Time: 3 hour   40+ 30 marks

1. Create a Student class with attributes: rollNo, name, marks (array of 5 subjects), total, percentage, grade. Write a program to:

   (a) Read student data from a file students.txt (format: rollNo,name,marks1,marks2,marks3,marks4,marks5) [5 marks]

   (b) Calculate total, percentage, and grade (A: $\geq$90%, B: $\geq$75%, C: $\geq$50%, D: $\geq$35%, F: <35%) [5 marks]

   (c) Display all students' details sorted by percentage (highest first) [5 marks]

   (d) Write the results to results.txt with all calculated fields [5 marks]

   Sample Input (students.txt)

   ```
   1  101,John Doe,85,90,78,92,88
   2  102,Jane Smith,45,60,55,70,65
   3  103,Bob Johnson,30,35,40,25,30
   ```

2. Write a Java program that reads two integers from the user and performs division. Handle ArithmeticException when dividing by zero and InputMismatchException when invalid input is provided. Display appropriate error messages for each scenario. [4 marks]

3. Write a program with three methods: methodA(), methodB(), and methodC(). methodC() should throw an ArithmeticException. Let the exception propagate through methodB() to methodA(), where it should be caught and handled. Demonstrate exception propagation in the call stack. [8 marks]

4. Implement a class Polynomial that models a polynomial equation. Use a constructor that takes a variable number of coefficients (using varargs) and initializes the polynomial. Write a method to display the polynomial in a readable format (e.g., $3x^2 + 2x + 1$). [8 marks]