

Code: 9F00301

MCA III Semester Supplementary Examinations May 2019

**DATABASE MANAGEMENT SYSTEMS**

(For 2009, 2010, 2011, 2012 (LC), 2013, 2014, 2015 &amp; 2016 admitted batches only)

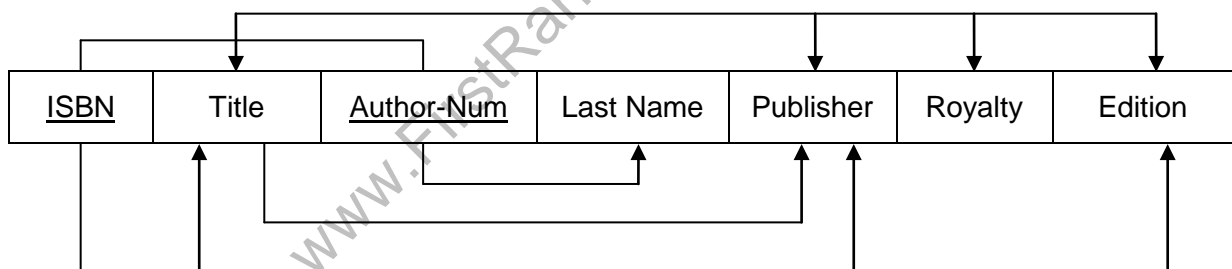
Time: 3 hours

Max. Marks: 60

Answer any FIVE questions  
All questions carry equal marks

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- 1 (a) Explain the major functions of a database management system with examples.  
(b) Define and give an example for each of the following terms:  
(i) Data. (ii) Field. (iii) Record. (iv) File.
- 2 Explain in detail with suitable examples, about the various issues to be considered while selecting the primary keys.
- 3 (a) Explain the requirements that two relations must satisfy in order to be considered union-compatible.  
(b) Using the STUDENT and PROFESSOR tables illustrate the difference between natural join, equi join and outer join. (Assume the fields and records in the table as per your convenience, as required by the question).
- 4 (a) Explain the difference between an inner join and outer join with suitable examples.  
(b) Explain the difference between a column constraint and a table constraint with examples.
- 5 Consider the following dependency diagram, which indicates that the authors are paid royalties for each book that they write for a publisher. The amount of royalty can vary by author, by book and by edition of the book.



- (a) Based on the dependency diagram, create a database whose tables are at least in 2NF, showing the dependency diagram for each table.
- (b) Create a database whose tables are at least in 3NF, showing the dependency diagram for each table.  
(Note: Illustrate the steps followed wherever necessary.)
- 6 (a) Explain the following statements and give an example:  
(i) A transaction is a logical unit of work.  
(ii) Transactions T1, T2 and T3 are executing in parallel and the schedule is serializable.  
(b) Using an example, explain the use of binary and shared/exclusive locks in DBMS.
- 7 Explain in detail about the log based recovery in a DBMS.
- ~~8 (a) Explain in brief about the RAID mechanism and different RAID levels.  
(b) What is dynamic hashing? Explain about any one dynamic hashing method.~~