THE OPEN UNIVERSITY OF SRI LANKA
DEPARTMENT OF COMPUTER SCIENCE
B.Sc. DEGREE PROGRAMME – 2019/2020
CSU4302: SYSTEM ANALYSIS AND SOFTWARE ENGINEERING
NO BOOK TEST - 2
DURATION: **ONE HOUR ONLY (1HR)**

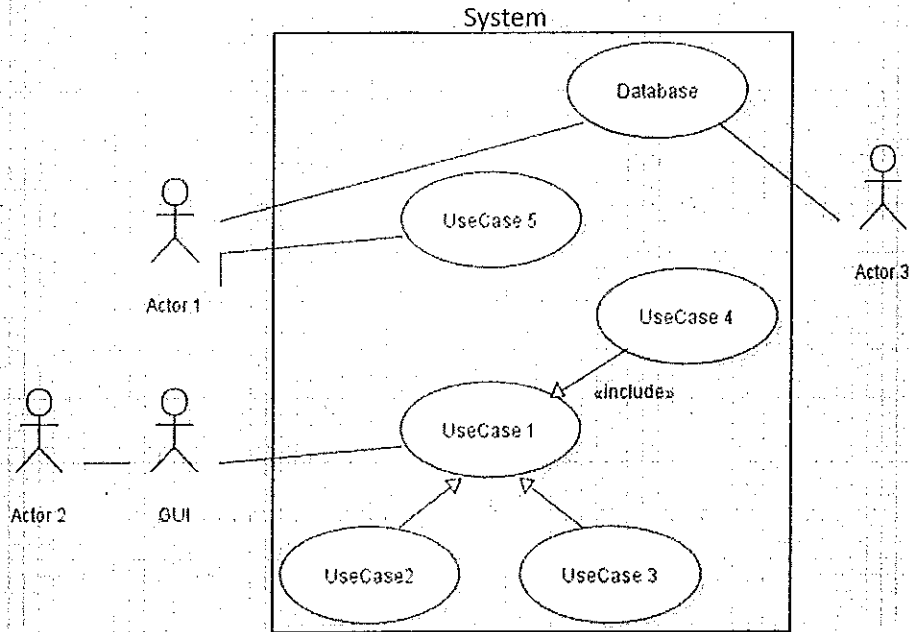| Date: 20ᵗʰ September, 2019	Time: 4.15pm – 5.15pm

Answer <u>ALL</u> Questions.

1.

Figure 1

a. Consider Figure 1 and classify the following sentences as "*true*" and "*false*"

  i. According to the diagram, UseCase 1 is an abstract super class for UseCase 2 and UseCase 3.

  ii. The relation between UseCase 4 and UseCase 1 does not follow the UML standard.

  iii. The use case should clarify in what direction data is transferred to and from the Database.

  iv. The relation between the Actor 2 and the GUI is not permitted in UML use case diagram syntax.

  v. The relations connecting the Actor 1, GUI and Actor 3 to the use cases are missing the arrows.

b. Draw the correct version of the use case diagram of the diagram given in Figure 1.

2. There are two types of lecturers in an academic institute; permanent and contract. Properties such as name, date of birth, and address are held for all lecturers while start date, and contract length are held for contract staff. Insurance number, salary and references are held for the permanent staff. A Course must be allocated to a permanent lecturer. Each course is allocated to just one permanent lecturer. A permanent lecturer has a maximum of 1 or 3 courses allocated to him. However, there are some permanent lecturers (admin staff) who do not have a course allocated to him.

Identify the classes, attributes, relationships, and multiplicities and draw **the class diagram**

3. Draw the Activity Diagram and Sequence Diagram for the following scenario
   [Note: Draw the sequence diagram only for the "Basic Flow"]

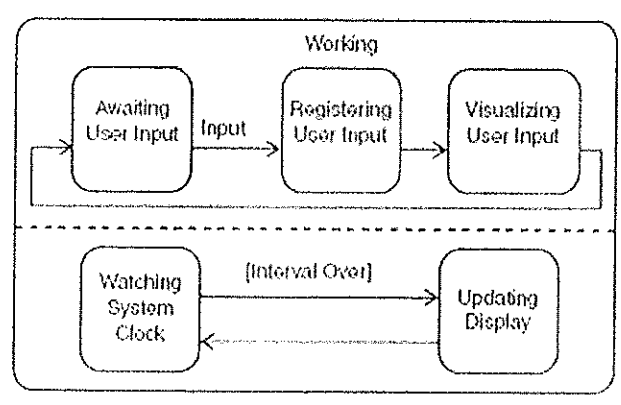| Name	Register
Brief Description	A user of the system creates an account
Actor(s)	Guest
Flow of Events	
Basic Flow	
1. The System prompts user for registration information, Username, password, etc 2. The user enters in their information. 3. System verifies information and creates account.	
Alternate Flows	
Title	Description
Invalid Information Entered	1. System displays information with an appropriate message to correct invalid information. 2. User re-enters information.
Post-Conditions	
Title	Description
Success	The user entered successful information and is returned to the home page as a Logged In User

4.

Figure 2

Answer the following questions by considering the diagram given in Figure 2

   a. Briefly explain the two varieties of sub states in the state diagram by considering the Figure 2.

   b. What is history state and how can we denote it?