



**II Semester M.C.A. Examination, July 2017**  
**(CBCS)**  
**COMPUTER SCIENCE**  
**MCA – 202 T : Database Management System**

Time : 3 Hours

Max. Marks : 70

PART – A

- I. Answer **any five** of the following. **Each** question carries **six** marks. (5×6=30)
- 1) Define data, database system and DBMS. List out the advantages of using database approach.
  - 2) Define data independence. Distinguish between physical and logical data independence.
  - 3) Write E-R diagram for Karnataka State Road Transport Corporation (KSRTC) route management. (Assume that there are cities, buses, conductor, driver and passengers).
  - 4) Write a short note on SELECT ( $\sigma$ ), project ( $\pi$ ) and JOIN ( $\bowtie$ ).
  - 5) Explain the following :
    - 1) Functional dependency
    - 2) Entity Integrity.
  - 6) Discuss the various types of join operations in relational algebra.
  - 7) Discuss the various operations on relations and type of integrity constraints that must be checked for each update operation.
  - 8) Discuss the ACID properties of a database transaction.

PART – B

- II. Answer **any four** of the following questions. **Each** question carries **10** marks. (4×10=40)
- 9) What is data model ? Explain the different categories of data models
  - 10) Why do we require file organization ? Explain the types of file organization and mention differences between them.

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- 11) What are insertion, deletion and updation anomalies ? Illustrate mechanism to handle insert, delete and update anomalies.
  - 12) Discuss the different DML commands in sql. with suitable examples.
  - 13) What is two phase locking protocol ? How does it guarantee serializability ?
  - 14) Write short notes on **(any two)** :
    - 1) Boyce Codd Normal Form
    - 2) Aggregate functions
    - 3) Refential integrity.
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