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**	0 0
10	**0**	10 0
20	**10**	20 10
20	**20**	both n and m is greater than 10 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”**
3. **WHILE (repeat = = “y” || repeat = = “Y”)**

    3.1 READ grade_point

    3.2 IF (grade_point >= 0.0 && grade_point <= 0.99)

    3.2.1 class_deg = “Failed”

    3.2.2 print grade_point, class_deg

    3.3 ELSE IF (grade_point >= 1.0 && grade_point <= 2.00)

    3.3.1 class_deg = “General degree”

    3.3.2 print grade_point, class_deg

    3.4 ELSE IF (grade_point >= 2.1 && grade_point <= 2.7)

    3.4.1 class_deg = “Second class lower”

    3.4.2 print grade_point, class_deg

    3.5 ELSE IF (grade_point >= 2.71 && grade_point <= 3.69)

    3.5.1 class_deg = “Second class upper”

    3.5.2 print grade_point, class_deg

    3.6 ELSE IF (grade_point >= 3.7 && grade_point <= 4.00)

    3.6.1 class_deg = “First Class”

    3.6.2 print grade_point, class_deg

    3.7 ELSE

    3.7.1 print “invalid input”

3.8 END IF

3.9 READ repeat

4.END WHILE

5. END