B.Sc. (Part-I) Semester-II Examination
COMPUTER SCI./COMPUTER APPLI./INFORMATION TECH. (OLD)
(Upto Data Structure and Advance C)

Time : Three Hours] [Maximum Marks : 80

Note :— (1) All questions are compulsory.

(2) Question **1** carries **8** marks and all other questions carry **12** marks each.

(3) Assume suitable data wherever necessary.

2.1. (A) Fill in the blanks :-

(i) The logical or mathematical model of a particular organization of data is called _____.

(ii) Adding data item at the end of file is called _____ operation.

(iii) Stack is _____ data structure.

(iv) A function call within itself is also called _____. 2

(B) Choose the correct alternative :

(i) Traversing means :

(a) Visiting an element (b) LIFO

(c) Processing at end (d) FIFO

(ii) fscanf ( ) function read data from :

(a) Keyboard (b) Mouse

(c) File (d) None of these

(iii) Deleting an element from stack is called :

(a) PUSH (b) FRONT

(c) POP (d) REAR

(iv) The end of linked list is marked by value in the LINK field :

(a) NULL (b) INFO

(c) LINK (d) START 2

(C) Answer in one sentence each :-

(i) What is linked list?

(ii) What is searching?

(iii) What is an Array?

(iv) What is pointer? 4

2.2. (a) What is data structure? What are the various operations to be performed on data structure? 6

(b) What is Queue? Write an algorithm to insert an element into queue. 6

OR

2.3. (a) What is an array? Write an algorithm to delete an element from it 6

(b) Write an algorithm to insert and delete an element from stack. 6

2.4. (a) What is linked list? Explain the advantages of linked list over array 6

(b) Explain the difference between queue and circular queue. State advantages of circular queue. 6

OR

2.5. (a) Write an algorithm to delete an element from linked list. 6

(b) What is circular queue? How is it implemented in computer memory? 6

2.6. (a) Explain linear search algorithm with suitable example. 6

(b) What is tree? Describe the various types of tree. 6

OR

2.7. (a) Write binary search algorithm with suitable example. 6

(b) Explain with example the following traversals :

(i) Preorder (ii) Inorder (iii) Postorder. 6

2.8 (a) Explain function prototype. Describe function calling and function returning with example. 6

(b) Write a program in C to read an array of n elements and find out sum and average of inputed array elements. 6

OR

2.9 (a) What is Function Recursion? Write a program in C to calculate the factorial of given number 'n' by using recursion technique. 6

(b) What is array? Explain the declaration and initialization of two dimensional array with suitable example. 6

2.10 (a) Explain the declaration and initialization of string variable with example. 6

(b) Explain pointer arithmetic with example. 6

OR

2.11 (a) What is pointer? Explain the declaration and initialization of pointer variable. 6

(b) Explain the following string functions with example.

(i) strcat ( ) (ii) strcpy ( ) (iii) strcmp ( ). 6

2.12 (a) Write a program to illustrate array of structure. 6

(b) Explain input / output operations on files with example. 6

OR

2.13 (a) Write a program to read a character from keyboard and write it to file. 6

(b) What is structure? How is it differs from an array? 6