CS-06

BACHELOR OF COMPUTER APPLICATIONS (BCA) (Pre-Revised)

Term-End Examination

February, 2021

CS-06 : DATABASE MANAGEMENT SYSTEMS

Time : 3 hours   *Maximum Marks : 75*

Note : *Question number **1** is **compulsory**. Attempt any **three** questions from the rest.*

1. (a)
   - A film distribution and promotion company maintains information about films, which further contains information about movie stars and studios.
   - Movies have a title, language, year of production, duration and film type.
   - Stars have a name and address.
   - Studios have an owner and a banner.
   - Movies are shot in studios, which own them.
   - A movie is shot in only one studio.
   - Stars are connected to one or more studios but can act in any film, which may or may not be owned by the studio.

   Design and draw an ER Diagram, clearly indicating the attributes, keys, cardinality ratio and participation constraints. *10*

(b) Discuss the Three Level Architecture of DBMS. Explain how it leads to data independence. *5*

(c) What is Inverted File Organisation ? Explain with an example. *5*

(d) What is client/server computing ? Discuss the components of client/server computing. *5*

(e) Explain B-Tree with the help of an example. *5*

2. (a) How is Serial Schedule different from Serializable Schedule ? What are the problems associated with both schedules ? *5*

(b) Explain the significance of *4*

   (i) Application Programming Interface

   (ii) Remote Procedure Calls

(c) List three functions of a DBA. *3*

(d) Differentiate between a Subquery and Join. When would you not be able to use a subquery ? *3*

3. (a) What is Normalization ? Why is it needed ? Explain 3NF and BCNF with examples. *8*

(b) Differentiate between Natural Join and Equi Join, giving examples of each. *7*

4. (a) What is data independence ? Explain the difference between physical and logical data independence. *6*

(b) What are Integrity Constraints ? Explain any two types of integrity constraints that can be imposed on relational databases. *4*

(c) What is the purpose of "Null" ? Is a component of primary key allowed to accept Null ? Why ? *5*

5. (a) What is non-loss decomposition in databases ? How is it useful ? *4*

(b) Explain the need of data replication and data fragmentation with respect to distributed databases. *6*

(c) Describe Semantic Net Representation in a knowledge-based system, with an example. *5*

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