Lab Assignment

Subject: Programming for problem solving **Discipline: B – Tech (All)**
Subject Code: ES-CS291 **Semester: 2nd**

Assignment – 2

The objective of this assignment is to learn how to write C program using Input/output Function and conditional statements using:
> **(a) 'if else' condition**
> **(b) 'if else if' condition and how to use logical operators.**
> **(c) 'switch case' statement**

Assignment:

1. Write a C program to check whether an alphabet is vowel or consonant using switch case.
   [Hint
   Algorithm:
   Step 1: Input an alphabet from user. Store it in some variable say 'ch'
   Step 2: Switch the value of 'ch'
   Step 3: For 'ch', there are 10 possibilities for vowel we need to check i.e. a, e, i, o, u, A, E, I, O and U.
   Step 4: Write all 10 possible cases for vowels and print "Vowel" for each case.
   Step 5: If alphabet is not vowel then add a default case and print "Consonant".]

2. Write a C program to calculate the value of Y using:

   $$Y(x,n) = \begin{cases} 1+x^2 & \text{when } n=1 \\ 1+x/n & \text{when } n=2 \\ 1+2x & \text{when } n=3 \\ 1+nx & \text{when } n>3 \text{ or } n<1 \end{cases}$$

   Where x and n are user inputs. Do this program using if-else-if statement and switch case statement.

3. Write a C Program for following using if-else statements.
   An electric distribution companies arranges its domestic consumer as follows:
   Consumption in Units	Rate of charge
     0 - 200	Rs. 0.50 per unit
    201 - 400	Rs. 100 plus Rs. 0.65 per unit excess to 200
    400 - 600	Rs. 250 plus Rs. 0.80 per unit excess to 400
    Above 600	Rs. 425 plus Rs. 1.25 per unit excess to 600
   Print the amount to be paid by the consumer.

4. Write a C program to check whether a number is even or odd using switch-case statement
   [Hints:
   Algorithm:
   Step 1: Input number from user. Store it in some variable say num.
   Step 2: Switch the even number checking expression i.e. switch(num % 2).
   Step 3: The expression (num % 2) can have two possible values 0 and 1. Hence write two cases case 0 and case 1.
   Step 4: For case 0 i.e. the even case print "Even number".
   Step 5: For case 1 i.e. the odd case print "Odd number".]

ACADEMY OF TECHNOLOGY

Lab Assignment

Subject: Programming for problem solving   **Discipline: B – Tech (All)**
Subject Code: ES-CS291   **Semester: 2nd**

5. Write a C program to find maximum between two numbers using switch case.
   [Hints:
   Algorithm:
Step 1: Input two numbers from user. Store it in some variable say num1 and num2.
Step 2: Switch expression switch(num1 > num2).
Step 3: For the expression (num1 > num2), there can be two possible values 0 and 1.
Step 4: Write case 0 and print num2 is maximum.
Step 5: Write case 1 and print num1 is maximum.]

6. A student's grade is calculated in a subject according to the following rules:

Number Obtained	Grade
>=90 and <=100	O
>=80 and <90	E
>=70 and <80	A
>=60 and <70	B
>=50 and <60	C
>=40 and <50	D
<40 and >=0	F(FAILED)
Others No.	INVALID

Write a C Program which accept a student's marks as an input and then determine the grade of the students in that subject. Do this program using 'if-else-if' statement and 'switch-case' statement.