Total No. of Questions : **9]** [Total No. of Printed Pages : **15**

(2033)

Roll No. 2200480020

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(2034)

UG (CBCS) IIIrd Year Annual Examination

3042

B.A. COMPUTER APPLICATION

(Data Structure and File Processing)

(DSE-2A)

(Common with B.Sc. Physical Science DSE-2B)

Paper : COMP 302 TH

Time : 3 Hours] **[Maximum Marks : 50**

Note :– (i) Part–A (Question No. **1**) is compulsory. Attempt *one* question each from Parts–B, C, D and E.

(ii) Figures at the right indicate marks.

Part–A

(Compulsory Question)

1. Select the correct alternative :

(i) ..... is a pile in which items are added at one end and removed from the other.

(a) Stack

(b) Queue

(c) List

(d) None of these

(ii) The number of edges from the root to the node is called ..... of the tree.

(a) Height

(b) Depth

(c) Length

(d) Width

(iii) In linked list each node contains a minimum of two fields. One field is data field to store the data, second field is :

(a) Pointer to character

(b) Pointer to integer

(c) Pointer to node

(d) Node

(iv) Representation of data structure in memory is known as :

(a) Recursive

(b) Abstract data type

(c) Storage structure

(d) File structure

(v) To represent hierarchical relationship between elements, which data structure is suitable ?

(a) Dequeue

(b) Priority

(c) Tree

(d) Graph

(vi) The data structure which is one ended is :

(a) Queue

(b) Stack

(c) Tree

(d) Graph

(vii) The process of removing an element from stack is called :

(a) Create

(b) Push

(c) Evaluation

(d) Pop

(viii) Linked list is considered as an example of ..... type of memory allocation.

(a) Dynamic

(b) Static

(c) Compile time

(d) Heap

(ix) Which of the following tree maintain a list of the keys in sequential order ?

(a) B+ tree

(b) B* tree

(c) B– tree

(d) m-way search tree

(x) Which of the following file organizations is preferred for secondary key processing ?

(a) Indexed sequential file organization

(b) Two way linked list

(c) Inverted file organization

(d) Sequential file organization 1×10=10

Part–B

(Unit–I) 10×1=10

2. What is a Data Structure ? What are the types of data structure ? Explain Abstract Data Type (ADT) with examples.

Or

3. Discuss the features of the following data structures with examples :

(a) Binary tree

(b) Balanced tree

Part–C

(Unit–II) 10×1=10

4. Define Searching. Explain the searching techniques with suitable examples.

Or

5. Discuss garbage collection algorithm used in memory management.

Part–D

(Unit–III) 10×1=10

6. Explain I/O buffering in detail and also discuss its importance.

Or

7. Explain each of the following file system operations :

   (a) Open

   (b) Close

   (c) Read-block

   (d) White-block

Part–E

(Unit–IV) $10 \times 1 = 10$

8. Explain the concept of indexed sequential technique in file organization for accessing data.

Or

9. Discuss the implementation of indexing using B^+ tree.