

Fundamentals of Computing and Programming

MID TERM EXAMINATION

Course	B. Math (Hons.) I st Year		
Date	11 Sep 2026	Maximum Marks	50
Semester	I	Duration	120 Min

Instructions:

- ✓ Answer all questions.
- ✓ Assume suitable data wherever necessary.
- ✓ Draw neat diagrams wherever required.
- ✓ C programs should be syntactically correct.

Sl.no	Questions	Marks
1.a	A computer stores floating-point numbers using IEEE-754 representation. i) Explain the terms sign bit, exponent, mantissa, and bias with appropriate example. ii) Why does the following statement evaluate to false in many programming languages? $0.1 + 0.2 == 0.3$	5
1.b	Discuss the phases involved in developing and executing a C program. Draw a neat flowchart to find the largest of three numbers.	5
2.a	What is the difference between an lvalue and an rvalue in C? Give one example each of a valid and an invalid lvalue expression. Explain how unary, binary, and ternary operators differ, with one example of each from C.	5
2.b	What are errors? Write different types of “Errors” with suitable numerical examples.	5
3.a	Explain the significance of data types in C programming. Discuss the properties of char, int, float, and double in terms of: Storage size, Range of values, Precision, Memory usage, Typical applications.	5
3.b	A bank is developing a simple transaction processing system for its ATM. The user selects one of the following operations: 1 – Deposit Money. 2 – Withdraw Money. 3 – Check Balance. 4 – Exit . Write a C program using the appropriate conditional construct to perform the selected operation. Assume the initial account balance is ₹10,000. For withdrawal, ensure that the amount does not exceed the available balance. Display an appropriate message for invalid menu choices.	5
4.a	Write a C program to reverse a given integer and determine whether it is a palindrome.	5

4.b	A class consists of N students. Write a C program to perform the following: - Read marks of all students. - Find the highest mark. - Find the lowest mark. - Compute the class average. - Count students scoring above the average.	5
5.a	A college maintains the roll numbers of students in ascending order in an array. The examination department wants to efficiently determine whether a particular roll number belongs to the class. Write a C program that: - Reads N roll numbers in ascending order. - Accepts a roll number to be searched. - Implements a Search algorithm to determine whether the roll number is present. - If found, display its position; otherwise, display "Roll number not found". - Display the number of comparisons performed during the search.	5
5.b	Roll numbers are of the form: <i>BMat2601</i>. Write a C program to, Count uppercase letters. Count digits. Verify whether the roll number begins with BMat.	5