NEW

2015

BCA

3rd Semester Examination

DATABASE MANAGEMENT SYSTEM

PAPER—2104

Full Marks : 70

Time : 3 Hours

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 *Question no. 1* and any *four* from the rest.

1. Answer any *five* questions : 5×2

(a) What is redundency ?

(b) What is the disadvantage of Network data model ?

(c) What is the difference between relational Algebra and relational Calculus ?

(d) What is an index?

(e) Define multivalued attribute.

(f) What is weak entity set?

(g) What is Functional dependency?

2. (a) Why normalization is required? What is 3NF?

(b) Consider a relation R (A, B, C, D) with FD's
$F = \{A \rightarrow BCD,\ BC \rightarrow AD,\ D \rightarrow B\}$
Find the highest normal form.

(c) Define Full Functional Dependency and Trivial Functional depency with example.

(2+3)+5+(3+2)

3. (a) Discuss insertion, modification and deletion anomalies.

(b) Define Loss-less join decomposition.

(c) Given R (A, B, C, D, E) with the FD's $F = \{AB \rightarrow CD,\ A \rightarrow E,\ C \rightarrow D\}$. Verify the decomposion of R into R_1 (A, B, C), R_2 (B, C, D) and R_3 (C, D, E) is loss-less or not.

5+5+5

4. (a) Construct on E - R diagram for a car-insurance company that has a set of customers, each of whom owns one or more cars. Each car has associated with it zero to any number of recorded accidents.

(b) What is the difference between Generalization and Specialization ?

(c) Define ternary relationship and weak entity set.

5+5+5

5. (a) What is data independence ? What is the difference between physical data independence and logical data independence ?

(b) Distinguish between the DBMS and file management system.

(c) Define DDL and DML.

(2+3)+5+5

6. (a) Write down the functions of the data base Administrator.

(b) What is data model ? What is the difference between Hierarchical data model and Network data model ?

(c) Explain the architecture of DBMS.

5+(3+2)+5

7. Write short notes on the following (any *three*) : 5×3

(a) Foreign Key ;

(b) Natural Join ;

(c) Aggregation ;

(d) BCNF ;

(e) MVD.

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