

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**MCA INTEGRATED - SEMESTER– II • EXAMINATION – SUMMER - 2016**

**Subject Code:4420603****Date: 31-05-2016****Subject Name: Fundamentals of Database Management Systems****Time:10.30 am To 01.00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) What do you mean by File Based Data Management System? Explain disadvantages of File Based Data Management System. **07**  
(b) Describe the various functions of Database Management System. **07**
- Q.2** (a) Define data dictionary. Explain the benefits and types of data dictionary. **07**  
(b) Explain the ANSI/SPARC architecture with diagram. **07**
- OR**
- (b) What is database design? Explain the database design process with diagram. **07**
- Q.3** (a) Explain conceptual, physical and logical database models with help of a neat diagram. **07**  
(b) Explain Relational database model. What are the advantages and disadvantages of relational model? **07**
- OR**
- Q.3** (a) Explain network model. Explain the advantages and disadvantages of network model. **07**  
(b) Construct an E-R diagram for a Railway Reservation System. **07**
- Q.4** (a) List and explain CODD's rules. **07**  
(b) What are the constraints included in a relational model? **07**
- OR**
- Q.4** (a) What are the pitfalls of relational database design? **07**  
(b) What is decomposition? Explain with example. **07**
- Q.5** (a) Explain generalization and specialization with example. **07**  
(b) What are the relational algebraic operations? Explain with examples. **07**
- OR**
- Q.5** (a) What is JOIN operation? How is it represented? Explain its types. **07**  
(b) What is tuple relational calculus? Explain existential and universal quatifiers. **07**

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