

JK Lakshmipat University Jaipur

INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination, May 2025

B. Tech. (All), Semester II

Roll No.....

CS1135: Programming II (C)

Time: 2.5 hours

Max. Marks: 30

Instructions to students:

1. All Programs are compiled and run in Linux GCC 64-bit compiler.
2. Assume suitable data wherever required and mention it clearly.
3. Writing appropriate units, nomenclature, and drawing neat sketches/schematics/ flow chart wherever, required are an integral part of the answer.
4. Do not hardcode the C programs. User input must be there in all the programs.

Q.1A	What will be the error/output of the following C codes?		03 Marks CO2, CO4 (0.5 each)
	I) #include<stdio.h> struct lab{ int s[5]; union xyz{ float y; int z; }un; } te; int main() { printf("%d\n",sizeof(te)); return o; }	II) #include<stdio.h> int main() { enum days {MON=-1, TUE, WED=6, THU, FRI, SAT}; printf("%d, %d, %d, %d, %d, %d\n", MON, TUE, WED, THU, FRI, SAT); return 0; }	
	III) #include<stdio.h> #include<string.h> struct emp {char name[20]; int age; }; void modify(struct emp*); int main() { struct emp e = {"Ramesh", 42}; modify(&e); printf("%s %d", e.name, e.age); return o;} void modify(struct emp *p) { p ->age=p->age+16; }	IV) What is the output/error of given program if user enter "xyz"? #include <stdio.h> int main() { float age, ageInSeconds; int value; printf("Enter your age : "); value = scanf("%f", &age); if(value == 0) { printf("\nYour age is not valid"); } ageInSeconds = 365*24*60*60*age; printf("\nYou have lived for %f seconds", ageInSeconds);}	
	V) #include <stdio.h> int main() { int i = 20; int * const pi = &i; *pi = 10; printf("%d %d", *pi,i); return o;}	VI) #include <stdio.h> #define SQUARE(x) x * x int main() { int a = 5; int result = SQUARE(a + 1); printf("%d\n", result); return o; }	

Q.1B	Discuss the differences between auto variables, global variables, Bool and static variables in terms of scope and lifetime in C programming?	02 Marks CO1
Q.1C	What are the key differences between static memory allocation and dynamic memory allocation in C? In what situations would you prefer one over the other?	02 Marks CO5
Q.2A	Write a C program that reads a user given text file (for example letters.txt) and writes all vowels to vowels.txt and all consonants to consonants.txt.	04 Marks CO4, CO2
Q.2B	A fast-food outlet charges the following rates: • Burger: Rs. 120 • Fries: Rs. 80.50 • Soft Drink: Rs. 50 • Ice Cream: Rs. 70 Write a C program using structure to take the name of the customer and the quantity of each item ordered. The outlet adds a service tax of Rs. 30.80 to the bill. Implement a function to calculate the final bill and another function to print the detailed invoice.	04 Marks CO2, CO3
Q.3A	In a company, each employee is eligible for only one type of special benefit at a time. The benefits offered are: 1. Cash Bonus – stored as a float (e.g., 1500.50) 2. Stock Options – stored as an int (e.g., 100 shares) 3. Extra Vacation Days – stored as an int (e.g., 5 days) • With the use of union and structure and write a program to input and display the selected benefit. • A character field "benefitType" to indicate the benefit chosen by the employee ('C' for Cash Bonus, 'S' for Stock Options, 'V' for Vacation Days) Write a C program that: • Prompts the user to enter the type of benefit • Accepts the appropriate value based on the selected benefit type • Displays the stored benefit.	04 Marks CO3, CO4, CO5
Q.3B	What is a self-referential structure? Explain its importance in dynamic data structures.	03 Marks CO3

Q.4A	Write a C program that: • Dynamically allocates memory for two sorted integer arrays. • Merges them into a third sorted array (also dynamically allocated). • Displays the final merged sorted array.	04 Marks CO2
Q.4B	Write a C program to calculate the power of a number using recursion. The program should take two integer inputs from the user: a base and an exponent and compute the result of $\text{base}^{\text{exponent}}$ using a recursive function. (Program should also give message/instruction in case on negative base or exponent)	04 Marks CO2
OR		
Q.4B	Write a program to generate the following pattern: (Using Loops) <pre> 1 1 2 1 1 2 3 2 1 1 2 3 4 3 2 1 1 2 3 4 5 4 3 2 1 </pre>	04 Marks CO4, CO5

***** All The Best*****