United International University (UIU)

Dept. of Computer Science & Engineering (CSE)

Final Exam Trimester: Fall 2021

Code: CSI 311 Course Title: System Analysis & Design

Marks: 40 Time: 2 hours + 15 minutes (for submission)

Answer **ALL** of the following questions:

QUESTION 1 [CO3] 20

Consider the following scenario of "UIU Online Academic Support System":

Suppose UIU has implemented "UIU Online Academic Support System" for supporting students through community based platform in a better way. The system is accessed by all the students and instructors of UIU. The system has different wings/pages for different students and instructors of different professional courses. A **Visitor** can view all the pages and activities of different courses. However, in order to gain access as a **Member**, the visitor needs to sign up in the system. A Member can log in, view others posts, can post problems in the different pages, can provide solutions on different problems, or add different links for different group of students etc. in the system. **Admins** are responsible for allowing visitors as a member. There are Three Admins assigned for managing the system. In case of admins, their name, email and mobile numbers are required to submit in the system.

When a Visitor wants to join as a Member, needs to apply online through the site. The membership lies into two types: **student, instructor**. Instructor members are allowable for specific course pages only, whereas, a student member can access all the pages for different courses. Both admin and members need to provide email and name in the system for starting their respective activities. On the application page, the person needs to provide the email address, mobile number, and name. When the user clicks the submit button, the application is sent to one of the admins for verification. The application can either be accepted or rejected.

In the case where the application is accepted, an email is sent to the user, by the Admin, containing the log in id and password. The members can now use the log in credentials to log in to the system. If the username and password is valid, the user is redirected to the home page of the software; otherwise a **re-entry message** is displayed. If any unacceptable information posted by any member, the Admin can immediately block that member without any prior notice. The instructor member has the authority to block any student member from specific course page, where he/she belongs.

a) Draw the **USE CASE DIAGRAM** for the above scenario. [5]

b) Mention the rules to identify the major classes in any system. Draw a **CLASS DIAGRAM** for the above scenario and explain each class and relation. [2 + 4 + 4 = 10]

c) Draw **SEQUENCE DIAGRAMS** for application process. [5]

QUESTION 2 [CO3] 10

a) Write down the Functional and Nonfunctional requirements of the project you developed in SAD Lab course or any other system. [4]

b) Mention the major heads or features of any SRS (software requirement specification) document with short briefing. Mention the major objectives or purposes of SRS for different stakeholders of the software project. [3+3= 6]

QUESTION 3 [CO4] 10

a) Suppose you are the chief analyst of a reputed pizza house, and you are doing a SWOT analysis of your business. Now consider the following questions and find out which question suits best for which part of SWOT analysis. [2]

i. Who and/or what might cause us problems in the future? How?
ii. What resources do we have available?
iii. In what areas do we need more training?
iv. Is there a need in our restaurant that no one is meeting?
v. How is our field changing? How can we take advantage of those changes?
vi. What advantages do we have?
vii. Are there changes in our field or in technology that could threaten our success?
viii. What do other people say we don't do well?

b) Suppose you are investing $55000, $14000, and $12000 at present, after 2 year and after 4 years respectively. In return after 2, 3 and 6 years you will get Revenue $22000, $25000 and $48000 respectively.

Find out Profit/Loss and time to achieve BEP through

i. Cash Flow Method
ii. Net Present Value (NPV) Method

Consider bank interest 10%

Important Note: You need to add the last 4 digit of your id with each investment and revenue. Suppose the problem says you have invested $1000 and last 4 digit of your id is 1104, then you must consider its $2104 instead of $1000. [8]