

(6 pages)

Reg. No. :

Code No. : 21001

Sub. Code : GACS 31/
GASE 31

B.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2015.

Third Semester

Computer Science —Allied

DATA STRUCTURE

(For those who joined in July 2012 and afterwards)

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Array is a

- (a) Non-linear data structure
- (b) Fundamental data structure
- (c) Classic data structure
- (d) (b) or (c)

2. Linear data structure is called so because of

- (a) Parallel allocation
- (b) Sequential storage
- (c) Interleaved allocation
- (d) Linked allocation

3. _____ is a linear list in which all the insertions and deletions are made at only one end.

- (a) stack
- (b) queue
- (c) dequeue
- (d) tree

4. Double linked list is a _____

- (a) one-way list
- (b) two-way list
- (c) circular list
- (d) non-linear list

5. PUSH is an operation in

- (a) QUEUE
- (b) STACK
- (c) GRAPH
- (d) ARRAY

6. Queue use the mechanism of

- (a) LIFO
- (b) LILO
- (c) FIFO
- (d) None.

Page 2 Code No. : 21001



7. The post fix expression for the expression $a+(b*c)$ is
 (a) $abc+*$ (b) $abc*+$
 (c) $ab+c*$ (d) $ab*c+$
8. Each element of a binary tree is called a _____ of a tree.
 (a) subtree (b) lchild
 (c) rchild (d) node
9. Process the root node first before traversing the left subtree is known as _____ traversal.
 (a) pre order (b) post order
 (c) in order (d) none
10. G is _____ iff there is a path between every pair of vertices in G .
 (a) graph (b) directed
 (c) connected (d) none

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions , choosing either (a) or (b)

Each answer should not exceed 250 words.

11. (a) Explain how will you represent linear array in memory.
 Or
 (b) Write the procedure to insert an item into the linear array.

Page 3 Code No. : 21001

12. (a) Write an algorithm of linear list with examples.

Or

- (b) Write an algorithm to traverse a linked list.

13. (a) Explain the operations performed on stacks.

Or

- (b) Explain the various queue structures.

14. (a) Describe the operations on tree.

Or

- (b) What is binary tree? And give example with explanation.

15. (a) Explain merge sort with an example.

Or

- (b) Write and explain the algorithm to insert a node in a graph.

Page 4 Code No. : 21001

[P.T.O.]



SECTION C — (5 × 8 = 40 marks)

Answer ALL questions , choosing either (a) or (b)

Each answer should not exceed 600 words.

16. (a) Explain the memory representations for multidimensional arrays.

Or

- (b) Explain in detail about the abstract data types.

17. (a) Write and explain the algorithm to insert and delete a node in a linked list

Or

- (b) Explain application of linked list with example.

18. (a) Explain in detail about the queue with linked list

Or

- (b) Explain the applications of stack in detail with examples.

19. (a) Explain in detail about traverse of binary tree.

Or

- (b) How deletion is carried out in a B-tree?

Page 5 **Code No. : 21001**

20. (a) Write short notes of the following :

- (i) Operations
- (ii) Graph storage structure

Or

- (b) Write and explain the Warshall's algorithm to find shortest path in a graph.

Page 6

Code No. : 21001

