

**R22**

Code No: 181AF

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech I Year I Semester Examinations, March/April - 2023

C PROGRAMMING FOR ENGINEERS

(Common to ECE, EIE)

Time: 3 Hours

Max. Marks: 60

**Note:** This question paper contains two parts A and B.

i) **Part - A** for 10 marks, ii) **Part - B** for 50 marks.

- Part-A is a compulsory question which consists of ten sub-questions from all units carrying equal marks.
- Part-B consists of **ten questions** (numbered from 2 to 11) **carrying 10 marks each**. From each unit, there are two questions and the student should answer one of them. Hence, the student should answer five questions from Part-B.

**PART - A**

(10 Marks)

- 1.a) Define variable. Write the rules to be followed to declare a variable. [1]
- b) List the data types in C. What is the size of each of these data types? [1]
- c) List out different decision statements or conditional statements in C. [1]
- d) Define Loop. Write different forms of loops in C. [1]
- e) Mention the advantages and disadvantages of an array. [1]
- f) What is an array? Explain syntax to declare on dimensional array using example. [1]
- g) How many ways we can allocate a memory in C? [1]
- h) What is Dynamic memory allocation? [1]
- i) Define union. [1]
- j) What is the time complexity of insertion sort? [1]

**PART - B**

(50 Marks)

- 2.a) Write an algorithm for finding the maximum of two numbers and trace the algorithm to depict the logic with a sample input.
  - b) List and explain the steps involved in execution of a C program. [5+5]
- OR**
- 3.a) List and explain the various symbols used in flowchart design with a neat diagram.
  - b) Make a comparison between the compiler and an interpreter. [5+5]
- 4.a) Explain the difference between break, goto and continue statements with an example.
  - b) Summarize various operators available in C. [5+5]
- OR**
- 5.a) Differentiate between while and do-while statements with example.
  - b) What is an expression? Explain different categories of expressions. [5+5]
- 6.a) Write a program to find the string length by using inbuilt string functions.
  - b) What are the advantages of functions? [5+5]

**OR**

- 7.a) Explain the methods of passing data to a function with examples.  
b) Discuss about String manipulation functions. [5+5]

- 8.a) Describe the use of pointers in self-referential structures.  
b) Elaborate the command line arguments. [5+5]

**OR**

- 9.a) List and explain the standard C pre-processors.  
b) Give the syntax of malloc() and calloc() functions and explain its need. [5+5]

- 10.a) How the structure elements can be passed to functions? Explain with an example program.  
b) Explain the insertion sort with an example program. [5+5]

**OR**

- 11.a) Explain the difference between structure and union with an example.  
b) Illustrate selection sort with an example. [5+5]

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Used papers 2023