

V / BCA/502 (OC)

2015

(5th Semester)

BACHELOR OF COMPUTER APPLICATION

Paper No : BCA-502 (OC)

(Database Management System)

(Old Course)

Full Marks : 75

Time : 3 hours

(PART : B—DESCRIPTIVE)

(Marks : 50)

*The figures in the margin indicate full marks
for the questions*

- 1.** Name different types of DBMS and explain
any one of the types of DBMS with advantages.
2+6+2=10

Or

- (a)** Write a short note on functional
dependencies. **5**
- (b)** What are the features of external
database level? **5**

(2)

2. What are entity and relationship? Explain entity relationship modelling with the help of database for library management systems.

3+7=10

Or

- (a) What are the conventions for representing entities and attributes in the ER diagram? 5
- (b) What do you understand by generalization in enhanced entity relationship (EER) modelling? Explain with an example. 5
3. Elaborate normalization and its different forms. 10

Or

- (a) Explain domain and tuple relational calculus in detail. 6
- (b) Consider the following relations :
- Person (name, street, city)
- Owns (name, reg_no, model, year)
- Accident (date, reg_no)

Answer the following using tuple relational calculus : 4

- (i) Find the name of the persons who are not involved in any accident.
- (ii) Find the name and street of the persons who own a Maruti car.
- (iii) Find the registration number of the cars manufactured in the year 2014.

4. Enumerate the operators available in SQL. 10

Or

(a) What are aggregate functions used for? 3

(b) Consider the relations defined below :

PHYSICIAN (regno, name, telno, city)

PATIENT (pname, street, city)

VISIT (pname, regno, date_of_visit, fee)

where the regno and pname identify the physician and the patient uniquely respectively.

Express queries (i) to (iv) in SQL :

(i) Get the name and regno of the physicians who are in Delhi. 1

(ii) Find the name and city of the patient(s) who visited a physician on 31st August, 2015. 2

(iii) Get the name of the physician and the total number of patients who have visited her. 2

(iv) What does the following SQL query answer? 2

SELECT DISTINCT name FROM PHYSICIAN P
WHERE NOT EXISTS

(SELECT * FROM VISIT WHERE regno=p.regno)

(4)

5. (a) Discuss the shadow paging recovery schema. 6

(b) Who is database administrator (DBA)? What are the responsibilities of database administrator (DBA)? 4

Or

(a) Discuss different types of failure. 6

(b) What is the syntax of grant commit? Explain with some examples. 4

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(5th Semester)

BACHELOR OF COMPUTER APPLICATION

Paper No : BCA-502 (OC)

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(Old Course)

(PART : A—OBJECTIVE)

(Marks : 25)

The figures in the margin indicate full marks for the questions

SECTION—I

(Marks : 15)

1. Tick (✓) the correct answer in the brackets provided :

$1 \times 10 = 10$

(a) _____ is binary computer representation of stored logical entities.

(i) Information ()

(ii) Data ()

(iii) Document ()

(iv) Attribute ()

(2)

(b) Which of the following is a database object?

- (i) Table ()
- (ii) View ()
- (iii) Trigger ()
- (iv) All of the above ()

(c) The subclass is also connected to the circle by

- (i) single line ()
- (ii) double line ()
- (iii) dotted line ()
- (iv) All of the above ()

(d) _____ entities are referred to as parent, owner or dominant entities.

- (i) Strong ()
- (ii) Weak ()
- (iii) Composite ()
- (iv) Simple ()

(3)

(e) Whenever two independent one-to-many relationships are mixed in the same relation, a _____ rises.

- (i) functional dependency ()
- (ii) transitive dependency ()
- (iii) partial dependency ()
- (iv) multivalued dependency ()

(f) Which of the following is the symbol for universal quantifier?

- (i) \cup ()
- (ii) \cap ()
- (iii) \forall ()
- (iv) \exists ()

(g) _____ eliminates the duplicates from the result set.

- (i) DISTINCT ()
- (ii) SELECT ()
- (iii) DELETE ()
- (iv) None of the above ()

(4)

(h) Which of the following is not a set operator? (a)

(i) LIKE ()

(ii) INTERSECT ()

(iii) UNION ()

(iv) MINUS ()

(i) Which of the following is used to find and steal user names and password? (b)

(i) Password sniffer ()

(ii) Network sniffer ()

(iii) Packet sniffer ()

(iv) None of the above ()

(j) Which of the following is a recovery protocol used in the case of multidatabase transaction? (c)

(i) Deferred update ()

(ii) Immediate update ()

(iii) Emergency update ()

(iv) Two-phase commit ()

(5)

2. State whether the following statements are *True* (T) or *False* (F) :

$$1 \times 5 = 5$$

- (a) Database design model helps in improving the maintainability, scalability and reliability of the system.

()

- (b) A ternary relationship exists when there are three entities associated.

()

- (c) $A \cup B \neq B \cup A$.

()

- (d) '*' is used to get all the columns of a particular type of information.

()

- (e) A table can have any number of candidate keys.

()

(6)

SECTION—II

(Marks : 10)

3. Answer the following questions : $2 \times 5 = 10$

(a) What are the characteristics of database?

(a) Minus

(b) Which of the following is a recovery protocol used in distributed system?
a) Log sequence b) Log of transaction c) Log of update d) Log of commit

(i) Password entries

(ii) Network entries

(iii) Packet entries

(iv) None of the above

(b) Which of the following is a recovery protocol used in distributed system?
a) Log sequence b) Log of transaction c) Log of update d) Log of commit

(i) Deferred update

(ii) Immediate update

(7)

- (b) What is a RENAME operation? How is it represented?
- (c) What is the use of LIKE clause in a SELECT statement?

- (d) Differentiate between volatile storage and nonvolatile storage.

3. Answer the following questions:

- (a) What are the characteristics of database?

- (e) Give the relational terminology for the commonly used database terms.

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