

PSPD QUIZ-2024 (CSE 3941)

Programme: B.Tech

Full marks: 10

Date: 08/11/2024

Semester: 5th

Time: ½ hours

Quiz No.: 2

1. Write a C program that simulates a grading system for three separate exam scores of a student. The program should prompt the user to enter the three exam scores. Implement a function `calculate_grade_statistics` that takes the three scores as input arguments and has four output arguments: the average score, the highest score, the lowest score, and a grade classification based on the average (eg., 'A' for average 90 and above, 'B' for 80-89, etc.). In the main function, display the average, highest, lowest scores, and the grade classification.
2. Create a C program to determine the real roots of a quadratic equation, if they exist, based on user input. Prompt the user to enter three coefficients (a, b, and c) for the equation $ax^2 + bx + c = 0$. Write a function `solve_quadratic` that takes the coefficients as input arguments and has three output arguments: a flag indicating if real roots exist (1 for real roots, 0 for no real roots), and the two root values if they exist. In the main function, display the results with a message indicating whether real roots were found and, if so, display their values.
3. Write a C program to compute monthly payouts for contractors completing home renovation projects. Each contractor has a unique identification number, a standard hourly rate, and the total hours worked for the month. If a contractor works more than 160 hours in a month, they receive a 25% overtime bonus on the extra hours. The program should calculate a 10% tax on the gross earnings, which is calculated based on the hourly rate, total hours worked, and any applicable overtime bonus. The program should display each contractor's ID along with their net pay after tax. At the end of the program, print the total payroll for all contractors and the average monthly pay without using arrays.