

QUESTION BANK

- 8.1 What is an entity? Give examples of entities.
- 8.2 What is a relationship? In what way is it different from an entity?
- 8.3 In what way is an attribute different from an entity?
- 8.4 What do you understand by a 1 to 1, 1 to many, many to many relationships?
Give one example for each.
- 8.5 What is the difference between a relation and a relationship?
- 8.6 What is normalization of a relation?
- 8.7 Why should relations be normalized?
- 8.8 What is a functional dependency?
- 8.9 What is a key attribute in a relation?
- 8.10 What is the difference between a 2NF and a 3NF relation?
- 8.11 When is BCNF required?
- 8.12 When are 4NF and 5NF required?
- 8.13 What is the difference between 4NF and 5NF?
- 8.14 Develop E-R diagram for the following:
Customer withdraws money from his account
Students write examinations.
Students attend classes
Professors write books
Driver drives a car
- 8.15 Draw an E-R diagram showing the cardinality for the following:
(i) A bill is sent to a customer. A customer can receive many bills.

- (ii) A clerk works in a bank. The bank has many clerks
 - (iii) A part is used in many products and a product uses many parts.
 - (iv) Students apply for seats in colleges. Each student can atmost get one seat.
A college has many seats. A student can send many applications.
 - (v) A car is owned by a person. The person can own many cars.
- 8.16 For Exercise 8.14, obtain relations for each entity. Normalize the relations.
- 8.17 For the following word statement, obtain E-R diagram and relations. Use any reasonable assumptions. "A machine shop produces many parts which it takes on contract. It employs many machinists who operate any of the machines. A part needs working on only one machine. A record is kept on the quantity of material needed for producing each part. The production of each part is tracked by giving a job number, start time and end time and machinist identifications".
- 8.18 For the problem on library, periodical management stated in Exercise 4.23 (Module 4), obtain E-R diagrams and relations. Make any reasonable assumptions and state the assumptions.
- 8.19 For the problem statement of Exercise 5.15 (Module 5) obtain the E-R diagram and relations for the problem.
- 8.20 For the problem statement of Exercise 5.16 (Module 5), obtain the E-R diagram and a set of relations by using the diagram
- 8.21 For the problem statement of Exercise 5.18(Module 5), obtain the E-R diagrams and relations .
- 8.22 What are the advantages and disadvantages of systems using separate data files?
- 8.23 What do you understand by the term *data integrity*?

- 8.24 If redundant data is stored can it lead to data integrity problem?
- 8.25 Student's records in a University are kept by various sections: Hostel, Health Centre, Academic Office, major departments, Accounts Section and Library. If each of these sections maintains its own file-based system for processing, what problems do you foresee? Give examples.
- 8.26 Define a database of an organization.
- 8.27 What is the difference between a database and a Database Management System (DBMS)?
- 8.28 What are the basic objectives in evolving a database for an organization?
- 8.29 What do you understand by the term *data independence*?
- 8.30 What advantages are available to a programmer from data independence?
- 8.31 Draw an analogue between the advantages of high level language programming and data independence of application programs.
- 8.32 How can data integrity be maintained in a database?
- 8.33 Distinguish between issues of privacy and security in a database.
- 8.34 What is the role of E-R diagrams in database design?
- 8.35 What is the difference between a conceptual model and a logical model of a database?
- 8.36 What is an internal model of a DBMS?
- 8.37 What data models are used by application programs in a database oriented system?
- 8.38 Why is a DBMS divided into three layers, namely, conceptual model, logical model, and internal model?

- 8.39 How is data independence of application programs ensured in a DBMS?
- 8.40 What is RDBMS?
- 8.41 What are the responsibilities of a Database Administrator (DBA) in an organization?
- 8.42 What are the ideal features of a database system?
- 8.43 Are DBMS relevant to Personal Computers (PCs)?