

LAB EXERCISE 1
TOPIC 1: PROGRAMMING PROBLEM SOLVING

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SECTION: 2

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	$n=0, m=0$
10	0	$n=10, m=0$
20	10	$n=20, m=10$
20	20	both n and m is greater than 10, $n=20, m=20$
0	10	$-20, n=0, m=10$

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. Get GP
3. Do
 - 3.1 IF GP <= 0.99
 - 3.1.1 Print "Failed"
 - 3.2 ELSE IF GP <= 2.00
 - 3.2.1 Print "General degree"
 - 3.3 ELSE IF GP <= 2.7
 - 3.3.1 Print "Second class lower"
 - 3.4 ELSE IF GP <= 3.69
 - 3.4.1 Print "Second class upper"
 - 3.5 ELSE
 - 3.5.1 Print "First class"
 - 3.6 End IF
4. Get X
5. While (X == "y" || X == "Y")

G. End