[This question paper contains 5 printed pages.]

5583   B

B.A. Prog. /II Sem.
(A)
Paper -B : COMPUTER APPLICATIONS
(Database Management System)
(Admissions of 2011 onwards)

Time : 3 Hours   *Maximum Marks* : 45

(Write your Roll No. on the top immediately on receipt
of this question paper.)

Q. 1 (Part-'A') is compulsory.
Attempt any three questions from Part-'B' (Q. 2 to Q. 6)

PART- A

1.   (a)   What is DBMS and what are its functions?   2

     (b)   Why is database design important?   2

     (c)   What are the components of database system
           environment?   2

     (d)   List the characteristics of a table in RDBMS.   2

     (e)   What is the main difference between data and
           information?   1

(f)   In a college, a student may enroll in many courses
       and a course may be taught by several teachers.
       Express this using an ER diagram.   2

(g)   In a market, there are many vendors who supply
       many products. However, one product is supplied
       by only one vendor.   4

       Write the SQL commands to create the following
       tables and establish the relation between them :

       *Product (product indentification number, product
       description, Quantity ordered, Vendor code)*

       Vendor (Vendor code, vendor name, vendor phone)

       The underlined key is primary key in the tables.
       Vendor code in product table is to be made foreign
       key to relate the tables.

PART- B

2. (a)   Describe the terms entity and attributes. How are
           entity and its attribute represented in ER model
           (Crow's foot notation)?   3

    (b)   A Luxury Hotel wants to update its database. The
           hotel has various room types on each of its floors.
           The rooms may be regular, deluxe, or a suite and
           each can be either a single, double, or triple. The
           price of each room differs by the size of the room,
           the view, and the room's location (first floor,

second floor, etc.) The customers are charged on a per-day basis. The number of days is computed based on the check-in time and the check-out time. The following details are stored for each customer; name, address, entry date, exit date, payment method, and final bill amount. In addition to the room charges, there may be extra fees for additional facilities.

Using this information, list the entities involved and their attributes.

Draw an E-R diagram (using Chen's Notation) for the hotel database and state any assumptions made.

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3. (a) What is the importance of entity integrity and referential integrity in a database?   4

(b) Illustrate the concept of cardinality with the help of a suitable example in the context of ER diagrams.   2

(c) Describe single-valued attribute with the help of an example.   2

(d) Describe composite key with the help of an example.   2

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4. (a) Consider the following relations R1 and R2 : 4

R1

Pno.	Pname
102	Gear
103	Chasis
105	Bolt

R2

Pno.	Pname
103	Chasis
104	Nut
107	Stearing

Show the result of the following operations :

(i) R1 UNION R2

(ii) R1 DIFFERENCE R2

(b) What is data normalization? 2

(c) What are various anomalies that may exist in an un-normalised database? 4

5. (a) What are two broad catagories of SQL functions? Name two SQL functions from each category. 4

(b) What do you mean by data independence? 3

(c) What are various types of databases? 3

6. (a) Consider the following relational schema. 10

The following relations keep track of airline flight information. Every pilot is certified for some aircraft.

Flight (flno, from, to, distance, departs, arrives, ticket price)

Aircraft (a_id,_aname, cruisingrange)

Certified (p_id,a_id)

Pilots (p_id,p_name, salary)

Write queries in SQL for the following:

(i) Print the details of flight that has the cheapest ticket price from Delhi to Chennai.

(ii) Find the names of pilots certified for flying aircraft "Boeing".

(iii) Find the ticket price of flight from Delhi to Mumbai.

(iv) Find the details of Pilot getting minimum salary.

(v) Count the number of flights that arrive at Delhi.