



United International University (UIU)

Dept. of Computer Science & Engineering (CSE)

Final Exam Trimester: Fall 2022 Marks: 40 Time: 2 Hours

Code: CSE 3411 Course Title: System Analysis & Design

“Any examinee found adopting unfair means will be expelled from the trimester / program as per UIU disciplinary rules.”

Answer **ALL** of the following questions:

QUESTION 1

[CO3]

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Consider the following scenario for an **Online Blood Bank Testing Unit** application:

On the day following the blood donation, the Blood Bank Testing Unit (BBTU) tests all blood for blood type and potential viral agents. They send the results of these test to the Processing Office. For each blood, tested in blood unit, need to fill-up a form which lists the blood unit number, the blood type, the date, and the results of the test. If the tests indicate that the blood may be contaminated with a viral agent, the blood unit is destroyed. This is indicated in the test form. Blood units have a limited shelf life. The blood bank receives a list every day of those units which have exceeded their shelf life. The Blood Bank also distributes blood to various hospitals requesting blood. The Blood Bank receives a listing for each hospital and the specific units of blood to supply to the hospital from the Processing Office. The order receipt is printed. When the order is completed, a lab technician signs the order and sends a copy to the Processing Office. A copy of the receipt is also sent with the blood to the requesting hospital. The final receipt copy is kept in the Blood Bank and discarded after one year.

- a) Draw the USE CASE Diagram (having at least one “include” and “extend” connection).
Mention the purposes of include or extend symbol. [4]
- b) Draw the **Class Diagram** and **CRC card** for the above scenario. Mention the justification of considering the classes. [3+3+2]
- c) Draw Sequence Diagram of the **blood distribution to the various hospital part** described in the above scenario. Mention the major purposes of the different symbols used in sequence diagram. [5]
- d) Draw the State Diagram for the above scenario. [3]

QUESTION 2**[CO4]****10**

- a) What is the concept of feasibility study? [2]
- b) Write down your SWOT analysis with respect to develop a software described in question no. 1. [3]
- c) Suppose you, along with your two friends, found a great idea to implement as a business venture. To implement the idea, your team supposed to invest \$10000, \$5000, \$3000 at present, in 2nd year and in 3rd year respectively. In return as a revenue your team may receive \$5000, \$10000 and \$12000 in 3rd, 4th and 5th year respectively. Determine whether the project is financially sustainable for your team or not in terms of following two methods: [5]
 - i. Cash Flow
 - ii. Net Present Value

QUESTION 3**[CO3]****5**

- a) Mention two best practices of UI design guidelines. [2.5]
- b) Draw the proposed UI design (concept sketch only) of **Home_Page** or **Blood_Distribution_Page** to the various hospital part with respect to the project described in the questions 1. [2.5]

QUESTION 4**[CO3]****5**

- c) Write down an SRS document and present it as a group having the following parts on a project: Introduction, System Study, Analysis, Functional and Non-functional requirements, System design (UML diagrams), UI design through Figma software, financial feasibility etc. **(already evaluated in class room)**. [5]