This Question Paper consists of **6** questions and **7** printed pages.

Roll No. | | | | | | | | | | | | |

Code No. 57/ESS/4

SET **A**

COMPUTER SCIENCE
(330)

Day and Date of Examination _____

Signature of Invigilators 1. _____

2. _____

General Instructions :

1 Candidate must write his/her Roll Number on the first page of the Question Paper.

2 Please check the Question Paper to verify that the total pages and total number of questions contained in the Question Paper are the same as those printed on the top of the first page. Also check to see that the questions are in sequential order.

3 Making any identification mark in the Answer-Book or writing Roll Number anywhere other than the specified places will lead to disqualification of the candidate.

4 Write your Question Paper Code No. **57/ESS/4, Set-A** on the Answer-Book.

COMPUTER SCIENCE

(330)

Time : **3** Hours] [Maximum Marks : **60**

Note : (i) Answer **all** questions.

(ii) Marks allotted to each question are given in the right-hand side.

(iii) Use C++ programming language to answer the programming questions.

1 (a) Differentiate between : **2×3=6**

(i) Line Printer and Thermal Printer

(ii) Ring and Bus Topology

(iii) Peer to Peer and Client Server Architecture

(b) Explain data processing cycle in brief. **2**

(c) Give any two characteristics of natural languages with respect to computers. **2**

2 (a) Name four basic mouse actions. **1**

(b) Define Applets in Java. **1**

(c) Why is 'Dial-up connection known as Remote Modem Access' connection ? **1**

(d) Why do we say that Java is a combination of interpreted and compiled language ? **2**

3 (a) Name the header files to which the following built in functions belong : $\frac{1}{2} \times 2 = 1$

(i) getchar( )

(ii) exit( )

(b) Give any two benefits of modularity. 2

(c) Name the object oriented concept with respect to the features described below : 1×2=2

(i) Hiding the background details from the user

(ii) Hierarchical classification of classes

(d) Which of the following are valid identifiers ? 1

Keyboard, mouse1, CPU, 3monitors, #computers, while

(e) Predict the output of the following code : 2

```
#include<iostream.h>
void  main( )
{
    int values[5]={100, 45, 50, 20, 90}
    int  m,j,k=2;
    m=values[k-2];

    k=--values[3];
    j=values[4]/40;
    cout<<k--<<"** "<<j<<"** "<<++m<<"**"<<values[--j];
}
```

4 (a) Differentiate between (Give examples to support your answer) 2×2=4

(i) implicit and explicit conversion.

(ii) do..while and for loop

(b) Which character do the following escape sequences correspond to : 1

\n, \a

(c) Rewrite the program given below after removing the syntax errors. 2

(Underline all the changes made)

```
#include<iostream.h>
Void sum (char, float)
void main( )
{
    int num=20;char  var=m;
    sum (var,  num);
}
void sum(float y,  cha x)
{
    cout<<x+1;
    int z=y++;
    cout<<y>>z;
}
```

(d) Write a menu driven program to display the following menu : 3

(i) Compare strings

(ii) Append strings

(iii) Reverse strings

(iv) Exit

Depending upon the option selected, the corresponding operation should be performed.

(e) Predict the output of the following code : 3

```
#include<iostream.h>
int mixnmatch(int&a,  int b=4)
{
    b=a/b;
    a=a*b;
    return b;
}
void  main()
{
    int p=10,  q=5;
    int r=mixnmatch(q);
    cout<<p<<"###"  <<q<<"###"<<r<<endl;
    r=mixnmatch(p,q);
    cout<<p<<"###"  <<q<<"###"<<r<<endl;
    r=mixnmatch(p,6);
    cout<<p<<"###"  <<q<<"###"<<r<<endl;
```

5 (a) Assume an array NUMBERS of size 10 containing integers declared globally. Write a function that takes an integer pos as an argument and deletes the value present at pos. For example, if the elements in NUMBERS are 10, 20, 30, 40, 50, 60, 70, 80, 90, 100 and the value of pos (passed as an argument) is 5, then the element 50 should be deleted. 3

(b) Declare a two dimensional array having 3 rows and 5 columns. The array should be able to store decimal numbers. How much memory will be allocated to the array ? 1

(c) Define a class **Monitor** in C++ with the following descriptions : 3

Private members :

Class_teacher	of type string
M_code	of type integer
Grade	of type integer
Section	of type character
designation	of type string

Public members :

- A constructor to assign initial values of M_code as 100, Class_teacher as "Guru", Designation as "Line_Monitor" grade as 12 and section as A.
- A function Enterdata( ) which allows the user to enter all the data members and then calls the Check( ).
- A function ShowData( ) to display the contents of all the data members on the screen.

(d) **Answer the questions i to iii based on the following code :** 1×3=3

```
class  Trends
{
char code[10];
public :
    char category[4];
    void input();
    void output();
};
class  Fabrics  :  public  Trends
{
    char  type[50];
protected  :
    float  fprice;
public  :
    void  indata();
    void  outdata();
};
class  Training  :  protected  Fabrics
{
    long Tcode;
    protected:
    float price[5];
    intqty;
    public  :
        void enter();
        void show();
};
```

(i) **Which type of inheritance is shown in the above example ?**

(ii) **Write the names of all the members accessible through an object of class Training.**

(iii) **Name the data members accessible inside the function indata( ).**

(e) **Write a function to sort an array of integers in descending order using Selection sort.** 3

6 (a) Explain Enumerated data type with an example. 2

(b) Consider the following structure definition. 2

```
struct Plants
{
    char plant_name[10];
    float plant_cost;
    char remarks[50];
};
```

Create an instance of this structure and initialize plant_name as Aloevera, cost as 100 and remarks as medicinal. Also write the C++ statements to accept plant_name and plant_cost using the same instance.

(c) Give two differences between the following statements : 2

```
int ptr;          //Statement 1
int *ptr;         //Statement 2
```

(d) Given a binary file Class_Result.dat containing records as follows 3

```
class Result
{
    int Ano;
    char name[20];
    char subject[10];
    int score;
    public:
    void Accept( )
    {cin>>Ano>>score;gets(name);  gets(subject);}
    void Display( )
    {cout<<Ano<<name<<subject<<score;}
    char * Rsub( ) {return  subject;}
};
```

Write function in C++ to read contents from Class_Result.dat and display the details of only those students whose subject is Social_Science.

(e) Differentiate between ios::nocreate and ios:noreplace. Write the C++ statement to move the get pointer to the beginning of the file. Assume the name of ifstream object as F. 1+1=2

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