CONFIDENTIAL

SCHOOL OF COMPUTING
Faculty of Engineering

UNIVERSITI TEKNOLOGI MALAYSIA

PRACTICAL TEST
SET B

SEMESTER II 2019/2020

SUBJECT CODE : SCSJ2154
SUBJECT NAME : OBJECT ORIENTED PROGRAMMING
YEAR/COURSE : 2 (SCSJ / SCSV / SCSB / SCSR)
TIME : 3.00 pm – 5.00 pm (2 Hours)
DATE : 21 April 2020 (Tuesday)

INSTRUCTIONS TO THE STUDENTS:

- Please read the ***General Guidelines for the Object-Oriented Programming Test*** that is shared in WhatsApp's Group and/ or provided in UTM e-learning.
- Read the problem and instructions carefully.
- You are given **TWO HOURS** to complete the test inclusive of the submission of your program.

SUBMISSION PROCEDURE:

- Only the source code (*i.e.* the file with the extension **.java**) is required for the submission.
- Submit the source code via the **UTM's e-learning system**.

This question booklet consists of 4 pages inclusive of the cover page.

PROBLEM SOLVING (70 Marks)

Write **three (3)** complete Java programs named, DailyReport.java, Person.java and CaseList.java. Use the instructions given in (a), (b) and (c).

a) Define class Person with the following information: (12 Marks)

(i) Class Person has 4 attributes: gender, age, background and status

(ii) Write a constructor for class Person that initializes Person attributes through parameter passing.

(iii) Write suitable code for the getter (accessor) methods.

b) Write a class CaseList with the following information: (12 Marks)

(i) The class uses enum data type. The enum class has a fixed set of constants as listed in Table 1. Define the enum data type based on **all cases** listed in Table 1.

(ii) Class CaseList has 2 attributes: background and status.

(iii) Write a constructor for class CaseList that initializes CaseList attributes through parameter passing.

(iv) Write suitable code for the getter (accessor) methods.

Table 1: Set of constant and values for CaseList enum class

CASE	BACKGROUND	STATUS
CASE1	TRAVEL ABROAD	QUARANTINE
CASE2	CLOSE CONTACT	QUARANTINE
CASE3	COVID SYMPTOM	WARDED
CASE4	CRITICAL	ICU
CASE5	RECOVER	DISCHARGED

c) Write class DailyReport that only has main() method with the following codes: (36 Marks)

(i) Read an input file named InputSB.txt with a list of gender, age and Person's Case.

(ii) Create an arraylist of objects from class Person to store the value that read in c(i).

(iii) Print all cases in the CaseList enum class to produce the output as in Figure 2.

(iv) Count how many cases for Quarantine, Warded, Recover, in ICU. (Use enum value to count the different cases).

(v) Count the number of all cases. (You may use static variable to count the total cases)

(vi) The program should produce the output as shown in Figure 2. You need to use appropriate formatting for the output.

(vii) In your program, you need to identify the suitable variables, instance declarations, and arraylist declaration where appropriate.

d) Proper documentation and indentation. (4 Marks)

e) **Error free program** and work as required. (6 Marks)

```
M       67      CASE1
M       76      CASE2
M       50      CASE3
F       55      CASE3
M       60      CASE4
M       32      CASE2
F       45      CASE1
F       58      CASE3
M       24      CASE1
F       59      CASE2
M       78      CASE4
M       48      CASE5
F       62      CASE5
M       65      CASE5
```

Figure 1. Content of InputSB.txt

Covid-19 Cases and Action Required

```
CASE1: TRAVEL ABROAD     QUARANTINE
CASE2: CLOSE CONTACT     QUARANTINE
CASE3: COVID SYMPTOM     WARDED
CASE4: CRITICAL          ICU
CASE5: RECOVER           DISCHARGED
```

Output produced from question c(iii)

COVID-19 DAILY REPORT

Case	Gender	Age	Background	Status
1	Male	67	TRAVEL ABROAD	QUARANTINE
2	Male	76	CLOSE CONTACT	QUARANTINE
3	Male	50	COVID SYMPTOM	WARDED
4	Female	55	COVID SYMPTOM	WARDED
5	Male	60	CRITICAL	ICU
6	Male	32	CLOSE CONTACT	QUARANTINE
7	Female	45	TRAVEL ABROAD	QUARANTINE
8	Female	58	COVID SYMPTOM	WARDED
9	Male	24	TRAVEL ABROAD	QUARANTINE
10	Female	59	CLOSE CONTACT	QUARANTINE
11	Male	78	CRITICAL	ICU
12	Male	48	DISCHARGED	RECOVERED
13	Female	62	DISCHARGED	RECOVERED
14	Male	65	DISCHARGED	RECOVERED

```
Total In Quarantine = 6
Total In ICU = 2
Total Warded = 3
Total Recovered = 3
Total Cases = 14

Press any key to continue . . .
```

Figure 2: Expected Output of the program