

(6 pages)

Reg. No. :

Code No. : 21001

Sub. Code : GACS 31/
GASE 31

B.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2016.

Third Semester

Computer Science – Allied

DATA STRUCTURE

(For those who joined in July 2012-2015)

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer:

1. An _____ is a finite, ordered and collection of homogeneous data elements.

(a) Array (b) Information
(c) Entity (d) Function

2. The one-to-one correspondence between a key value and an index in the hash table is known as _____.

(a) hashing (b) indexing
(c) inverting (d) calculating

3. A linked list where the last node points the header node is called the _____ linked list.

(a) single (b) double
(c) circular (d) triple

4. In this case of an _____ linked list, both LLINK and RLINK of the header node point to itself.

(a) empty circular double
(b) single
(c) circular
(d) double

5. A _____ is a procedure, used to remove an item from a stack.

(a) POP (b) STATUS
(c) PUSH (d) TOP

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6. In a queue, insertion and deletion operations take place at two ends are called the _____ and _____ of the queue respectively.
- (a) REAR, FRONT (b) PUSH, POP
(c) REAR, TOP (d) FRONT, DEQUEUE
7. _____ is a specially designated node which has no parent.
- (a) Root (b) Link
(c) Parent (d) Child
8. In _____ representation, where using an array we donot require the overhead of maintaining pointers.
- (a) Linear (b) Random
(c) Linked (d) Double
9. If there is an edge whose starting and end vertices are same then it is called a _____.
- (a) selfloop (b) parallel
(c) complete (d) isolated
10. The BFS traversal uses _____ structure.
- (a) stack (b) queue
(c) buffer (d) direct

SECTION B — (5 × 5 = 25 marks)

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

Each answer should not exceed 250 words.

11. (a) Write about overview of Data Sturcture.

Or

- (b) Discuss in brief about midsquare method.

12. (a) What are the two memory management schemes? Discuss.

Or

- (b) Write about Null link problem.

13. (a) Describe in brief about PUSH operation with an algorithm.

Or

- (b) Write a note on Dequeue operation with an algorithm.

14. (a) Listout the advantages and disadvantages of the Linear representation of a binary tree.

Or

- (b) Discuss about the representation of a Heap tree.



15. (a) Write in brief about Linked Representation of Graph.

Or

- (b) Discuss about multi-partition approach in Quicksort with algorithm.

SECTION C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) Discuss in detail about sparse matrices.

Or

- (b) Explain the jagged tables with its table and accessing technique.

17. (a) Briefly discuss about operations on a Double Linked List with algorithm.

Or

- (b) Explain the Fixed and Variable block storage Representation with procedures.

18. (a) Discuss with stack implementation for finding the factorial of a given number N.

Or

- (b) Describe how the existing node is deleted from the priority Queue with algorithm.

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19. (a) Write a detailed note on Insertion operation on a Binary tree with algorithm and example.

Or

- (b) Discuss the construction of an Expression tree with algorithm and its operations.

20. (a) Explain the minimum spanning Trees problem using Kruskal's algorithm and example.

Or

- (b) Discuss the Hoare's approach in Quicksort with algorithm and example.

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