Computer Science
(330)
Tutor Mark Assignment

Max. Marks: 20

Note:

(i)   All questions are compulsory. The marks allotted for each question are given against each.

(ii)   Write your name, enrolment number, AI name and subject etc. at the top of the first page of the answer sheet

1.   Answer any one of the following questions in about 40-60 words :   2

(a)   i.   What is the difference between Logical and Physical Record.   (1)

        ii.   Write the name of the devices used for the following:-

                a)   To digitalizing an image.

                b)   A device widely used in testing an aptitude test.   (1/2)

        iii.   Identify the fixed length and variable length records given below:-   (1/2)

Rec A	Rec B	Rec C	Rec D
200 Bytes	100 Bytes	200 Bytes	100 Bytes
600 Bytes			

Fig 1.

Rec A	Rec B	Rec C	Rec D
150 Bytes	150 Bytes	150 Bytes	150 Bytes
600 Bytes			

Fig 2.

(b)   i.   What is the difference between compiler and interpreter?   (1)

        ii.   What are the application softwares required for the following:-   (1/2)

                a)   To create a student mark sheet, sort, filter, and format the data quickly and easily.

                b)   To design an invitation card for the birthday party.

                c)   To make a presentation of your project work.

                d)   To write a leave letter to the teacher of your class.

        iii.   A teacher of A.B Public school would like to store class X th student details and their respective marks. She has to maintain and edit the data of the students and prepare report cards. The data stored should be secured   and should minimize duplication and inconsistent values. Suggest an appropriate way to store the data. Also specify the language which can be used to access the data.
                                                                                                                                            (1/2)

Computer Science

2. Answer any one of the following questions in about 40-60 words. 2

    1.   i.   What is client server architecture and draw an appropriate diagram for it. Give few advantages of it. (1)

        ii.   What is an URL? Identify the protocol, domain name and the path of the given URL

            http://www.abc.org/sitemap/index.html   (1/2)

        iii.   Mention a suitable internet application for the following:-   (1/2)

            a)   To participate or interact with one another without travelling to the same location.

            b)   To buy a mobile phone online.

    2.   i.   What is the difference between LAN, WAN and MAN ?   (1)

        ii.   What are Bridges and how do they differ from Repeaters?   (1/2)

        iii.   Identify the network topology:-   (1/2)

            a)   All the computers are connected in a series.

            b)   All the nodes are connected to a centralized computer.

3. Answer any one of the following questions in about 40-60 words. 2

    1.   i)   Write a program in C++ to print the prime numbers between 100-200   (1)

        ii)   Define Structure for the following:-   (1/2)

            a)   Rollno, name, marks

            b)   Day,Month,Year

        iii)   Write the output of the following C++ code?   (1/2)

```
#include <iostream.h>
Void print()
{
For(int ft=1; ft<=40;ft++) cout<<"+";
Cout << endln;
}
Void print( int A, int B)
{
For(int ft=1; ft<=B;ft++) cout<<A*K;
Cout << endln;
}
Void print(char T, int N)
{
For(int ft=1; ft<=N;ft++) cout<<T;
Cout << endln;
}
Void main()
{
    Int s =9, t=4, w=3;
```

```
char c='$';
print (c, t);
print(s,w);
}
```

2. i) Write a C++ program to accept a four digit number and print whether it is an odd or even number. Write a program to print the digits of the number in reverse order.(e.g 1234 is an even number. The reverse of the number is 4321) (1)

ii) Give an example of implicit conversion (1/2)

iii) If you want to store marks of the ten students in memory. What would you prefer array or structure? Give reason. (1/2)

4. Answer any one of the following questions in about 100–150 words. 4

1. Define a class food_supply in c++ with the following description:- (2)

Member

Food_Code

Food_Name

Food_Sticker

Food_Type

A member function Get_info() to assign the following values for Food_Type according to Food_Sticker:-

Food_Sticker	Food_Type
Red	Non_Vegetarian
Yellow	Contain_Egg
Green	Vegetarian

Table 1.

Method

A method Food_Info() to allowing user to enter Food_Code, Food_Name and Food_Sticker.

A method Food_View() to view the content of the data members.

ii. Write an appropriate expression

a) $ax^2 +bx+c$

a. "$(x - a)^2 + (y - b)^2$ (1)

iii. Distinguish between (1)

int *ptr = new int(4);

int *ptr = new int[5];

2. i. Write a program in C++ to read an array of sorted integers. Search for a value using binary search method. If the element is found, print its location else print element not found. (2)

ii. Name the header file to which the following built in functions belong to :-

    a)   cos()   b) strcpy()   (1)

ii.   Difference between:-

a)   Global and local variable

b)   Call by value and Call by reference.   (1)

5.   Answer any one of the following questions in about 100–150 words.   4

   1.   i.   Write a program in C++ to accept a String and print the total no of vowels in it. Also print the string in upper and lower case.   (2)

       ii.   Difference between the following

          a) getch() and getche()

          b) Class and Objects   (1)

       iii. Rewrite the following program after removing the syntax error(s) if any. Underline each correction (1)

```
#include<iostream.h>
Void main()
{
    x=10, y=20;
    Callfunc(x;y);
    Callfunc(y);
}
Void Callfunc (int Arg1, int Arg2=20)
{
    Arg1=Arg1 +Arg2
    Cout<<Arg1 >>Arg2 ;
}
```

   2.   i)   To write a program in C++ to calculate the salary using single inheritance.   (2)

           Do the following:-

          a)   Create a base class Employee and declare the function get_data() to get the employee details.

          b)   Declare the derived class called salary and define the function get_sal() to get the salary details.

          c)   Define the function calculate() to find the net pay and display the details

       ii) If arr is an array of integers, why is the expression arr++ not legal?   (1)

       iii) Write output of the following program segment:-   (1)

```
Void func(char *name)
{
    Name="national institute"
}
Void main()
{
```

Char *name = "International institute"

Func(name;

Cout << "Name" << name;

)

6. Prepare any one project out of the given below.   6

1) Define a class book with the following details (use data file):-

Book_no, Book_title, Book_price, Author, Publishing_date, Bill_amt as attributes.

   a)   Create a function Total_cost() to calculate cost of 'n' coppices   (1)

   b)   Create a Function Input() to enter Book_no, Book_title, Book_price, Author, Publishing_date and no of books(n).   (1)

   c)   A Display() function that displays all the attributes with appropriate prompts(1)

   d)   A function to delete a particular book   (1 ½)

   e)   A function to update book details   (1 ½)

2) CompTech edu services are an educational organisation. It is planning to set-up its campus at Noida with its head office at Delhi. The Noida campus has 4 main buildings – Admin, Academics, Evaluation and Support services as shown in Fig 3. You are a network expert to suggest the best network related solutions for their problems raised in (i) to (iv), keeping in mind the distances between the buildings and other given parameters.
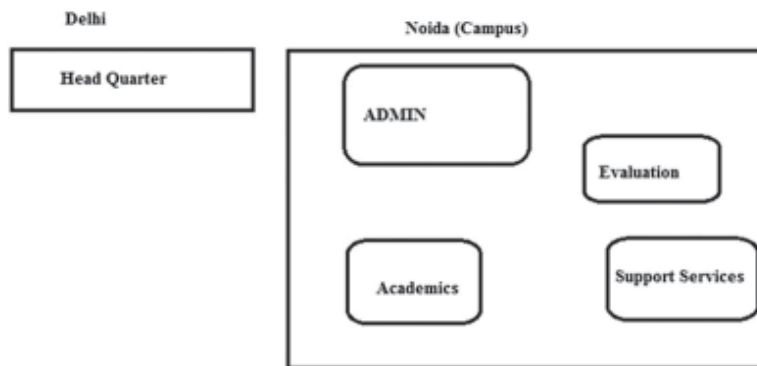

Fig. 3

	Distance between departments
Admin to Academics	55m
Admin to Support Services	90m
Admin to Evaluation	50 m
Academic to Support Services	55m
Academic to Evaluation	50m
Support Services to evaluation	45 m
Delhi HQ to Noida Campus	40 Km

Table 2

The Number of computers installed at various buildings are as follows :-

Department Name	No of Computers
Admin	130
Academics	85
Support Services	42
Evaluation	15
Delhi HQ	25

Table 3

Answer the following:-

1) Suggest the most appropriate location of the server inside the Noida campus for the best connectivity. Justify your answer. (2)

2) Draw the cable layout for connecting various building efficiently within the Noida campus. (2)

3) Which Hardware device can be installed to protect and control the internet users within the campus? (1)

4) Which of the following method will you suggest to establish the online face to face communication between the people in Admin office of Noida campus and Delhi HQ.

(a) Text Chat   (b) Video Conferencing   (c) Cable TV   (d) Email. (1)