

R18

Code No: 151AC

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech I Year I Semester Examinations, January/February - 2024

PROGRAMMING FOR PROBLEM SOLVING

(Common to CE, ME, ECE, EIE, MCT, MMT, AE, MIE, PTM, CSE(AI&ML), CSE(IOT), AI&DS, AI&ML)

Time: 3 Hours

Max. Marks: 75

Note: i) Question paper consists of Part A, Part B.

ii) Part A is compulsory, which carries 25 marks. In Part A, answer all questions.

iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A

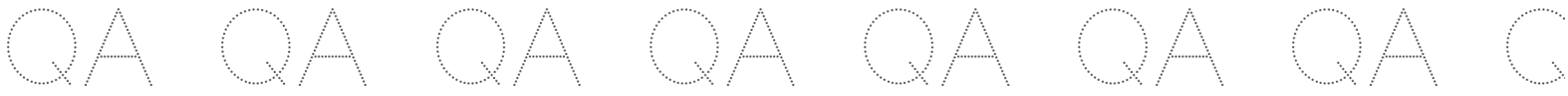
(25 Marks)

- | | | |
|------|--|-----|
| 1.a) | Differentiate Extern and Static storage classes | [2] |
| b) | What is the need of Type conversion? Explain. | [3] |
| c) | Differentiate Structure and Union. | [2] |
| d) | What is a Self-referential Structure? Give one example. | [3] |
| e) | How are binary files different from text files in C? | [2] |
| f) | Write the syntaxes of fseek(), ftell() and rewind(). | [3] |
| g) | How to declare a function in C? | [2] |
| h) | What is call by value? Explain with an example. | [3] |
| i) | What is the time complexity of Bubble sort and Insertion sort? | [2] |
| j) | What is Binary search method? | [3] |

PART - B

(50 Marks)

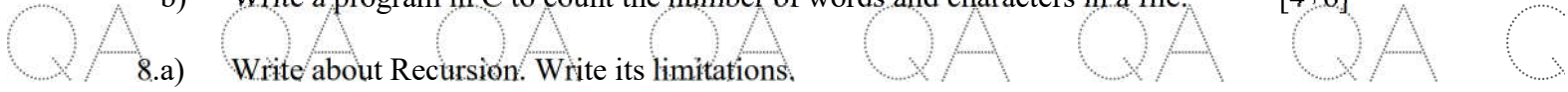
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|-----------|--|-------|
| 2.a) | What are Command Line Arguments? Why we need them? | |
| b) | Write a C Program to Compute First N Fibonacci Numbers using Command Line Arguments? | [3+7] |
| OR | | |
| 3.a) | What is a Flowchart? Explain how it helps in representing algorithms. | |
| b) | Discuss what is the role of operator precedence in evaluation of expressions. Explain with suitable examples with various operators. | [4+6] |
| 4.a) | Write the syntaxes of String handling functions strlen(), strcat(), strcpy(), strstr(). | |
| b) | Write a C Program to count occurrences of a character in a String. | [4+6] |
| OR | | |
| 5.a) | write about various ways of initializing Single Dimensional and Two Dimensional Arrays? Give examples. | |
| b) | Write a C Program to find second Largest and second Smallest Number in an Array.[4+6] | |



- 6.a) Write about the functions fread() and fwrite() used in files in C.
- b) Write a C Program to Append Contents of One File to Another in C. [5+5]

OR

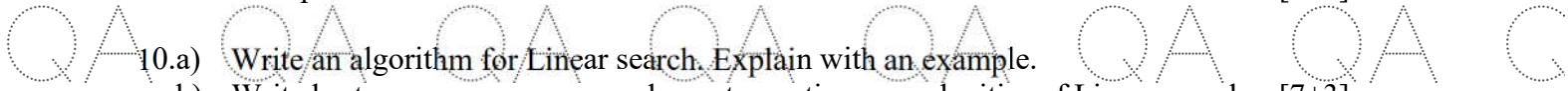
- 7.a) What are Preprocessor commands in C? What is the need of them? Give examples.
- b) Write a program in C to count the number of words and characters in a file. [4+6]



- 8.a) Write about Recursion. Write its limitations.
- b) Write a C Program to find Sum of Digits of a Number using Recursion. [3+7]

OR

- 9.a) What is Dynamic memory allocation? Explain calloc and malloc functions.
- b) How can an entire array be passed as an argument to a function? Explain with an example. [5+5]



- 10.a) Write an algorithm for Linear search. Explain with an example.
- b) Write best case, average case and worst case time complexities of Linear search. [7+3]

OR

- 11. Write Selection sort algorithm and explain with an example. Write its time complexity. [10]

