

Roll No. ....

Total No. of Questions : 9] [Total No. of Printed Pages : 7  
(2032)

**UG (CBCS) IIIrd Year Annual Examination**

**3257**

**B.A. COMPUTER APPLICATION**

(Data Structure and File Processing)

(DSE-2A)

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

Paper : COMP302 TH

**Time : 3 Hours]**

**[Maximum Marks : 50**

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

**Part-A**

**(Compulsory Question)**

1. Answer the questions of 1 mark each.

(i) Which one of the following is the process of inserting an element in the stack ?

(a) Insert

(b) Add

**CH-57**

( 1 )

Turn Over

*M*

(c) Push

(d) None of these

(ii) Which of the following principles does Queue use ?

(a) LIFO principle

(b) FIFO principle

(c) Linear tree

(d) Ordered array

(iii) What is the maximum number of children that a binary tree node can have ?

(a) 0

(b) 1

(c) 2

(d) 3

**CH-57**

( 2 )

(iv) Finding the location of a given item in a collection of items is called :

(a) Discovering

(b) Finding

(c) Searching

(d) Mining

(v) Access in which records are accessed from and inserted into file, is classified as :

(a) Direct access

(b) Sequential access

(c) Random access

(d) Duplicate access

**CH-57**

( 3 )

Turn Over

(vi) A tape is an example of :

- (a) Secondary
- (b) Primary
- (c) Volatile
- (d) Tertiary

(vii) Which of the following is a physical storage media ?

- (a) Tape storage
- (b) Optical storage
- (c) Flash memory
- (d) All of the mentioned

(viii) Directories, pricing tables, schedules and name lists are the examples of .....

- (a) Direct files
- (b) Indexed sequential files
- (c) Indexed files
- (d) None of these

1×10=10

**CH-57**

( 4 )

(ix) File attributes consists of :

- (a) Name
- (b) Type
- (c) Identifier
- (d) All of the mentioned

(x) Garbage collection can be controlled by a program.

- (a) True
- (b) False

1×10=10

**Part-B**

10 each

2. What is stack in data structure ? Explain the working of stack through different operations performed in stack.

**CH-57**

( 5 )

Turn Over

3. What do you understand by the term 'Data structure' ?  
Explain the different types of data structures such as 'Linked list', 'Stacks', 'Queues', and 'Binary Trees'.

**Part-C** 10 each

4. Explain the implementation of memory management.  
5. Write down an algorithm for internal and external searching techniques.

**Part-D** 10 each

6. What do you mean by file operations ? Define various file operations in detail.  
7. How will you define a storage device ? Give a diagrammatic representation of storage devices and state their characteristics.

**CH-57** ( 6 )

**Part-E** 10 each

8. Define file organization and elaborate three types of file organization.  
9. Explain adjacency multi-lists.

**CH-57** ( 7 )

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(DSE-2A)

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

Paper : COMP302 TH

**Time : 3 Hours]**

**[Maximum Marks : 50**

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**CH-57**

( 1 )

Turn Over

- (c) Push
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- (ii) Which of the following principles does Queue use ?
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**CH-57**

( 2 )

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**CH-57**

( 3 )

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**CH-57**

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10 each

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**CH-57**

( 5 )

Turn Over

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**CH-57** ( 6 )

**Part-E** 10 each

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**CH-57** ( 7 )



Roll No. ....

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(2034)

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**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)**

Select the correct alternative :

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

(a) Stack

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( 1 )

Turn Over

(b) Queue

(c) List

(d) None of these

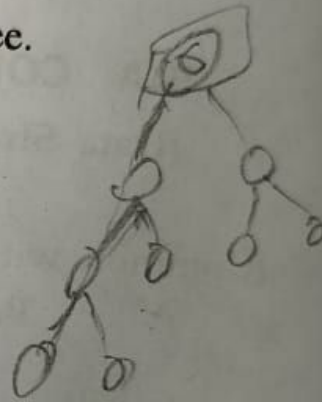
(ii) The number of edges from the root to the node is called ..... of the tree.

(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

**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) Write-block

(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-E**

**(Unit-IV)**

**10×1=10**

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

*Or*

9. Discuss the implementation of indexing using B<sup>+</sup> tree.

