

TRIBHUVAN UNIVERSITY
FACULTY OF MANAGEMENT
Office of the Dean
September 2018

Full Marks: 40
Pass Marks: 18
Time: 2 hrs.

BIM / Fourth Semester / IT 220 / ITC 218: Database Management System

Candidates are required to answer all the questions in their own words as far as practicable.

Group "A"

Brief Answer Questions:

[10 × 1 = 10]

1. What do you mean by relational model?
2. What is the use of a view?
3. Define generalization.
4. Where will you use CHECK clause?
5. List the use of ORDER BY and LIMIT clause.
6. What do you mean CASCADE ON DELETE?
7. Define partial functional dependency.
8. What do you mean by isolated transaction?
9. What is Serializable schedule?
10. What do you mean by normalization in database design?

Group "B"

Exercise Problems:

[5 × 4 = 20]

11. Define Data Abstraction. Explain logical and physical data independence.
12. Draw an ER diagram of the following problem. Mention any assumptions.
A dealer deals with multiple petroleum gas companies (Baba Gas, Shyam Gas, etc). A customer can take one or more gas cylinders. A customer number, full name, email address, phone, and address are attributes of customer. A customer can order multiple cylinders of one or more companies. Each order has a unique order id, delivery date, delivery address and delivery status. The payment for each order has to be made immediately after the delivery.
13. Define ACID properties of a transaction. Explain each states of a transaction in detail.
14. From the given relations, write SQL statements for given queries:
COMPANY (companyId, companyName, address, phone, estdYear)
JOBS (jobID, jobTitle, jobDescription, companyId, postedDate, lastDateOfApplication)
APPLICANT (applicantID, fullName, email, phone)
APPLICATION_SUBMISSION (jobID, applicantID, submittedDate)
 - a. Find the list of all the companies that were established in the Year 2018.
 - b. Find the name and phone number of all the applicants.
 - c. Delete all the companies which have never posted any job.
 - d. Find how many applicants were submitted on '2018-08-01'.
 - e. Find how many job were submitted by each company.

15. Normalize the following database table up to BCNF.

ProjNum	ProjName	EmpName	Job_Class	Charge_Hour	Hours_Worked	Total_Charge
15	Evergreen	Prithvi	Engineer	\$ 25	145	3625
15	Evergreen	Nishi	DBA	\$ 18	220	3960
15	Evergreen	Rizvi, Mokshada	DBA,DBA	\$ 18	110	1980
18	Kulekhani	Prithvi	Engineer	\$ 25	220	5500
18	Kulekhani	Akshat	DBA	\$ 18	150	2700

Group “ C”

Comprehensive Answer Questions:

[2 × 5 = 10]

16. Define Referential Integrity Constraint. What is reason for implementing referential integrity in database?
17. What is concurrent transaction? How consistency of database can be ensured when concurrent transactions (read and write both) access same data items?

