

8.3 LAB TASKS

1. Write a function which takes the marks of a student (out of 100) as an input and returns his/her grade either **P** (pass) or **F** (fail). Function should return **F** if the obtained marks are lower than 50 otherwise **P**. Call this function into main() for 3 students.

[20 marks]

2. Write the process of the function **Paycheck (float hourly_rate , int hours)** which first *calculates* the following:
 - Gross pay (Total amount prior to tax withholdings)
 - Net pay (Take home amount after taxes have been withheld)

And then *displays* the information back to the user.

To calculate the net pay deductions should be as following:

- 2% tax deductions for the amount of Rs. 30,000 or below
- 5% tax deductions for the amount more than Rs. 30,000

In main function :

Ask the user to enter 1) number of hours one has worked in a month and 2) the pay rate per hour for an employee. Call **Paycheck** to print the gross pay and net pay.

[25 marks]

3. Write a function with the following header:

string middle (string str)

The function should return a string containing the middle character in str if the length is odd, or the two middle characters if the length is even. For example if someone passes abcde as an argument to this function, this should return c. If someone passes abcdef then it should return cd

To test this function, call it into main and print its output.

Your program should ask the user to enter some word, and then it should pass it into this function as an argument. Your program should allow the user to repeat the whole process as often as the user wishes.

[25 marks]

4. Write the following functions:

- **bool all_the_same(double x, double y, double z)**, returning true if the arguments are all the same
- **bool all_different(double x, double y, double z)**, returning true if the arguments are all different
- **bool sorted(double x, double y, double z)**, returning true if the arguments are sorted, with the smallest one coming first

Provide a program that tests your functions.

[30 marks]