Reg.No.:								

VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 6010

B.E. / B.Tech. DEGREE SUPPLEMENTARY EXAMINATIONS – FEB. / MAR. 2020
Third Semester
Information Technology
U15IT301 - DATABASE MANAGEMENT SYSTEMS
(Regulation 2015)

Time : Three Hours | Maximum : 100 Marks

Answer ALL the questions

PART – A

(10 x 2 = 20 Marks)

1. Define attribute and tuple.
2. Use the importance about views of data in DBMS.
3. Contrast between candidate key and super key?
4. Compare composite and simple attributes.
5. Define Integrity.
6. Compare 1NF, 2NF and 3NF.
7. Write a note about Intent locking.
8. What do you mean by Two phase commit?
9. What do you understand the term RAID?
10. What is the use of Hashing?

PART – B

(5 x 13 = 65 Marks)

11. a) Design a system architecture of DBMS. Explain each component in detail.

(OR)

b) Sketch and explain the E-R model for Art galley management.

12. a) Conclude the distributed database and client/server database with neat sketch.

(OR)

b) Illustrate

i. Integrity (5)

ii. Triggers (4)

iii. Security (4)

13. a) Devise the normalization in detail.

(OR)

b) Explain the importance of multi-valued and join dependencies in detail.

14. a) Prioritize the ACID Properties in elaborate.

(OR)

b) Explain Recovery isolation levels in detail.

15. a) Compare Dynamic hashing and static hashing.

(OR)

b) Explain the procedure involved in Query processing.

PART – C

(1 x 15 = 15Marks)

16. a) Illustrate about organization of records in files.

(OR)

b) Explain the SQL facilities for recovery in detail.

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Question Paper Code: 5017

B.E. / B.Tech. DEGREE SUPPLEMENTARY EXAMINATIONS – FEB. / MAR. 2020
Third Semester
Computer Science and Engineering
U15CS306 – DATABASE MANAGEMENT SYSTEMS
(Regulation 2015)

Time : Three Hours Maximum : 100 Marks

Answer ALL the questions

PART – A

(10 x 2 = 20 Marks)

1. Differentiate between physical schema and logical schema.
2. What is an Entity set?
3. What is the use of Union and intersection operation?
4. List out the Aggregate Functions available in SQL.
5. How is 3NF different from BCNF.
6. What is a relational model?
7. Compare sequential access devices with random access devices.
8. What are the factors to be taken into account when choosing a RAID level?
9. What are ACID properties of a transaction?
10. What are the time stamps associated with each data item?

PART – B

(5 x 13 = 65 Marks)

11. a) Construct an E-R diagram for a hospital management system using specialization and generalization technique.

(OR)

b) Draw the architecture of the Database management system and list the responsibility and purpose of each component.

12. a) Consider the following Employee database
Employee(employee name,street,city)
Works(employee name,company name ,salary)
Company(company name,city)
Manages(employee name, manager name)
Write SQL queries for the following:
1.Find the names of all employees who work for first bank corporation
2.Find the company that has smallest payroll
3.Give all employees of First Bank Corporation a 10% raise
4.Give all Managers of First Bank Corporation a 10% raise
5.Delete all tuples in work relation for employees of small Bank Corporation.

(OR)

b) What is the difference among UNION, MINUS and INTERSECT? Explain with examples.

13. a) Compute the closure of the following set F of functional dependencies for relation schema R = (A, B, C, D, E).
$A \rightarrow BC$;
$CD \rightarrow E$;
$B \rightarrow D$;
$E \rightarrow A$;
List the candidate keys for R.

(OR)

b) An engineering consultancy firm supplies temporary specialized staff to bigger companies in the country to work on their project for certain amount of time. The table below lists the time spent by each of the company's employees at other companies to carry out projects. The National Insurance Number (NIN) is unique for every member of staff.

No	Contract No	Hours	Employee Name	Company ID	Company Location
616681B	SC1025	72	P. White	SC115	Belfast
674315A	SC1025	48	R. Press	SC115	Belfast
323113B	SC1026	24	P. Smith	SC23	Bangor
616681B	SC1026	24	P. White	SC23	Bangor

a) Explain to which normal form this table belongs to
b) Find the Primary Key for this relation and explain your choice.
c) Find the Fully Functional Dependencies on the PK and the Partial Dependencies on the PK.
d) Normalize the table to 2NF
e) Find the transitive dependencies on the 2NF tables

14. a) Construct a B+-tree for the following set of key values:
(2, 3, 5, 7, 11, 17, 19, 23, 29, 31)
Assume that the tree is initially empty and values are added in ascending order. Construct B+-trees for the cases where the number of pointers that will fit in one node is as follows:
a. Four
b. Six
c. Eight

(OR)

b) Explain in detail about the working of database storage system.

15. a) Explain the method for determining the serializability of transaction by selecting an order of transactions in advance.

(OR)

b) Illustrate about 2 phase locking and strict 2 phase locking with examples.

PART – C

(1 x 15 = 15Marks)

16. a) The following table form part of a database held in a relational DBMS:

Employee (empno, name, office, age)
Books (isbn, title, authors, publisher)
Loan (empno, isbn, date)

Write the following queries in SQL

(a) Find the name of all employees who have borrowed a book published by McGraw-Hill. (3)

(b) Find the name of all employees who have borrowed all book published by McGraw-Hill. (4)

(c) Find the names of employees who have borrowed more than five different books published by McGraw-Hill. (4)

(d) For each publisher, find the name of employees who have borrowed more than five books of that publisher (4)

(OR)

b) The lost update anomaly is said to occur if a transaction *Tj* reads a data item, then another transaction *Tk* writes the data item (possibly based on a previous read), after which *Tj* writes the data item. The update performed by *Tk* has been lost, since the update done by *Tj* ignored the value written by *Tk*.

a. Give an example of a schedule showing the lost update anomaly. (5)

b. Give an example schedule to show that the lost update anomaly is possible with the read committed isolation level. (5)

c. Explain why the lost update anomaly is not possible with the repeatable read isolation level. (5)