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**	both n and m is greater than 10 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. Read sentinel
3. While (sentinel != y || sentinel != Y)
   3.1 Read grade
   3.2 Print grade
   3.3 if (grade <= 4.00 && grade >= 3.7)
      3.3.1 Print "First Class"
   3.4 else if (grade >= 2.71)
      3.4.1 Print "Second class upper"
   3.5 else if (grade >= 2.1)
      3.5.1 Print "Second class lower"
   3.6 else if (grade >= 1.0)
      3.6.1 Print "General degree"
   3.7 else
      3.7.1 Print "Failed"
   3.8 end if
   3.9 Read sentinel
4. End while
5. End