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Total No. of Questions : 6] [Total No. of Printed Pages : 4

## EG-213

### B.E. III Semester (CGPA) CSE Examination 2018 DATA STRUCTURE

Paper - CS-305

*Time Allowed : Three Hours] [Maximum Marks : 60*

**Note :** Attempt all six questions. Each question carry equal marks.

- Q.1. Write short notes on the following : 10
- i) Sparse Matrices
  - ii) Traversing and threaded Binary Tree
  - iii) Adjacency matrix of a graph
  - iv) Representation of sets using bit vector
  - v) Garbage collection.

(2)

### Unit - I

- Q.2. What is Two Way Header List? Explain the operation of inserting an element at the front, middle and at the rear in doubly linked list. 10

OR

Write a program which read two matrices and then print a matrix which is addition of these two matrix. Also differentiate between One-Dimensional and Two-Dimensional array. 10

### Unit - II

- Q.3. How elements are inserted and detected in circular queue? Explain with diagrams Also define multiqueue. 10

OR

What is stack? How it is implemented using array? List few application of stack. Give post fix form of  $(B * C - (D / E \wedge F) * G) * H$ . 10

### Unit - III

- Q.4. The binary tree T has nine-nodes. The in-order and pre-order traversal of T yield the following sequence of nodes: 10

In-order : E A C K F H D B G

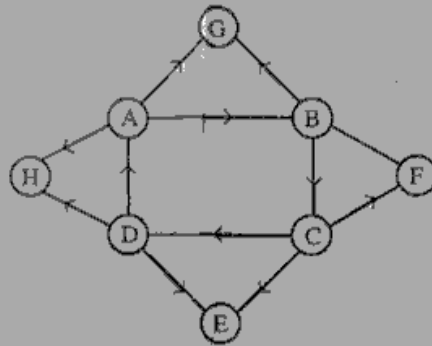
Pre-order : F A E K C D H G B

(3)

OR

For the following graph:

10



- a) Find adjacency matrix (A)
- b) Find path matrix (P)

Unit - IV

Q.5. What do you mean by Hashing? What is Hash Function? Explain with example. 10

OR

Describe symbol table in detail. Explain its types. Also write down the use of symbol table. 10

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Unit - V

Q.6. Write an algorithm to sort the elements using Quick sort. Explain with suitable example. 10

OR

What are the different types of search techniques? Explain the one which is more efficient among them. 10



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