2018

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 Q. No. *1* and any *four* from the rest.

1. Answer any *five* questions : 5×2

(a) What is a view ?

(b) What is weak entity type ?

(c) What is functional dependency ?

(d) Define foreign key.

(e) What is Cascading rollback ?

(f) What do you mean by integrity constraint ?

(g) Indicate the advantage of DBMS over conventional file system.

2. (a) Describe Three-Schema Architecture of DBMS. Define Physical Data Independence and Logical Data Independence.

(b) Define the concept of generalization, specialization and aggregation.

(c) Who are the different database users ? (5+3)+5+2

3. (a) Explain with example Super key, Candidate Key and Primary Key.

(b) Define BCNF. How does it differ from 3NF ? Why is it considered as stronger than 3NF ?

(c) What is metadata and what is data dictionary ?

6+(1+2+2)+4

4. Consider the following relations :

HOTEL (hotelno, name, address)

ROOM (roomno, hotelno, type, price_pn)

BOOKING (hotelno, guestno, datefrom, dateto, roomno)

GUEST (guestno, name, address)

Where the underlined column names are primary keys.

Write down expressions in SQL/Relational algebra for the following queries :

(a) List all the hotels which are situated in Kolkata.

(b) List all single rooms with a charge below Rs. 1000 per night.

(c) List the names of all guests who stay at ITC Hotel from 25th December to 1st January. 3×5

5. (a) What is E–R diagram ? Briefly describe the different components of E–R diagram.

(b) Define the concept of specialization with a suitable example.

(c) What is different between JOIN and OUTJOIN operation ? (2+6)+4+3

6. (a) Discuss "Insertion anamalies" with an example. Suggest a method to overcome from it.

(b) Given a relational schema

Supply (Sno, City, Status, Pno. qty) with FD set
F = {Sno → City, City → status,
{Sno, Pno} → qty}

Find the key of the schema. Also reduce it into 3NF

(c) Define MVD with suitable example.

(3+3)+(2+3)+4

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

(a) Structured Query Languages ;

(b) Physical data model ;

(c) Data dictionary ;

(d) View and its uses ;

(e) DBA.

———