

2015

M.Sc.

2nd Semester Examination

DATABASE SYSTEM

PAPER—COS-201

Full Marks : 35

Time : 2 Hours

The questions are of equal value.

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Answer Q. No. 1 and any three from the rest.

1. Answer all questions : 5×1

(i) Manager's salary details are hidden from the employers. That is :

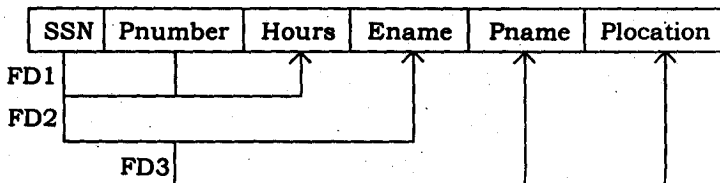
- (a) Conceptual level data hiding ;
- (b) Physical level data hiding ;
- (c) External level data hiding ;
- (d) None of above.

(Turn Over)

- (ii) A locked file can be :
- (a) Access by only one user ;
 - (b) Modified by user with correct password ;
 - (c) Both a and b ;
 - (d) None of above.
- (iii) Multivalued dependencies are managed in :
- (a) 3NF ;
 - (b) 4NF ;
 - (c) 5NF ;
 - (d) BCNF.
- (iv) A relation is said to be in — form if the values in the domain of each attribute of the relation are atomic ?
- (a) Unnormalized ;
 - (b) First Normal ;
 - (c) Boyce Codd ;
 - (d) None of these.
- (v) In relational schema, each tuple is divided into fields called ?
- (a) Relations ;
 - (b) Domains ;
 - (c) Queries ;
 - (d) All of above.

2. Answer any *two* of the following : 2×5
- (i) Define normalization. Why BCNF is stronger than 3NF? Explain. 2+3
- (ii) What is a transaction? Write its desirable properties. 2+3
- (iii) What do you mean by functional dependency? Explain update anomalies. 2+3
3. Why concurrency control is needed? Write the causes of failure of a transaction. Why does shadow paging use in transaction. Explain with diagram. What are the utilities of precedence graph? 3+2+3+2
4. Write short notes on following topics (any *two*) : 2×5
- (a) Relational Calculus ;
- (b) Query Optimization ;
- (c) Three tier architecture of DBMS ;
- (d) BCNF ;
- (e) 2PL.
5. What is multivalued dependency? Discuss with examples. Define 4NF. Consider the following relation : 3+2+5

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6. (a) What is dirty read problem? Explain in detail. 3
(b) Explain in detail about precedence graph. 2
(c) What is log? Write down the rulls of log. 2
(d) What is concurrent execution? 1
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