CS101 updated VU Final term Past Paper Last 5 Year
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Questions:

1. **What role do schemas and subschemas play in controlling access to a database?**

   Answer: Schemas provide a description of the entire database structure, while subschemas describe specific portions relevant to users' needs. To control access, database systems utilize schemas and subschemas, ensuring that different users have access only to the information pertinent to their roles. For instance, a registrar might be restricted to a subschema without faculty employment history, preventing unauthorized access to privileged information.

2. **How does the separation between application software and a Database Management System (DBMS) benefit database implementation?**

   Answer: The separation allows for abstract tools, simplifying software design. The application layer handles user communication, while the DBMS manipulates the database based on user requests. This separation enables data independence, allowing changes in the database's organization without modifying application software. For instance, adding a field for health insurance participation only requires changing the schema and subschemas, avoiding the need to modify all application programs.

3. **What is the conceptual view of a database, and how does the Relational Database model represent data?**

   Answer: The conceptual view, called a database model, abstracts the internal structure complexities of a database. The Relational Database model represents data in rectangular tables (relations) akin to spreadsheets. Rows in a relation are tuples, representing specific entity information, and columns are attributes describing characteristics of the entity.

4. **What issues arise in designing relations for a relational database, and how can these issues be addressed?**

   Answer: Designing relations involves challenges such as redundancy. If multiple concepts are combined in a single relation, efficiency issues arise. To

address this, relations can be redesigned, separating different concepts into distinct relations. For example, keeping separate relations for employees, jobs, and assignments helps avoid redundancy and ensures more efficient data management.