Question 1:-
Identify each of the following as system software and application software. (mark 5)
LINUX, DISK CLEANUP, WORD PROCESSOR, WINDOWS, STUDENT INFORMATION
Answer:-
System software: - Linux, Disk cleanup, windows.
Application software:- Word Processor, Student information

Question 2:-
Write a program which defines three variables of type double which store three different values including decimal points, using set precision manipulators to print all these values with different numbers of digits after the decimal number.(5)
Answer:-

```
#include
#include
int main ()
{
double x1 = 12345624.72345
double x2 = 987654.12345
double x3 = 1985.23456
cout << setprecision (3) << x1<< endl;
cout << setprecision (4) << x2 << endl;
cout << setprecision (5) << x3<< endl;
return 0;
}
```

Question 3:-
Define static variable also explain life time of static variable? (3)
Answer:
Static variable means maintaining the state of a variable. It exists and lives around even when we are outside the function. It is created and initialized only once during the lifetime of the program and therefore it will be destroyed or taken out of memory only once during the lifetime of the program.

Question 4:-
What do you know about run time error? (3)
Answer:
Run-Time Errors
• Occur when the program is running and tries to do something that is against the

rules
Example: Accessing a non-existent variable, property, method, object, etc (e.g. a method name is misspelled)
• Sources of these can be determined by a careful reading of the code, but unfortunately, not always

Question 5:
What is limitation of the friendship between classes? (3)
Answer:
Friendship relation between classes is a one way relation that is if one class declare friend another class ther the another class is the friend of first class but not the first class if the friend of another class.

Question 6:
what is the source and destination of cin?(2)
Answer:
For *cin*, the source is normally keyboard and the destination can be an ordinary variable i.e. native-data type variable

Question 6:
Write the general syntax of allocation memory dynamically to an array using new operator? (2)
Answer: Page 332
Following is the syntax:
new data_type [number_of_locations];

Question 7:
What is diffrent between pointer and variable?
Answer:-
normal variable contains tha value of variable either int or float whereas pointer variable contains the address of another variable

Question 8:
What is difference between Unary and binary operators and how they can be overloaded?
Answer:-
Unary operator takes one argument.
a ++ is an example of unary operator
Binary take two operators
+,-,* are example of binary operators
Overloaded binary operator may return any type
Here is general syntax of overloading
Return-type operator symbol (parameters);
Operator is keyword

Question 9:
How many types of templates?
Answer:-
There are two different types of templates in C++ language i.e.' function templates and class templates.

Question 10:
What will be the output of following function if we call this function by passing int 5?
template T reciprocal(T x) {return (1/x); }
Answer:-
0
The output will zero as 1/5 and its .05 but conversion to int make it
zero
Above is prototype of template class so assume passing an int and
returning an int

Question 11:
Identify the errors in the following member operator function and also correct them.
math * operator(math m);
math * operator (math m)
{
math temp;
temp.number= number * number;
return number;

Answer:-
The errors are in the arguments of the member operation function and
also in the body of operator member function.
Correct function should be
math *operator(math *m);
math *operator (math *m)
{
math temp;
temp = m;
temp.number= number * number;
return temp.number;

Question No.1:
Define buffer? Explain its usage? 5 MARKS
Answer:
a program that writes the output data to the disc, it will be nice to collect the output data (numbers) and write it on the disc in one write operation instead of writing the numbers one by one. The area where we gather the numbers is known as buffer.

Question No.2:
Why binary search algorithm is efficient than linear search algorithm? 5 marks
Answer: (page118)
Binary search algorithm is more efficient than liner algorithm because the arrays are sorted in ascending or descending order and we use "divide and conquer" technique. In binary search each iteration reduces the search by the factor of two but in the linear we have the same number of searches as we have the number of elements. E.g. if we have array of 1000 elements the linear search will take 1000 iterations however binary search will take max 10.

Question No.3:
Operator function ka syntax (3 marks)

Question No.4:
Post increment and pre increment k syntax btana thay(2 marks)
Answer:
Classname operator ++(); ---- pre increment
Classname operator ++(int) ---- post increment

Question No.5:
What is language translator?(2 marks)
Answer: Page 12
So we need a translator which translates the code of our program into machine language. There are two kinds of translators which are known as Interpreter and Compilers. These translators translate our program which is written in C-Language into Machine language

Question No.6:
Write something something about testing in designing program? 3 MARKS
Answer:-
Testing. The programmer should design a test plan and use it to test the program. It is a good idea, when possible, to have someone else test the program.

Question No.7:
Read the given below code and explain what task is being performed by this function 5 MARKS

```
Matrix :: Matrix ( int row , int col )
{
numRows = row ;
numCols = col ;
elements = new ( double * ) [ numRows ] ;
for ( int i = 0 ; i < numRows ; i ++ )
{
elements [ i ] = new double [ numCols ] ;
for ( int j = 0 ; j < numCols ; j ++ )
elements [ i ] [ j ] = 0.0 ;
}
}
```

Hint : This function belong to a matrix class, having
Number of Rows = numRows
Number of Columns = numCols
Which one (copy constructor or assignment operator) will be
called in each of the following code segment?
1) Matrix m1 (m2);
2) Matrix m1, m2;
m1 = m2;
3) Matrix m1 = m2;

Answer:-
In this code the matrix function is defined, it get the number of rows from the user and create the row of matrix and then get the columns from the user and create the columns. The New is showing for creating more array space for the data which user enters. The elements [i][j] will print the data in matrix