

**LAB EXERCISE 1**  
**TOPIC 1: PROGRAMMING PROBLEM SOLVING**

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**SECTION: 02**

**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. Read sentinel
- 3 while (sentinel == y || sentinel == Y)
  - 3.1 Read GradePoint
    - 3.1.1. If ( GradePoint <= 0.99)
      - 3.1.1 Print GradePoint
      - 3.1.2 Print “Failed”
    - 3.2 Else If (GradePoint >= 1.00 && GradePoint <= 2.00)
      - 3.2.1 Print GradePoint
      - 3.2.1 Print “ General degree”
    - 3.3 Else If (GradePoint >= 2.1 && GradePoint <= 2.7)
      - 3.3.1 Print GradePoint

```
        3.3.2 Print Second class lower”
3.4 Else If (GradePoint >= 2.71 && GradePoint <=3.69)
    3.4.1 Print GradePoint
    3.4.2 Print “ Second class upper”
3.5 Else
    3.5.1 Print GradePoint
    3.5.1 Print “ First Class”
3.6 end_if
3.7 Read sentinel
4. end_while
5. End
```