

II Semester B.A./B.Sc. Examination, May 2017
(CBCS) (Fresh+Repeaters) (2014-15 and Onwards)
COMPUTER SCIENCE - II
Data Structures

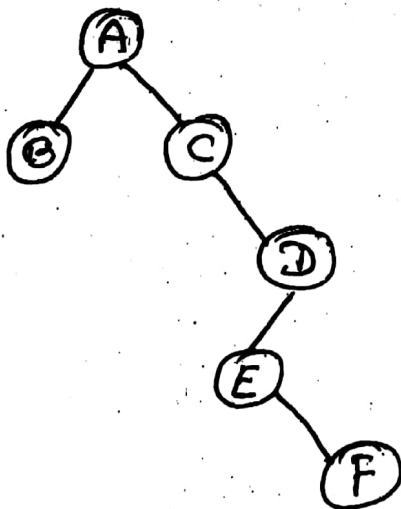
Time : 3 Hours

Max. Marks : 70

Instruction : Answer all Sections.

SECTION - A

- I. Answer any 10 questions. Each question carries 2 marks : (2×10=20)
- 1) What are primitive data structures ?
 - 2) How are strings stored in memory ?
 - 3) What is space complexity and time complexity ?
 - 4) Write a C function to copy one string into another. Write its syntax.
 - 5) What is linked list ? Mention its types.
 - 6) What is Garbage collection ?
 - 7) Mention any two applications of stack.
 - 8) Define recursion.
 - 9) Define circular queue.
 - 10) What is complete binary tree ?
 - 11) Mention the applications of trees.
 - 12) In a given tree, write preorder traversal.



P.T.



SECTION - B

II. Answer any 5 questions. Each question carries 10 marks :

- 13) a) Explain linear and non linear data structure with examples. 5
- b) Write a C program to search for an element in an array using binary search. 5
- 14) a) Write a C program to implement insertion sort. 6
- b) Write a algorithm to insert an element into an array. 4
- 15) a) Mention operations on singly linked list. Write an algorithm to insert an element in a linked list. 6
- b) Explain the list. 4
- 16) Write an algorithm to evaluate a valid postfix expression. Use the algorithm to evaluate the following postfix expression. 10
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- 17) a) Write a C program for Tower of Hanoi problem. 6
- b) List the applications of queues. 4
- 18) a) Write a algorithm to delete an element from circular queue. 5
- b) What is deque ? Explain the types of deque. 5
- 19) a) Explain linked representation of graphs in memory. 5
- b) Explain the depth first search graph traversal with an example. 5
- 20) a) Write a algorithm to creation of binary tree. 5
- b) Construct a binary tree given their preorder and in order traversals. 5
- Preorder : F A E K C D H G B
- Inorder : E A C K F H D B G