Wednesday, 15 September 2021

EAST WEST UNIVERSITY
Department of Computer Science & Engineering
B.Sc. in Computer Science and Engineering Program
Final Examination, Summer 2021 Semester

Course:	**CSE347 Information System Analysis and Design, Section-1**
Instructor:	**Md. Mohsin Uddin, Senior Lecturer, Department of CSE**
Total Marks:	**40 (20 will be counted for final grading)**
Time:	**1 Hour and 20 Minutes**

Note: There are **five** questions, answer all of them. Course Outcome (CO), Cognitive Level and Marks of each question are mentioned at the right margin.

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1. Based on the following use case description, **Construct** a UML Sequence Diagram (SD). [CO2,C4, Marks:10]

"A deposit transaction asks the customer to choose a type of account to deposit to (e.g. checking) from a menu of possible accounts, and to type in a dollar amount on the keyboard. The transaction is initially sent to the bank to verify that the ATM can accept a deposit from this customer to this account. If the transaction is approved, the machine accepts an envelope from the customer containing cash and/or checks before it issues a receipt. Once the envelope has been received, a second message is sent to the bank, to confirm that the bank can credit the customer's account — contingent on manual verification of the deposit envelope contents by an operator later. (The receipt of an envelope is also recorded in the ATM's log.) A deposit transaction can be cancelled by the customer pressing the Cancel key any time prior to inserting the envelope containing the deposit. The transaction is automatically cancelled if the customer fails to insert the envelope containing the deposit within a reasonable period of time after being asked to do so."

2. Consider the following simplified description of a library management system. **Construct** an appropriate Data Flow diagram (DFD) upto level 1. [CO2,C4, Marks:7]

" The librarian will log in to the system and then he/she will register students and books that are in the library. If the students have been registered and wanted to borrow books, the student will search the book/s, and then he/she will present his/her registered library card together with the book/s he/she intended to borrow. The librarian will record the transaction using the proposed system and will set the due date for the book to be returned. After recording, he/she will release the book/s and student's library card together with the receipt. When the student returned the book before the due date, the staff will record the transaction successfully and update the booking status. In case of loss or damage, the librarian will give a fine to the student that will be given to the accounting office for penalty purposes."

3. Each of the following scenarios represents a specific user interface design golden rule. **Identify** the specific golden rule for each scenario as well as **justify** your answers. [CO3,C3, Marks:6]

a. "A set of applications (products) should implement the same design rules."

b. "The normal users should not aware about operating system, file management functions and other technology used in the system etc."

c. "Accomplish a system function (e.g. alt + P to invoke print function), the mnemonic should tied up with the option in such a way that it is easy to remember. e.g : 'P' for print."

4. Consider the following component description of an e-commerce system. **Construct** a UML component diagram for the system. [CO3,C4, Marks:10]

"An e-commerce system is comprised of three related subsystems - Online_Storage, Accounting, and Warehouses. Online_Storage subsystem comprises of three components related to e-commerce - Authentication, Search_Engine, and Item_Cart. Accounting subsystem comprises of three components related to e-commerce - Orders, Customers, and Accounts. Warehouse subsystem has only one component named Inventory. Search_Engine component allows to search or browse items by exposing provided interface Product Search and uses required interface Search Inventory provided by Inventory component. Item_Cart component uses Manage Orders interface provided by Orders component during checkout. Authentication component allows customers to create account, login, or logout and binds customer to some account. Accounting subsystem provides two interfaces - Manage Orders and Manage Customers. Delegation connectors link these external contracts of the subsystem to the realization of the contracts by Orders and Customers components. Warehouses subsystem provides two interfaces Search Inventory and Manage Inventory used by other subsystems and wired through dependencies."

5. Consider the following simplified description of a web application deployment. **Construct** a deployment diagram for the system. [CO3,C4, Marks:7]

"A community club web application artifact community_club_app.war is deployed on Catalina Servlet / JSP Container which is part of Apache Tomcat web server. The community_club_app.war artifact manifests (embodies) OnlineOrders component. The artifact contains three other artifacts, one of which manifests UserServices component. The Application Server device (computer server) has communication path to Database Server device (another server). Web application archive artifact community_club_app.war contains several files, folders and subfolders. Stereotypes file and library are standard UML stereotypes applicable to artifacts."