

[illegible]

SHAMBHUNATH INSTITUTE OF ENGINEERING AND TECHNOLOGY

Subject Code: BCS-101

Subject: Programming for Problem Solving

Course: B.Tech.

Semester: I

SECOND SESSIONAL EXAMINATION, ODD SEMESTER, (2024-2025)

Branch: Common to all Branches

Time -2 hrs

Maximum Marks – 45

1. Attempt any FIVE questions.

Q N	QUESTION	Marks	CO	BL
a.	Differentiate between entry controlled and exit-controlled loops.	2	3	L2
b.	Discuss the role of break and continue statements in C.	2	3	L1
c.	Write a c program to print all natural number between 10 to 100.	2	3	L1
d.	Write limitation of switch case statement.	2	3	L2
e.	What is an Array? How a character array can be initialize. Explain with proper syntax.	2	3	L2
f.	Find the output of the following code: <pre>#include <stdio.h> int main() { int i=1,p; for(;;) { printf("%d",i); if(i=5) break; } return 0; }</pre>	2	3	L1

2. Attempt any ONE of the following:

Q N	QUESTION	Marks	CO	BL
a.	Write a program to find all prime numbers between 100 to 500.	5	3	L3
b.	Write a program in C to find the sum of folloing series- S= 1/1!+2/2!+3/3!+4/4!+.....n terms.	5	3	L4
c.	Write a program in C using loops to generate following pattern: 1 1 3 1 3 5 1 3 1	5	3	L5

3. Attempt any FIVE questions.

Q N	QUESTION	Marks	CO	BL
a.	What are functions? Differentiate between actual and formal arguments.	2	4	L3
b.	Define function prototyping in C programming with suitable example.	2	4	L4
c.	Differentiate between Call By Value and Call By Reference with suitable example?	2	4	L4
d.	Differentiate between actual argument and formal argument.	2	4	L4
e.	Compare Linear Search and Binary Search techniques.	2	4	L3
f.	Explain function declaration and function definition with example.	2	4	L4

4. Attempt any ONE part of the following:

Q N	QUESTION	Marks	CO	BL
a.	Define sorting. Explain the quick sort technique and write the program to implement the quick sort.	5	4	L3
b.	Define a function that accepts two matrices of 4*4 and multiply it.	5	4	L3
c.	What is recursion? Write a program to print Fibonacci series up to n terms using recursion.	5	4	L5

5. Attempt any FIVE questions:

Q N	QUESTION	Marks	CO	BL
a.	What is Pointer? How is it created and initialized in C programming?	2	5	L3
b.	Differentiate between Static and Dynamic Memory Allocation.	2	5	L3
c.	What are pre processor directives? Explain	2	5	L5
d.	What is linked list? Give the structure of a node in the linked list.	2	5	L3
e.	What is macro? Explain.	2	5	L4
f.	Write a program having macro definition to find the CUBE of an input number.	2	5	L5

6. Attempt any ONE part of the following:

Q N	QUESTION	Marks	CO	BL
a.	What are the different file opening modes in C? Write a program to copy the contents of one file into another file.	5	5	L6
b.	Explain following functions with example: (i) calloc(), malloc(), realloc() and free()	5	5	L4
c.	Explain any five string handling functions with suitable example.	5	5	L3