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**Total No. of Pages: 01**

**Total No. of Questions: 08**

**M. Tech.(IT,CSE Engg.,E-SECURITY(Sem.-1<sup>st</sup>)**  
**ADVANCE DATABASE MANAGEMENT SYSTEMS**

**Subject Code: CS-507**

**Paper ID: [E0687]**

**Time: 3 Hrs.**

**Max. Marks: 100**

**INSTRUCTIONS TO CANDIDATE:**

1. *Attempt any FIVE questions out of EIGHT Questions.*
2. *Each question carries 20 marks.*

1. (a) Discuss the main characteristics of the database approach and how it differs from traditional file system. (10)  
(b) What is data integrity? Explain the types of integrity constraints. (10)
2. (a) What is a data mart? Differentiate between dependent and independent data marts. (10)  
(b) A set of FDs for the relation  $R\{A, B, C, D, E, F\}$  is  $AB \rightarrow C, C \rightarrow A, BC \rightarrow D, ACD \rightarrow B, BE \rightarrow C, EC \rightarrow FA, CF \rightarrow BD, D \rightarrow E$ . Find a minimum cover for this set of FDs. (10)
3. (a) What are the advantages of normalized relations over the un-normalized relations? (10)  
(b) Write a short notes on: (10)  
(i) Serializability  
(ii) Recoverability
4. (a) Differentiate between Strict two-phase locking protocol and conservative two-phase locking protocol for concurrency control in databases with the help of an example. (10)  
(b) Describe three-level schema architecture. Why do we need mappings between schema levels? How do different schema definition languages support this architecture? (10)
5. Write short notes on any THREE of the following: (20)  
(i) Categories of Data models.  
(ii) Using Heuristics in Query optimization.  
(iii) Multimedia Databases.  
(iv) Mobile Databases.
6. (a) What do you understand by distributed databases? Give the various advantages and disadvantages of distributed database management systems. (10)  
(b) How data mining system can be integrated with data warehouse system? (10)
7. (a) What is logical data independence and why is it important? (10)  
(b) What do you understand by timestamp based protocol? Discuss multi-version scheme also. (10)
8. (a) Define Specialization and aggregation with the help of an example and explain Its purpose. (10)  
(b) Differentiate among candidate key, primary key, super key and foreign key. (10)

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