'I' Scheme

Sample Question Paper

Program Name : Diploma in Information Technology
Program Code : IF
Semester : Third
Course Title : Principles of Database

22321

Max. Marks : 70 **Time: 3 Hrs.**

Instructions:
(1) All questions are compulsory.
(2) Illustrate your answers with sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Assume suitable data if necessary.
(5) Preferably, write the answers in sequential order.

Q.1) A) Attempt any FIVE of the following. **10 Marks**

a) State any four characteristics of Database.

b) Define the term Data Model.

c) Define the term Generalization with its symbol.

d) Define constraints.

e) Define Data and Information.

f) Write any two examples for schema.

g) Define Normalization.

Q.2) Attempt any THREE of the following. **12 Marks**

a) Explain different operations performed with Data Definition Language.

b) Describe Centralized Database System with example.

c) Explain different types of attributes.

d) Explain Data Integrity concept with example.

Q.3) Attempt any THREE of the following. **12 Marks**

a) Explain Integrity Constraints rules.

b) Compare BCNF and 3NF with example.

c) Differentiate between Candidate Key and Super Key with example**.**

d) Explain the Network Database Model with diagram.

Q.4) Attempt any THREE of the following. 12 Marks

a) Describe the drawbacks of Denormalization.

b) Explain the Object Oriented Database Model with example.

c) Draw the different symbols used in Entity –Relationship diagram and write their meaning.

d) Explain any four Codd's rules.

e) Distinguish between the Distributed databases systems with Client/Server Database System.

Q.5) Attempt any TWO of the following. 12 Marks

a) Consider a relation R with 5 attributes A, B, C, D, E. You have given following dependencies, A ->B,BC->E,ED->A

   a. List all keys for R.

   b. In what Normalized form the R is? Justify your answer.

b) For each of the following relationships, indicate the type of relationship(1:1,1:m,m:m)

   a. Works in (a relationship between entities dept and staff)

   b. Manager ((a relationship between entities employee and dept)

c) A database is designed as a single table consisting following columns. Convert it into 2NF and then in 3NF.

   Table(Stud_no,S_Name,S_Addr,Cours_no,Cours_title,Teacher_name,Teacher_Room_no,Marks_obtd).

   Information is provided in last five fields for each course the student takes.

Q.5) Attempt any TWO of the following. 12 Marks

a) Consider the following Schemas

   i) Stud_Addr (R_No, Name, Address, Place, Pin)

   ii) Stud_Marks(R_No, Subject, Exam_date, Marks)

   Draw and explain parent child relationship for above schemas and Find out Foreign Key with justification.

b) Draw the Enhanced E-R diagram for employee relation whose attributes are emp_id, emp_name, emp_age, emp_salary, emp_address and show strong entity set, weak entity set, super class and sub class.

Consider 'Customer' database with appropriate details. Write procedure to manipulate given database by adding, modifying and deleting records.

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Sample Test Paper – I

(40% of 5-Unit curriculum and 50% of 6-Unit curriculum)

Program Name : **Diploma in Information Technology**
Program Code : **IF**
Semester : **Third**
Course Title : **Principles of Database**

22321

Max. Marks : **20** **Time: 1 Hour**

Instructions:
(1) All questions are compulsory.
(2) Illustrate your answers with sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Assume suitable data if necessary.
(5) Preferably, write the answers in sequential order.

Q.1 Attempt any FOUR. **08 Marks**

a) Define Data and Information.
b) Write any four applications of Database.
c) List different types of Database Languages.
d) Define the terms:
   i. Attributes
   ii. Relationship.
e) Write the application of Network model
f) Distinguish between the Distributed databases systems with Client / Server Database System.

Q.2 Attempt any THREE. **12 Marks**

a) Explain Logical and Physical Independence of data with example.
b) Draw the Network Model and Hierarchical Model for Library Management System whose entities are
   Book(book_id,name,author),Librarian(name,password),
   transaction (transaction_id,book_id,member_id).
c) Differentiate between File-based system and Database approach
d) Explain Data Integrity concept with example.

'I' Scheme

Sample Test Paper – II

(60% of 5-Unit curriculum and 50% of 6-Unit curriculum)

Program Name : Diploma in Information Technology
Program Code : IF
Semester : Third
Course Title : Principles of Database

22321

Max. Marks : 20 **Time: 1 Hour**

Instructions:

(1) All questions are compulsory.
(2) Illustrate your answers with sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Assume suitable data if necessary.
(5) Preferably, write the answers in sequential order.

Q.1 Attempt any FOUR. **08 Marks**

a) Enlist the different types of constraints.
b) Write down the meaning of entity and entity set.
c) Give the meaning of Normalization.
d) Write any 2 advantages of 3NF over 2NF.
e) Define Schema.
f) Draw the different symbols of ER model.

Q.2 Attempt any THREE. **12 Marks**

a) Draw E-R diagram which shows Unary, Binary and Ternary relationship(s).
b) Describe 'on Delete Cascade' clause with example.
c) Design Database Schema and sub schema for employee database with following attributes.
emp_id,, Emp_name, emp_age, emp_salary.
d) Describe the drawbacks of Denormalization.