Xavier Institute of Engineering
Department of Information Technology

Important Questions

Subject: DBMS

Academic year: 2018-2019

(Chapter 1) (CO1)

1. Define Data Independence and explain types of data Independence. (Dec-13, 5M)
2. Design and explain database system structure. (Dec-13, 10M) (Jun-15, 10M) (May-17, 10M)
3. Define the term Data Independence (Dec-14, 2M) (Jun-16, 2M) or Explain Data Independence (Dec-17, 5M)
4. Explain four significant differences between a file processing system and DBMS. (Jun-15, 5M)
5. Explain advantages of DBMS over File system. (Dec-14, 10M)
6. Define a database? Explain with examples. Also list the advantages of database system. (Dec-15, 5M)
7. Define a database and list all its applications.
8. List and explain all the characteristics of database system.
9. Define instance and schema.
10. Discuss different Users of Database System. (May-17, 5M) or Explain in detail different database users. (Dec-17, 10M)

(Chapter 2) (CO2)

1. Define following terms with suitable example
   a. Strong entity sets (Jun-14, 2M)
   b. Derived attribute (Dec-14, 2M)
   c. Foreign key (Dec-14, 2M)
   d. Primary key. (Jun-14, 2M) (Jun-16, 2M)
   e. Total participation (Jun-16, 2M)
   f. Weak entity sets
   g. Attributes
   h. Relationship sets
2. Explain different data models with its advantages and disadvantages. (Jun-14, 10M) (Jun-16, 10M)
3. What are different keys in ER diagram? (Dec-17, 5M)
4. List all benefits of data modelling.
5. Explain different types of attributes in ER Model. (May-17, 5M)
6. Explain the terms total participation and partial participation with example. (Jun-15, 5M)
7. Explain Generalization and Specialization. (Dec-13, 5M) (Dec-14, 5M) (Jun-16, 5M) (Dec-17, 5M)
8. Explain Generalization, Specialization and Aggregation with the help of an example. (Jun-14, 10M)

9. Construct an 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. (Jun-14, 10M) (Jun-15, 8M) (Jun-16, 10M)
10. Construct an ER diagram for university database consisting of 4 entities.
    Student, Department, Class, Faculty and convert it to tables.
    A student has a unique id, the student can enrol for multiple classes and has at most one major.
    Faculty must belong to department and faculty can take multiple classes.
    Every student will get a grade for the class he/she was enrolled. (Dec-13, 10M)
11. We can convert any entity set to a strong entity set by simply adding appropriates attributes. Why then, do we have weak entity sets? (Jun-15, 10M)
12. Draw EER diagram for Library Management System showing aggregation. (Dec-17, 10M)
13. Compare ER and EER models. (dec-15, 5M)
14. Construct an ER diagram for the education database that contains the information about an in-house company education training scheme. The relevant relations are:
    Course (course_no, title)
    Offering (course_no, off_no, off_date, location)
    Teacher (course_no, off_no, emp_no)
    Enrolment (course_no, off_no, stud_no, grade)
    Employee (emp_no, emp_name, job)
    Student (stud_no, stud_name,ph_no) (dec-15,10M)

(chapter 3) (CO2)

1. Explain the steps of an algorithm for ER to relational mapping/model in detail. (Dec-13, 10M) (May-17, 10M)
2. Explain following relational algebra operations with proper examples.
   a. Project (Dec-13, 2M) (Dec-15, 2M)
   b. Left outer join (Dec-13, 2M)
   c. Division (Dec-13, 2M) (Jun-15, 2M)
   d. Rename (Dec-13, 2M) (Jun-14, 2M)
   e. Natural join (Dec-13, 2M) (Jun-14, 2M) (Jun-15, 2M) (Dec-15, 2M)
   f. Set-Intersection operation (Jun-14, 2M) (Jun-15, 2M) (Dec-15, 2M)
   g. Union (Jun-14, 2M)
   h. Assignment (Jun-14, 2M)
   i. Generalized Projection (Jun-15, 2M)
   j. Select (Dec-15, 2M)
3. Write a short note on: Relational calculus (Dec-15, 10M)
4. Explain different types of operators in relational algebra. (Dec-17, 10M)
5. Define a JOIN? Explain different types of JOIN along with example. (Jun-16, 10M) Or Explain Join operations in relational algebra. (Dec-17, 5M)
6. Explain any four relational algebra operations with proper example. (Dec-14, 10M)
7. Given the following relations:

Vehicle (reg_no, make, colour)
Person (eno, name, address)
Owner (eno, reg_no)
Write expressions in the relational algebra to answer the following queries:

i. List the reg_no of vehicles owned by John.
ii. List the names of persons who own maruti car.
iii. List all the red coloured vehicles.