JA-3733

Second Year B. C. A. (Sem. III) (CBCS) Examination

March/April – 2013

Paper - 304 : Data Structures

Time : 3 Hours] [Total Marks : 70

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :
☛ S. Y. B. C. A. (Sem. 3) (CBCS)

Name of the Subject :
☛ Paper - 304 : Data Structures

☛ Subject Code No. : 3 7 3 3 ☛ Section No. (1, 2,.....) : NIL

Seat No. :

Student's Signature

(2) Marks are indicated to the **right** side of the question.

1 Answer following : (any **five**) 10

(a) Find the address of 4^{th} element of an integer array A[10], if base address is 1050.

(b) What is forest and leaf node ?

(c) What is array of pointer ? Give appropriate example.

(d) Which condition is not required in dynamic stack ?

(e) List out non-primitive data structures.

(f) Which built-in function is used to create node for link-list ?

2 (a) Explain the concept of stack. Write an algorithm to reverse string using stack. 7

OR

(a) Explain the difference between stack and queue. Discuss their functional difference. 7

(b) What is difference between call by value and call by difference ? Give appropriate example. 5

OR

(b) Explain pointer to structure and pointer declared within the structure of type structure. What is difference between them ? 5

(c) How to create an instance of structure ? What is difference between declaring an instance of structure and declaring it using typedef ? 3

3 (a) Discuss various sorting methods. Which method is faster and why ? 7

OR

(a) Discuss sequential search and binary search methods. Explain binary search providing appropriate algorithm. 7

(b) Explain concept of circular queue. Describe using appropriate algorithm. 5

OR

(b) Explain concept of insertion sort providing its algorithm. 7

(c) Convert following expressions into postfix : (any one) 3

(i) A + (B*C-D/E*G) + H

(ii) (A+B) * (C-D/E)* G+H

4 (a) Describe the concept of dynamic memory allocation. How link-list is more appropriate ? 7

OR

(a) Describe the concept of Doubly link-list. Write an algorithm to perform Delete and Display nodes of Doubly link-list. 7

(b) Discuss the traversal of singly link-list nodes. 5

OR

(b) Explain the process of searching in case of singly link-list. 5

(c) Discuss the insert operation in doubly link-list. 3

5 Answer following : (any **three**) 15

(a) What is difference between strictly Binary Tree and complete Binary Tree ? Explain the concept of Tree.

(b) What is difference between DFS and BFS ?

(c) Describe the Traveral of binary Tree and its various methods.

(d) How to implement stack using link-list ?

(e) Discuss pointer to array and pointer to structures.
