

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 : $4 \times 5 = 20$

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 : $2 \times 20 = 40$

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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