

CSE 101

B. Tech. Ist SEMESTER EXAMINATION, 2025-26

Bachelor of Technology

(ME, CSE & CSE-AIML)

Programming for Problem Solving

Time : Three Hours]

[Maximum Marks : 75

Note: There are **three** sections (A, B and C) and candidate has to attempt questions from all sections. Marks are indicated against each section.

Section-A

1. Answer **all** questions : 5×3=15
- (a) What do you mean by an algorithm ?
Explain with an example. What are the criteria of an algorithm ?
 - (b) Explain Flow Chart along with various symbols used to construct a flow chart.
 - (c) Explain the structure of a C program with suitable example.
 - (d) What do you mean by type casting.
 - (e) Write the rules for constructing a variable names in C.

Section-B

Note: Answer all questions of the following : 4×5=20

2. (a) Differentiate between break and continue with suitable example.

Or

- (b) What are data types ? Explain various data types used in C with their size, range for 16-bit compiler.

3. (a) Explain the difference between while and do-while loop with suitable example.

Or

- (b) Write a program in C for calculating sum of digits for a given input integer number.

Example :

Input = 123

Output = 6

4. (a) Differentiate between Call by Value and Call by Reference with suitable example.

Or

- (b) Write a program in C to calculate the factorial as well as count the number of digits in a given input number by using the below mentioned function prototype declaration :

Void Compute (int *, int *);

5. (a) What do you mean by functions ? Explain

types of user defined functions with proper syntax and example.

Or

- (b) What are the various types of operators used in C. Explain in detail.

Section-C

Note: Answer any two questions of the following : 2×20=40

6. (a) What do you mean by Dynamic Memory

Allocation in C ? Explain the functions used for DMA with proper syntax and example.

- (b) Write a program in C to find the largest and smallest number in an array of 50 integers.

7. (a) Explain the below mentioned String functions with proper syntax and example.

(i) Strlen()

(ii) Strcmp()

(iii) Strcat()

(iv) Strcpy()

(v) Strlwr()

- (b) Differentiate between structure and union with suitable example.

8. (a) Explain storage class used in C with proper example for each.
- (b) Write a C program to input electricity unit and calculate the total electricity bill according to the given condition :
- For first 50 units Rs 0.50/unit
For next 100 units Rs 0.75/unit
For next 100 units Rs 1.20/unit
For unit above 250 Rs 1.50/unit
An additional surcharge of 20% is added to the bill.
9. (a) What are pointers ? Explain various operations that can be performed on pointers with example.
- (b) Write a program in C to print the following pattern.

```
1
2 2
3 3 3
4 4 4 4
5 5 5 5 5
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(For n = 5).

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