

2011

Time : 3 hours

Full Marks : 80

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Answer from both the Groups as directed.

Group – A

(Objective Type Questions)

(Compulsory)

Answer all questions.

1. Choose the correct answer of the following :

2×10 = 20

(a) An _____ is a finite set of instructions to accomplish a particular task.

- (i) Array
- (ii) Index
- (iii) Algorithm
- (iv) Flowchart

(b) In C, the array subscript begin with number

- (i) 1
- (ii) - 10
- (iii) 100
- (iv) 0

(c) How a pointer is initialized ? (p-pointer, x - variable)

- (i) $p = \&x$
- (ii) $p = *x$
- (iii) $x = p$
- (iv) $\&p = x$

(d) The stack element will be accessed by :

- (i) Index
- (ii) Front
- (iii) Top
- (iv) Rear

(e) _____ is a collection of data and links.

- (i) Node
- (ii) List

- (iii) Queue
 - (iv) Tree
- (f) The post-order traversal of a binary tree begins :
- (i) The post-order traversal of the left sub tree
 - (ii) Processing of the root node
 - (iii) The post-order traversal of the right sub tree
 - (iv) None of these
- (g) In this search keys must be ordered :
- (i) Sequential search
 - (ii) Hashing
 - (iii) Binary Search
 - (iv) None of these
- (h) A vertex with degree one in a graph is called :
- (i) Leaf
 - (ii) Pendant vertex
 - (iii) End vertex
 - (iv) None of these

- (i) Which method of traversal does not use stack to hold nodes ?
- (i) Breadth first
 - (ii) Depth first
 - (iii) D-Search
 - (iv) None of these
- (j) What is EOF ?
- (i) End of a field
 - (ii) End of file
 - (iii) Error in output
 - (iv) None of these

Group – B

(Long-answer Type Questions)

Answer any **four** questions : $15 \times 4 = 60$

2. Write and explain quick sort method. Give an example.
3. What is Binary Tree ? Write a program to create a tree and display in-order traversal.
4. Describe representation of arrays using row major and column major order.

5. What is a circular linked list ? Compare it with doubly linked list through algorithm.
6. Describe any one graph representation method. How does the minimum cost spanning tree be obtained ?
7. What do you mean by AVL tree ? How an AVL tree is different from a binary search tree ?
8. Write a "C" program to implement the PUSH and POP operations in a stack.
9. Translate the following infix expression into postfix expression :
 - (a) $((A + B) * D) \uparrow (E - F)$
 - (b) $A + (((B - C) * (D - E) + F) / G) \uparrow (H - J)$

