



Reg. No. : .....

Name : .....

**First Semester M.Sc. Computer Science Degree Examination, July 2009  
(I.D.E.)**

**FUNDAMENTALS OF PROGRAMMING**

Time : 3 Hours

Max. Marks : 80

*Instruction : The question paper contains two Parts – Part A and Part B.  
Part A carries 32 marks and Part B carries 48 marks.*

**PART – A**

Answer **any eight** questions. **All** questions carry **equal** marks. Answer in **five** or **six** sentences : **(8×4=32 Marks)**

1. What do you mean by modular programming ?
2. Structured Programming has been called a revolution in Programming, why ?
3. Explain the differences between primitive data types and derived data types. Write two examples for each.
4. What do you mean by pre processor directives in 'C' language ?
5. What will be the value of x and y after the execution of the following program ? Explain your answer.

```
# include < stdio.h >
main ( )
{
  int x = 5;
  int y = 7;
  y += x++;
  Print f ("%d", x);
  Print f ("\n%d", y);
}
```



6. Differentiate between fscanf and scanf.
7. What does the following 'C' statement do ?

```
While (*C++ = *d++);
```

Assume C and d are pointers to characters.

8. Is it possible to implement trees using arrays ? If yes, how ?
9. Define data structures. Give examples.
10. With reference to TREE, explain :
  - 1) Root node
  - 2) Leaf node
  - 3) Subtree.
11. Why is the use of 'goto' statement generally discouraged ? Under what condition might the goto statement be helpful ? What types of usage should be avoided and why ?
12. What is FILE ? What are the three general methods of file access ?

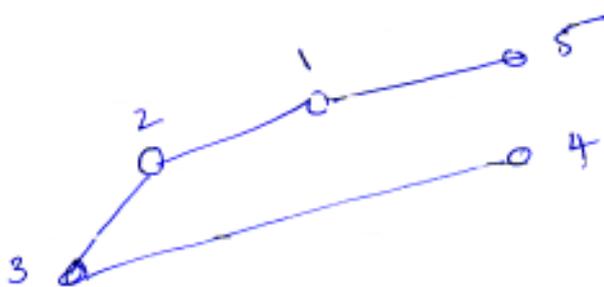
### PART – B

Answer **any six** questions. **All** questions carry **equal** marks. Your answer should contain the explanation regarding the concept/principle wherever necessary. Programs should include necessary comments : **(6×8=48 Marks)**

13. Write a 'C' program to print the numbers that do not appear in the Fibonacci series. The number of such terms to be printed should be given by the user.
14. The marks of 10 students in a class for five subjects are given. The marks in each subject is from 0 to 50. Write a 'C' program to accept and display the roll number, marks in each of the five subjects. The program should also display the average marks scored by each student. Use the concept of 2D array for the program.



- 15. Write a 'C' program to display all of the possible combinations of characters in a 5-letter word.
- 16. Write a program/algorithm to create a singly linked list. The algorithm should also include provisions for splitting this list into two equal parts and also to reverse the directions of the links in the list.
- 17. a) How is a pointer variable declared ? What is the purpose of the data type included in the function ?  
b) Differentiate between calloc ( ) and malloc ( ) functions in 'C' with suitable examples.
- 18. Write a program that opens a file and counts the number of characters. The program should print the number of characters when finished.
- 19. Discuss AVL Trees. Explain the process of insertion of a node in the AVL tree using a simple example.
- 20. Write an algorithm to sort a given set of 'n' numbers in descending order using stack. The 'n' numbers are in ascending order initially.
- 21. Explain the representations of Trees in computer memory. Represent the following graph using any two methods.



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