 5 > a / 5))$ where $a=1, b=2, c=3$

(ii) Give the output :

```
int ch=5;
```

```
cout << ++ch << "\t" << ch+1 << "\n";
```

(iii) Construct logical expression to represent: Either marks are more than 80 or grade is 'A'.

4. a. Convert the code given in for loop to equivalent while loop. 2

```
#include<iostream.h>
void main()
{ int num, a ,b ,c ,d ;
for (a=1 , num = 12; a<num ; a++)
{ b = num % a;
if (b==0)
cout<<a<<endl;
}
cout<<"Press any key to continue";
}
```

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

```
void main()
{ int i=5,x[5]=[1,2,4,5,6];
int const j=10;
++i;
j+=i;
cout<<x[i];
}
```

c. Write a C++ Program to generate the following pattern using nested loop : 3

```
1
2 1
3 2 1
4 3 2 1
5 4 3 2 1
4 3 2 1
3 2 1
2 1
1
```

- d. Find the output of the following : (Assume all the necessary header files are included) 3

```
void main()
{int A[]={10,12,15,17,20,30};
for(int i = 0; i<6; i++)
{ if(A[i]%2==0)
A[i] /= 2;
else if(A[i]%3==0)
A[i] /= 3;
if(A[i]%5==0)
A[i] /=5;
}
for(i = 0; i<6; i++)
cout<<A[i]<<"#"; }
```

- e. Write a program in C++ which accepts an integer array of size n. Exchange the value of all negative elements with their positive equivalent. Display the original array and the modified array. 3

Example:

If an array contains: -2, 4, -1, 6, -7, 9, -23, 10

The function should rearrange the array as: 2, 4, 1, 6, 7, 9, 23, 10

- 5 a. Anil has started learning C++ and has typed the following program. When he compiled the following code written by him, he discovered that he 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()
{ char Txt[] = "Welcome";
for(int C= 0;C<strlen(Txt);++C)
cout<<Txt[C] ;
cout<<endl; }
```

- b. Look at the following C++ code and find the possible output(s) from the options (i) to (iv) and justify your answer. Assume all required header files are included. 1

```
void main( )
{ randomize( );
int PICKER,H=5;
PICKER=random(H)+30;
for(int i=35;i>PICKER;i--)
cout<<i<<'$'; }
```

(i) 35\$34\$33\$32\$31\$30\$

(ii) 35\$34\$33\$32\$31\$

(iii) 30\$31\$32\$33\$34\$35\$36\$

(iv) 35\$34\$33\$32\$31\$30\$

- c. Write a program to check a string is palindrome or not using built in function. 2
- d. An array stores details of 25 students (rollno, name, and marks in three subjects, total). 4
Write a program to create such an array and print out a list of students who have scored more than 75% in total.
- 6 a. Predict the output of the following program. Assume all required header files are already 2
being included in the program :
- ```
int a=30;
void print(int &x,int z,int y=10)
{ int temp=z+y;
 x+=temp;
 if(y==10)
 cout<<x<<temp<< "\n"; }
```
- ```
void main( )
{ int a=15, b=40;
  print(a,a);
  cout<<a<<a;
  print(b,a);
  cout<< "\t"<<a<<b; }
```
- b. Write a program to read 3 X 3 matrix. Display both the diagonal elements along with 3
their respective sum.
- Example:
- ```
1 2 4
4 5 6
7 8 9
```
- Major Diagonal :  $1+5+9 = 15$   
Minor Diagonal :  $4+5+7 = 16$
- c. Answer the following : 4
- (i) Write an user defined function vcount() which takes a string as an argument and converts it into uppercase and returns the number of vowels in it.
- (ii) Define a macro with an example.
- d. Write a program using function to check whether a number is perfect number or not. 4  
Give the function name as "PERFECT". Accept the number in the main ( ) function, Pass this number to the function and display the result from the function.

End of the Question Paper