**Registration no:** | | | | | | | | | | |

**Total Number of Pages: 02**

**B.TECH**
**FEEC6301**

# 5th Semester Regular / Back Examination 2016-17
# DATA BASE MANAGEMENT SYSTEMS
## BRANCH(S): AEIE, ECE, EEE, EIE, ELECTRICAL, ETC

**Time: 3 Hours**
**Max Marks: 70**
**Q.CODE: Y372**

**Answer Question No.1 which is compulsory and any five from the rest.**
**The figures in the right hand margin indicate marks.**

**Q1** **Answer the following:** **(2 x 10)**

**a)** What is logical data independence and why is it important?
**b)** Compare between schema andsub-schema?
**c)** What is data dictionary?
**d)** What are stored, composite and derived attributes?
**e)** Distinctions between candidate key and super key.
**f)** What is ACID property?
**g)** Define Data Privacy?
**h)** How many distinct tuples are in a relation instance with cardinality 27?
**i)** What is PJNF?
**j)** Define B++ Tree.

**Q2** **a)** With a suitable example, explain the roleof functional dependency in the process of normalization? **(5)**

**b)** What is a foreign key constraint? Why are such constraints important? What is referential integrity? **(5)**

**Q3** A university database contains information about faculty (identified by identification number) and courses (identified by courseid). Faculties teach courses; each of the following situations concerns the Teaches relationship set. For each situation, draw an ER diagram that describes it. **(10)**

i. Faculties can teach the same course in several semesters, and each offering must be recorded.
ii. Faculties can teach the same course in several semesters, and only the most recent such offering needs to be recorded. (Assume this condition applies in all subsequent questions.)
iii. Every faculty must teach some course.
iv. Every faculty teaches exactly one course (no more, no less).

Every faculty teaches exactly one course (no more, no less), and every course must be taught by some faculty.

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| **Q4** | **a)** | What are different types of Data Independence?Explain with proper examples? | **(5)** |
| | **b)** | Discussed details on Database development life cycle(DDLC). | **(5)** |
| **Q5** | **a)** | Consider the universal relation R = {A, B, C, D, E, F, G, H, I, J} and the set of functional dependencies<br>F={ {A,B} -> {C},A} -> {D,E},{B}->{F},{F} ->{G,H},{D} -> {I,J}}.<br>What is the key for R? Decompose R into 2NF, then 3NF relations? | **(5)** |
| | **b)** | What is the loss less join property of decomposition? Why is it important? | **(5)** |
| **Q6** | **a)** | Compare between two phase locking and Timestamp methods. | **(5)** |
| | **b)** | Compare between 3NF and BCNF with proper example. | **(5)** |
| **Q7** | | Define Relational Algebra and discuss with relevant examples about the various operations in Relational Algebra. | **(10)** |
| **Q8** | | **Short notes on any two:** | **(5 x 2)** |
| | **a)** | Key Attribute | |
| | **b)** | Serializability | |
| | **c)** | Transaction | |