QP CODE: 24020574

B.Sc DEGREE (CBCS) REGULAR / IMPROVEMENT / REAPPEARANCE EXAMINATIONS, MAY 2024

Second Semester

B.Sc Cyber Forensic Model III

Core Course - CF2CRT04 - DATA STRUCTURES USING C++

2019 ADMISSION ONWARDS

81C07DEF

Time: 3 Hours

Max. Marks: 80

Part A

Answer any ten questions. Each question carries 2 marks.

- What do you meant by Asymptotic Notation? 1.
- 2. Define a linear array.
- 3. What is a two dimensional array?
- 4. Write the algorithm for POP operation on stacks.
- Consider a stack with N=8 memory cells STACK:A,C,D,F,K, ,- , -, Describe the stack as 5. the following operations take place. a)POP(STACK,ITEM) b)PUSH(STACK,L).
- 6. What do you know about traversal in linked list?
- 7. What is Circular linked list?
- What do you meant by Internal node in a tree? 8.
- Explain the linked representation of a binary tree T. 9.
- 10. What is the difference between Bubble sort and Insertion sort?
- 11. Compare Selection sort and Heap sort.
- 12. Compare the complexity of Merge sort and Selection sort algorithm.

 $(10 \times 2 = 20)$

Part B

Answer any six questions. Each question carries 5 marks.

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- 13. What is a data structure?Explain the data structure linked list.
- 14. Explain the different cases investigated in complexity theory.
- 15. Explain the PUSH and POP operations performed on a stack.
- 16. Evaluate the postfix expression P : 5 ,6 , 2 , + , * , 12 , 4 , / ,-
- 17. Explain the different operations performed on a queue.
- 18. What is a priority queue?Explain the representation of a priority queue.
- 19. What is a binary tree and what are its different types?
- 20. Explain with example postorder traversal of a binary tree.
- 21. Explain the complexity of linear search algorithm.

(6×5=30)

Part C

Answer any **two** questions. Each question carries **15** marks.

- a)Write an algorithm/program for converting an infix expression into postfix expression
 b)Convert the given infix expression into its equivalent postfix expression (A B)/ D) ^ ((E- F)*G)
- 23. Explain Linked List and its representation.
- 24. Explain AVL trees.
- 25. Explain Linear search and Binary search with examples.

(2×15=30)