LAB EXERCISE 1
TOPIC 1: PROGRAMMING PROBLEM SOLVING

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QUESTION 1   [5 Marks]

Based on the following pseudocode in **Figure 1**, complete the trace table given in **Table 1**.

```
1.  START
2.  READ n, m
3.  IF (n >= m)
    3.1 START_IF
        3.1.1   IF (n > 10)
            3.1.1.1 START_IF
                3.1.1.1.1   IF (m> 10)
                    3.1.1.1.1.1 START_IF
                        3.1.1.1.1.1.1   PRINT "both n and m is greater than 10"
                    3.1.1.1.1.2 END_IF
                3.1.1.1.2   IF (n == m)
                    3.1.1.1.2.1 START_IF
                            3.1.1.1.2.1.1.1 PRINT "n is equal to m"
                    3.1.1.1.2.2 END_IF
            3.1.1.2 END_IF
    3.2 END_IF
4.  ELSE
    4.1 PRINT (n-m)*2
5.  PRINT n, m
6.  END
```

Figure 1

ANSWER:

Table 1

n	m	Output
0	0	n is equal to m 0, 0
10	0	20 10, 0
20	10	20 20, 10
20	20	n is equal to m 20, 20
0	10	-20 0, 10

QUESTION 2   **[20 Marks]**

Write a pseudo code for a program that will implement the following decision table in **Table 2**. The program will print the input grade point and the class of degree based on a user input. The program will terminate the loop when a user input a sentinel value other than 'y' or 'Y'.

Table 2

GRADE POINT	Class of Degree
0.0 – 0.99	Failed
1.0 – 2.00	General degree
2.1 – 2.7	Second class lower
2.71 – 3.69	Second class upper
3.7 – 4.00	First Class

ANSWER:

1. Start
2. Set repeat = y||Y
3. While (repeat == y ||Y)
4. Read grade_point
5. Start_If
6. If (0.0 <= grade_point) &&(grade_point <=0.99)
   6.1 Print grade_point, " Failed"
   6.2 End_If
7. If (1.0<=grade_point) &&(grade_point <=2.00)
   7.1 Print grade_point, "General degree"
   7.2 End_If
8. If (2.1<=grade_point)&& (grade_point <=2.7)
   8.1 Print grade_point, "Second class lower"
   8.2 End_If
9. If (2.71<=grade_point) && (grade_point <=3.69)
   9.1 Print grade_point,"Second class upper"

        9.2End_If
10. If (3.7<=grade_point) && (grade_point <=4.00)
    10.1Print garde_point,"First Class"
     10.2 End_If
11. End_while
12. End