Code: 9F00301

MCA III Semester Regular & Supplementary Examinations November/December 2017
DATABASE MANAGEMENT SYSTEMS
(For 2012, 2013, 2014, 2015 & 2016 admitted batches only)

Time: 3 hours   Max. Marks: 60

Answer any FIVE questions
All questions carry equal marks
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1 (a) How database management system overcomes the disadvantages of file system?
   (b) What is a data model? Why is it important? Explain various types of data models.

2 (a) What is a weak entity set? How is it handled in ER diagram?
   (b) Construct an ER diagram for online train reservation system such as irctc.co.in.

3 (a) With examples, explain left outer join & theta join.
   (b) What is the content of system catalog? Why is it important?
   (c) Describe the relational database rules proposed by Dr.E.F codd.

4   Consider the following database schema to write queries in SQL.
                Sailor (Sid, Sname, age, rating)
                Boats (bid, bname, bcolor)
                Reserves (Sid, bid, day)
        (i) Find the names of sailors who have reserved at least two boats.
        (ii) Find the boats which do not have reservations.
        (iii) List the colors of the boats reserved by "Raman".

5 (a) Explain the need for normalization with suitable example scenarios.
   (b) Discuss the concepts of partial dependency and transitive dependency.
   (c) Quote an example relation which is in 3NF but not in BCNF.

6 (a) What is a transaction? Explain the desirable properties of transaction.
   (b) How to test serializability? Discuss with examples.
   (c) Does two phase locking ensure serializability.

7 (a) What is a log? What is a log tail? Explain its use in recovery.
   (b) Describe the significance of pincount and dirty bit in buffer management.

8 (a) With necessary diagram, explain magnetic disk organization.
   (b) Differentiate between B tree and B+ tree indices.

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