

ASSIGNMENT # 3

CSE356– FORMAL METHODS

DUE DATE: 21-12-2020

TOTAL MARKS: 20

Instructions:

- Assignment should be hand written or typed on A4 page size, with front page having the following details. **(Note: Failing to attach the front page with the following details will result in deduction of 5 marks)**

Reg. # : _____

Name : _____

Course Title : _____

Section : _____

Assignment # : _____

Submitted to : _____

Date : _____

(Font size 16, Times New Roman)

- Questions should solve in order as given in assignment.
- No marks for late submission.
- Assignment should be well formatted.
- While solving each question, do show all intermediate steps.

Question 1:

[Marks: =20]

A hotel management system is used to maintain a record of the current state of the hotel rooms, whether occupied or not. Write and explain a Z specification for the system described below. A full explanation includes: example data and sets, ordinary English prose describing what is specified.

Use Case: Commission

- **Goal:** To add a new room to the Accommodation System
- **Pre-condition:** The room has not already been added
- **Main Success Scenario**
 1. Manager inputs new room
 2. System confirms new room added
 3. Exit success
- **Exceptions**
 - a. Room already in the system
 - b. Exit failure

Use Case: Occupy

- **Goal:** To inform the system that a room is now occupied by a guest
- **Pre-condition:** The room is in the Accommodation System and the room is not occupied
- **Main Success Scenario**
 1. Receptionist inputs room
 2. System confirms room is now occupied
 3. Exit success
- **Exceptions**
 - a. Room not in the system
 - a1. Exit failure
 - b. Room already occupied
 - b 1. Exit failure

Use Case: Vacate

- **Goal:** To inform the system that the room is now vacant
- **Pre-condition:** The room is in the Accommodation System and the room is currently occupied
- **Main Success Scenario**
 1. Receptionist inputs room
 2. System confirms room is now vacant
 3. Exit success
- **Exceptions**
 - a. Room not in system
 - a1. Exit failure
 - b. Room already vacant
 - b1. Exit failure