

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)**

**CLASS: BTECH/IMSC
BRANCH: BT/CE/CHEMICAL/ME/PIE/FT/PHYSICS**

**SEMESTER : I/ADD
SESSION : MO/2025**

SUBJECT: CS24101 / CS101 PROGRAMMING FOR PROBLEM SOLVING

TIME: 3 Hours

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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Q. No	Questions		CO	BL
Q.1(a)	Explain the different types of storage classes used in C.	[5]	1	1
Q.1(b)	Draw a flowchart to find the greatest number among three numbers given by the user.	[5]	1	2
Q.2(a)	Explain operator precedence and associativity in C with suitable examples. Explain using this expression: <code>int x = 5 + 2 * 3 > 10 && 4 == 4;</code> how C evaluates it based on precedence and associativity rules.	[5]	2	2
Q.2(b)	Write the C program to find the number of Vowels, Consonants, and Digits in a string.	[5]	2	3
Q.3(a)	Explain the importance of the following loop control statements with an example. (a) break statement (b) continue statement (c) goto statement	[5]	3	2
Q.3(b)	Write a program to find the 3rd-highest mark from an N-sized integer array without sorting. (where N is a preprocessor directive)	[5]	3	3
Q.4(a)	What do you mean by call by value and call by reference? Explain with the help of a suitable example?	[5]	4	2
Q.4(b)	Write a recursive function to calculate the GCD of two numbers given by the user.	[5]	4	3
Q.5(a)	Write a C program that uses an enum to represent the days of the week. Define an enum called Weekday with values: MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY, SUNDAY. Create a function isWeekend(Weekday d) that returns 1 if the day is Saturday or Sunday, otherwise returns 0. In main(), prompt the user to enter a number (1-7) representing the day of the week, convert it to the corresponding enum value, and print whether it is a weekend or a weekday.	[5]	5	5
Q.5(b)	Define a student structure that would contain name, regno and marks of five subjects and percentage. Write a program to read the details of name, regno and marks of five subjects for 30 students, calculate the percentage and display the name, regno, marks of the subjects and percentage of each student.	[5]	5	3

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