B.Sc (CS) DEGREE EXAMINATION MAY 2017.

Second Semester

DATA STRUCTURE USING 'C'

Time : Three hours

Maximum : 80 marks

Answer any **FIVE** full questions.

I. (a) Explain the applications of Data Structure.

• (b) Explain briefly dynamic memory allocation technique.

• (c) Write an recursive algorithm for finding GCD of two no. (5+8+3=16)

II. (a) Compare iterative and recursive method.

(b) Write a C program to find factorial of a number.

(c) Explain any four file handling functions with syntax. (4+4+8=16)

III. (a) Define pointer. How to access a variable through its pointer explain with an example.

(b) Write a program to implement stack operations.

(c) Define Binary Search. (5+8+3=16)

IV. (a) Compare sequential search and binary search.

(b) What is queue? Explain circular queue with an example.

(c) Convert the following from infix to postfix expression

(i) ((A+B+C)+D/F)   (ii) A/B-(C+D) ∧ E*F (4+6+6=16)

V. (a) Write a program to sort an array using bubble sort.

(b) Discuss quick sort with an example.

(c) Define selection sort. (6+8+2=16)

VI. (a) Differentiate between ordinary queue & circular queue.

(b) Write a program to insert and delete a node from front end of syngly linked list.

(c) Explain doubly linked list. (4+8+4=16)

VII. (a) Define the following
   (i) Tree
   (ii) Binary tree
   (iii) Complete Binary tree
   (iv) Binary search tree

   (b) Write an algorithm to convert infix to postfix expression.

   (8+8=16)

VIII. Write short notes on any **FOUR** :
   (a) Operations on Datastructure
   (b) Merge sort
   (c) Priority queue
   (d) Sorting
   (e) File handling functions
   (f) Tree traversal technique

   (4+4+4+4=16)

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