

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA - SEMESTER-I • EXAMINATION – WINTER • 2015

Subject Code: 610005

Date: 28-12-2015

Subject Name: Database Management System - 1

Time: 10:30 am - 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) Define Terms: (07)**
- | | |
|-------------------|----------------------------|
| i) Database | v) Redundancy |
| ii) Lossless Join | vi) Unique Key |
| iii) Assertion | vii) Mapping cardinalities |
| iv) Aggregation | |

- (b) Distinguish between data manipulation languages and data definition languages giving suitable examples. (07)**

- Q.2 (a) i) Differentiate between Physical and Logical data Independence. (04)**
ii) Explain roles of DBA. (03)
- (b) What is normalization? Explain 1NF, 2NF and 3NF using suitable example (07)**

OR

- (b) Explain in detail the insertion, deletion and update anomalies with the mechanism to remove it using suitable example. (07)**

- Q.3 (a) Explain Specialization and Generalization with suitable example. (07)**
- (b) Construct an E-R diagram for a University Examination System. (07)**

OR

- Q.3 (a) Explain various types of Attributes and Relationships with suitable example. (07)**
- (b) Construct an E-R diagram for a Library Management System. (07)**

- Q.4 (a) Discuss concept of canonical cover. (05)**
- (b) Explain in brief Functional Dependency and Multivalued Dependency. (05)**
- (c) What is Data Model? Explain any one data model. (04)**

OR

- Q.4 (a) Discuss concept of BCNF. (05)**
- (b) Discuss any Seven Armstrong rules. (05)**
- (c) Draw and explain 3-tier architecture of DBMS. (04)**

- Q.5 (a) Explain Terms Super key, Candidate key and Primary keys with example. (05)**
- (b) What is Data Dictionary? Discuss contents of Data dictionary. (05)**

(c) Differentiate between weak and strong entity. (04)

OR

Q.5 (a) Explain in brief various types of integrity and referential constraints. (05)

(b) What is DBMS? Discuss advantages of DBMS over File systems. (05)

(c) Explain de-normalization with its need. (04)
