Q1) Write a program to calculate over-time pay of 10 employees, overtime is paid at the rate of Rs: 12.0 per hour for every hour worked above 40hours. Assume that employees don’t work for fractional part of an hour.

Q2) a machine is purchased which will produce earning of Rs: 1000 per year while it lasts. The machine costs Rs: 6000, and will have a salvage value of Rs: 2000 when it is condemned. If 12% per annum can be earned on alternate investment. What would be the minimum life of the machine to make it more attractive investment compared to alternative investment?

Q3) Write a program to produce the following output:

A B C D E D C B A  
ABCD DCBA  
ABC CBA  
AB BA  
A A

Q4) Write a program to add first seven terms of the following series using for loop:

1/1! + 2/2! + 3/3! ...........

Q5) Write a program to print the series of Fibonacci numbers by using for/while loop.

[Hint: Fibonacci Series: 0 1 1 2 3 5 8 13 21…..]



I = I + 1

Print C

C = a + b,

c = b

b = a,

I < = 10

I = 1

A=0, b=1

Q6) Write a program to print the following output by using nested for loop.

\*

\* \*

\* \* \* \* \* \* \*

\* \* \* \* \*

Q7) Write a program to process a collection of daily high temperatures. Your  
program should count and print the number of hot days (high temperature 85 or higher), the number of pleasant days (high temperature 60–84), and the number of cold days (high temperatures less than 60). It should also display the category of each temperature. Test your program on the following data:

**55 62 68 74 59 45 41 58 60 67 65 78 82 88 91 92 90 93 87 80 78 79 72 68 61 59**

**Q8)** Mary Smith, a student, has borrowed $3,000 to help pay her college expenses. After  
setting up a budget, $85 was the maximum monthly payment she could afford to  
make on the loan. Develop a solution to calculate and print the interest, the principal, and the balance on the loan per month. Other information she would like to  
know is the number of years and months it will take to pay the loan back and the  
total interest she will pay during that period. The interest rate is 1% per month on  
the unpaid balance. Keep in mind these formulas:

Interest normal = balance\*interest rat

Payment = balance – interest

New balance = balance - payment

Q9) A manufacturer would like to have a device for a car that will turn on a light when the temperature is between 34 and 40 degrees Fahrenheit (F) and sound a warning signal when the outside temperature is 34 degrees F or below. The light and the sound are never going simultaneously. Write a solution to this problem.

Q10) Write a program to test whether a given number is prime or not.