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II Semester B.C.A. Degree Examination, October/November 2022 (NEP Scheme) COMPUTER APPLICATION CAC 04 : Data Structures Using C

tile an algorithm to traverse a singly linite filters.

Time : 21/2 Hours

Instruction : Answer all the Sections.

SECTION - A

I. Answer any 6 questions. Each question carries 2 marks.

(6×2=12)

- What are primitive data structures ? Give an example.
- 2) What is static memory allocation ?
- 3) Mention any two advantages of recursion.
- 4) Explain the memory representation of two dimensional array.
- 5) Mention the advantages of linked list.
- 6) What is the difference between infix and postfix expression ?
- 7) What are the operations performed on queues ?
- 8) Define height of a binary tree.
- Mention the applications of trees.

SECTION - B

II. Answer any 4 questions. Each question carries 6 marks.

(4×6=24)

- 10) What is a linear data structure ? Explain the different operations performed on linear data structures.
- 11) Write a recursive program to find the GCD of two numbers.
- 12) Write an algorithm for insertion sort method.
- 13) Explain the memory representation of stack using one dimensional array.
- 14) Write a note on different types of queues.
- 15) What is a heap tree ? Explain about different heap trees.

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SECTION - C

III. Answer any 3 questions. Each question carries 8 marks.

- 16) What is a tower of Hanoi problem ? Give the algorithm and explain it with three disc.
- 17) a) Write an algorithm to traverse a singly linked lists.
 - b) Explain about Header linked list.
- 18) Write a C program to implement simple queue.
- Convert the infix expression ((A + (B − C) * D) ∧ E + F) to postfix expression using stack.
- 20) a) What is a binary tree ? Explain pre-order traversal.
 - b) Explain array representation of binary tree.
 - What is static memory allocation compared
 - Martinon any two advantacies of cantinon
 - Explain the memory representation of two dimensional
 - 5) Mention the advantages of linke List
 - (6) What is the difference be ween infix and positix expression ?
 - What are the operations performed on means ?
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 $(3 \times 8 = 24)$

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SECTION - B

- Answer any 4 question Bach another contract
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 - y what is a heap trop * E man should be