COMPUTER SCIENCE
(330)
TUTOR MARKED ASSIGNMENT

Max. Marks : 20

Note: (i)   *All questions are compulsory. The marks alloted for each question are given at same place.*

(ii)   *Write your name, enrollment number, AI name and subject on the top of the first page of the answer sheet.*

1.   Answer any one out of the following questions in about 40 to 60 words.   2

(a)   (i)   Differenciate between MICR and OMR

(ii)   What is cache memory? How is it different from RAM and ROM?

(b)   (i)   Write short note on optical disk and its various categories available.

(ii)   Define the following:

a)   Field

b)   Data base

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

(a)   Differentiate between:

(i)   Logical record and physical record.

(ii)   Compilor and Interpreter.

(b)   (i)   Explain the three data transmission modes.

(ii)   Differentiate between 3 GLs and 4 GLs.

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

(a)   (i)   Rani wants to set a network in his lab. She wants several users to share a central processor which will work as a communications controller. Which topology will be used to set up the network.

(ii)   Name the network architecture (type of network) in which each work station has equivalant capabilities and responsibilities.

(iii)   Name the term that is used for the paperless exchange of business information and online transaction.

(b)   (i)   Define Telnet.

(ii)   Give one point of difference between shell connection and TCP / IP Connection to connect to the internet.

(iii)   Explain the following statement- "How Java ignores the identity of your computer chip?"

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

(a) (i) What is the difference between = and = operators.

(ii) What is abstraction implemented in C++?

(iii) Rita is writing a C++ programe in whic, she wants to display the grades (stored in variable grade) as per the table of marks (stored in variable marks) given below:

A – 90-100

B – 80-89

C – 70-79

D < 70

Write the code using appropriate C++ conditional statement so as to help Rita complete her work after accepting marks.

(b) (i) Differentiate between while and do whiee loop.

(ii) Name the library functions for the following.

1. This function (defined in cenioh) takes no argument but returns the character that the user presses from the keyboard.

2. This function gives the position of get pointer in a data in terms of number of bytes. It is defined in fitream file.

(iii) How is an extern variable different from a static variable?

(iv) Give the overloaded function declarations for the function named examination with the following descriptions:

1. Takes an integer array as an argument and returns a string.

2. Takes a float variable and a string as an argument but does not return any value.

3. Returns a double and takes two double arguments and one character argument whose default value is '*'.

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

(a) (i) Write a function that takes an integer array and an integer variable as an argument. The function then finds the position of the element in the array using binary search algorithm. Assume that the array is sorted in ascending order.

(ii) Give the C++ statements for the following:

1. To create an enumerated data type that defines three vehicle names (bus, car, bike) with constant integer values as 5, 6 and 7 respectively.

2. To define a new data type called fee for a standard float data type.

(iii) Define a structure named FARMER with the following members:

F_id of integer data type

F_name of type string

Land_are of type flaot

DOB of type date.

Please note that date is the structure define before and contains day? Month and year (all integers) as its members.

For the structure FARMER define in above, do the following:

Create a structure variable and initialize it with the following values-

F_id - 1000

F_name - "ABCD"

Hand-area - 1.0

DOB - 01, 01, 2000

(iv) Explain this pointer. Give suitable example.

(b) (i) Write a programme to sort an inter array of size 6 in descending order using insertion sort algorithm.

(ii) Define a class named EMPLOYEE in C++ with the following description.

Private Members:

E_Id – Integer

E_name – String of 25 characters

DOB – String of 12 characters

Basic – Float

DA – Float

HRA – Float

TOT_Salary – Float

Calculate-Salary () – it calculate the total salary as basic +DA+HRA where DA is 80% of basic and HRA is 15% of basic.

Public members

- Accept () – it accepts E_Id, E_name, DOB and basic. Thereafter it called the calculate salary.

- Dispaly () – it displays the entire data.

- A constructer to initialize all integers and floats with 0.

(iii) Explain copy constructer with suitable example give proper class definition including the definition of copy constructor. How will this constructor be inwoked?

6. Prepare any one of the project out of two given below in about 500 words.   6
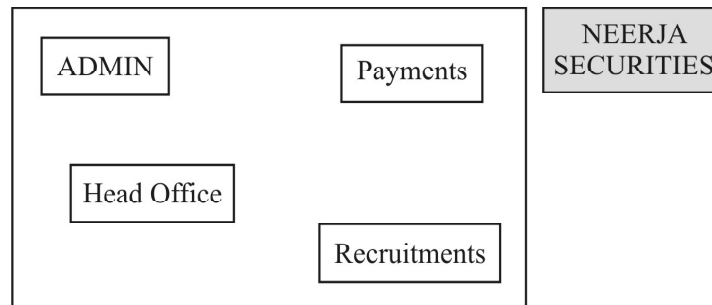
(a) Consider the following class STUDENT that contains records of students in a school. The members of the class are as follows:

Adm_no, Name, DOB, grade, section, fee, address create a C++ program that accepts the data from the user and stores it in the data file mylife data.

The (menu driven) programme should also contain the following functions

- to delete a record

- to modify a record

- to accept grade and display data of only that grade.

- to display all records stored in the data file.

- to display total fee collected by the school.

(b) Neerja Securities is building a new office complex in Mumbai. It has four blocks - Admin, Payments, Recruitment and Head-office as shwon in the figure below:

The distance between the various blocks is given in the table below:

Admin to Head Office	–	60 m
Admin to Payments	–	110 m
Payments to Recruitement	–	100 m
Head office to Recruitement	–	90 m
Hed office to Payments	–	150 m
Admin to Recruitement	–	200 m

The no. of computers installed in various blocks are:

Admin	–	150
Head office	–	90
Payments	–	50
Recruitement	–	75

Answer the following:

(i) Suggest the most appropriate block to place the server. Justify your answer

(ii) Draw a cable layout for connecting various blocks in the complex.

(iii) Which of the following devices will be used to connect computers in each block:

- Hub / Switch
- Modem
- Gateway
- Router

(iv) Which device / software can be used to protect and centrally control internet users within the complex?

(v) The company is planning to open a brach office in Pune. Which transmission medium (use) should be used to connect it with Mumbai office to ensure maximum data speed.