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)?