SEAT No. :

[6034]-302

S.Y.B.B.A. (Computer Application)
CA-302 : DATA STRUCTURE
(2019 Pattern) (Semester - III)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:
1) *All questions are compulsory.*
2) *Draw diagram wherever necessary.*

Q1) Attempt any Eight of the following :　　　　　　　　　　　　　　**[8×2=16]**

　　a)　What are the advantages of linked list over an array?

　　b)　How to measure performance of an algorithm?

　　c)　What is adjacency of Matrix?

　　d)　What is pointer to pointer?

　　e)　What is complete binary tree?

　　f)　What is polynomial? How is it differ from structure?

　　g)　What is Priority queue?

　　h)　State the difference between stack & linked list.

　　i)　What is the need for the header?

　　j)　What is balance factor? How is it calculated?

Q2) Attempt any four of the following :　　　　　　　　　　　　　　**[4×4=16]**

　　a)　What is height-balanced tree? Explain RR and RL rotations with an example.

　　b)　What is linked list? Explain its types in detail.

　　c)　Explain different types of asymptotic notation in detail.

　　d)　Explain insertion sort technique with an example.

　　e)　Differentiate array and structure.

P.T.O.

Q3) Attempt any four of the following :   [4×4=16]
   a)   Write a function to create & display circular singly linked list.
   b)   Write a function to insert an element into a circular queue, in which the queue is implemented as an array.
   c)   Write a function for in order traversal of the tree.
   d)   Write a function to delete first node from singly linked list.
   e)   Write a function to search the element from array using binary search.

Q4) Attempt any four of the following :   [4×4=16]
   a)   Construct an AVL tree for given data :
        WED, TUE, MON, SAT, THUR, FRI
   b)   For given data, constract a binary search tree :
        15, 30, 20, 5, 10, 2, 7
   c)   Sort the following data by using quick sort.
        10, 5, 75, 62, 49, 58
   d)   Write a C-program to traverse the linked list.
   e)   What is Dequeue? Explain its operation with example.

Q5) Attempt any two of the following :   [2×3=6]
   a)   Convert the following expression into postfix.
        i) $(A + B) * C - D$
        ii) $A + B * C - D/E * F$
   b)   Define the following terms :
        i)   Degree of node
        ii)   Child node
        iii) Path
   c)   What is degree of vertex? Find in degree & out degree of each vertex for the following graph.

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