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 20,10
0	**10**	−20 0,10

QUESTION 2 **[20 Marks]**

20

0,10

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 sentinal
3. While (sentinal=="y"|| sentinal=="Y")
   - 3.1 Read Grade
   - 3.2 If (Grade >=0 && Grade <=0.99)
     - 3.2.1 Degree = "Failed"
   - 3.3 Else_If (Grade>=1 && Grade <=2)
     - 3.3.1 Degree = "General degree"
   - 3.4 Else_If (Grade >=2.01 && Grade <=2.7)
     - 3.4.1 Degree = "Second class lower"
   - 3.5 Else_If (Grade >=2.71 && Grade <=3.69)
     - 3.5.1 Degree = "Second class upper"
   - 3.6 Else_If (Grade >=3.7 && Grade <=4)
     - 3.6.1 Degree = "First Class"
   - 3.7 End_If
   - 3.8 Print Grade,Degree
   - 3.9 Read sentinal
4. End_While
5. End