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ANNUAL EXAMINATION 2017 -'18

Class : XI **Marks : 70**

Time : 3 hrs

COMPUTER SCIENCE (NO. 083)

GENERAL INSTRUCTIONS:
1. All questions are compulsory.
2. Programming Language: C++.

1. Define the following. **2**
   a) CPU Scheduling b) Demand Paging c) Throughput d) Turn around Time
2. Differentiate between preemptive and non-preemptive scheduling. **2**
3. Write example of one Proprietary and one Open Source software. **1**
4. Convert $(10101110.010111)_2$ into its hexadecimal equivalent. **1**
5. Express the negative number -17 in two's complement form. **1**
6. Briefly explain the following. **3**
   a) Escape Sequences b) Cascading of I/O operators c) Predefined Streams in I/O Library
7. What do you mean by Abstraction and Encapsulation? How are they interrelated? **2**
8. What do you meant by inheritance? What are the advantages of it? **2**
9. Differentiate between Structure and a Class. **2**
10. What do you meant by unsized array? How to calculate the size of it? Give an example. **3**
11. Write a program to transpose a matrix. **3**
12. Difference between #define and const. **2**
13. Identify invalid identifiers and give reason to support your answer. **2**
    Herbook, REC-INFO, switch, _RET, note.dat, Z2T0T9, 07Bond, File123
14. Go through the C++ code shown below, and find out the possible output or outputs from the suggested output options a) to (d). Also write the least value and highest value, which can be assigned to the variable Guess. **2**

```
#include<iostream.h>
#include<stdlib.h>
void main()
{
      randomize();
      int Guess, High = 4;
      Guess = random (High) + 50;
      for (int C=Guess; C<=55; C++)
            cout<< C <<"#";
}
```

    a) 50#51#52#53#54#55# b) 52#53#54#55
    c) 53#54# d) 51#52#53#54#55.
15. Write a program to implement linear search in an array using function. **3**
16. What are two methods for passing arguments to a function? Explain each with example. **3**
17. Which C++ header file(s) are essentially required to be included to run / execute the following C++ code? **2**

```
void main()
{
      char STRING[] = "Something", C;
      cout<<"Balance Character:   "<<160-strlen(STRING)<<endl;
      for(int i=0; STRING[i]!='\0'; i++)
```

```
        {
              C = toupper(STRING[i]);
              cout<<setw(5)<<C;
        }
        getch();
}
```

18. Write the corresponding C++ expression for the following mathematical expression. **2**
    a) $a + b / (p + q)^5$ b) $2 - ye^{2y} + 4y$
19. What do you meant by type casting? What are the two methods? Explain each with example. **2**
20. Write a C++ program to calculate and print the sums of even and odd integers of the first 'n' natural numbers. **3**
21. Differentiate between pointer and reference variable. **2**
22. Rewrite the following code using switch statement. **2**

```
if (SCODE==101)
      cout<<"Computer Science";
else if(SCODE ==102)
      cout<<"Physics";
else if(SCODE ==103)
      cout<<"Chemistry";
else
      cout<<"Invalid";
```

23. Differentiate between break and continue. **2**
24. Give the output of the following program. **3**

```
#include<iostream.h>
int g=15;
void func(int &x, int y)
{
      x=x-y; y=x*10;
      cout<<x<<','<<y<<'\n';
}
void main()
{
      int g=5; func(g,::g);
      cout<<g<<','<<::g<<'\n';
      func(::g,g);
      cout<<g<<','<<::g<<'\n';
}
```

25. Write a program to calculate row sum and column sum of a matrix. **3**
26. Write a program to print fibonacii series. **2**
27. Consider the following array declarations. **2**
    double X[5][50]; short A[100];
    a) Find the number of elements in each array.
    b) Find the total number of bytes required to store each array.
28. Write a user defined function in C++ to display those elements of a two dimensional array T[4][4] which are divisible by 100. Assume the content of the array is already present and the function prototype is as follows.
    void showhundred(int T[4][4]); **2**
29. Write a user defined function lowerhalf ( ) which takes a two dimensional array A, with size M rows and N columns as arguments. **2**
    For Eg:- If A is

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

1			
6	7		
7	6	7	
1	5	6	7

30. What is a nested structure? Give an example. **2**

31. Rewrite the following code after removing the syntactical error, if any. Underline each correction. **2**

```
#include[iostream.h]
typedef char Text(80);
void main()
{
      Text T=”Indian”;
      int Count = strlen(T);
      cout<<T<<’has’<<Count<<’characters’<<endl;
}
```

32. Find the output of the following. **3**

```
#include<iostream.h>
struct POINT
{
      int X,Y,Z;
};
void StepIn(POINT &P, int Step=1)
{
      P.X+=Step;
      P.Y-=Step;
      P.Z+=Step;
}
void StepOut(POINT &P, int Step=1)
{
      P.X-=Step;
      P.Y+=Step;
      P.Z-=Step;
}
void main()
{
      POINT P1= {15,25,35}, P2= {10,30,20};
      StepIn(P1);
      StepOut(P2,4);
      cout<<P1.X<<“,”<<P1.Y<<“,”<<P1.Z<<endl;
      cout<<P2.X<<“,”<<P2.Y<<“,”<<P2.Z<<endl;
      StepIn(P2,12);
      cout<<P2.X<<“,”<<P2.Y<<“,”<<P2.Z<<endl;
}
```