JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- 2025

B.Tech-I Semester (CSE/IT/ECE/CE/BT/BI)

COURSE CODE (CREDITS): **25B11CI112 (3)**   MAX. MARKS: 35

COURSE NAME: Software Development Fundamentals – I

COURSE INSTRUCTORS: PKG, AKJ, KSL, AMN, MNK, MGD, FSL, PLK   MAX. TIME: 2 Hours

Note: (a) *All questions are compulsory.*

(b) *The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems*

Q. No	Question	CO	Marks
Q1	Draw the function call tree for the recursive and tail-recursive versions of the factorial of a number.	5	3
Q2	Write a program that swaps two numbers using a function named swap(), which is called from main( ) to exchange the values of the variables defined in main( ).	5	3
Q3.	Define structure and write a program to store the details of 10 students: Name, Rollno, marks, dob. Print the details with a pointer to the structure.	5	5
Q4.	Give the pseudocode for Bubble Sort. Mention the maximum number of steps required to sort an array of size n. Identify the best and worst permutations of data for Bubble Sort. Apply Bubble Sort on ARR[7] (as mentioned in Q3) and show the contents of ARR after each pass.	5	5
Q5	What is the difference between a character array and a string? Write a user-defined function to calculate the length of a string and how to concatenate a string with another string.	5	5
Q6	Write down the procedure/program to find the 2nd largest number from the list.	4	5
Q7	Suppose you want to store data permanently on the computer, then how will you store the data, and what are the benefits of storing in this way? Write a program to write and read data from the file.	5	5
Q8	Write down the significance of the storage classes with an example of each of them.	5	4