Total No. of Questions : 8] *[Total No. of Printed Pages : 4*

Roll No .....

CS-502 (CBGS)

B.Tech. V Semester

Examination, November 2019

Choice Based Grading System (CBGS)

Database Management System

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.
किन्हीं पाँच प्रश्नों को हल कीजिए।

ii) All questions carry equal marks.
सभी प्रश्नों के समान अंक हैं।

iii) In case of any doubt or dispute the English version question should be treated as final.
किसी भी प्रकार के संदेह अथवा विवाद की स्थिति में अंग्रेजी भाषा के प्रश्न को अंतिम माना जायेगा।

1. a) Differentiate between Database approach v/s Traditional file accessing approach. 7
डेटाबेस approach बनाम पारंपरिक फाइल एक्सेसिंग दृष्टिकोण के बीच अंतर समझाइए।

b) Explain the concepts of Generalization and Aggregation with appropriate examples. 7
उचित उदाहरणों के साथ सामान्यीकरण और एकत्रीकरण की अवधारणा को समझाइए।

2. a) What do you mean by data modeling? Compare different data models. 7
डेटा मॉडलिंग से आपका क्या अभिप्राय है? विभिन्न डेटा मॉडल की तुलना करें।

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b) Explain the concepts of Primary key, Foreign key and Integrity constraints. 7
प्राइमरी की, फॉरेन की और इंटीग्रिटी कंस्ट्रेंटस की अवधारणा को स्पष्ट करें।

3. a) Explain triggers and assertions and explain it with through appropriate query. 7
ट्रिगर्स और अस्सेरशंस समझाइये और इसे उचित क्वेरी के माध्यम से समझाइए।

b) Explain select, project and division operations with examples. 7
उदाहरणों के साथ चयन, परियोजना और विभाजन संचालन के बारे में बताइए।

4. a) Consider the following employee database
employee (empname, street, city) works (empname, companyname, salary) company (companyname, city) manages (empname, management)
Give an expression in the SQL for each request. 7

i) Find the names of all employees who work for first Bank corporation.

ii) Find the names, street addresses and cities of residence of all employees who work for First Bank corporation and earn more than 200000 per annum.

iii) Find the names of all employees in this database who live in the same city as the company for which they work.

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निम्नलिखित कर्मचारी डेटाबेस पर विचार करें :

employee (empname, street, city) works (empname, companyname, salary) company (companyname, city) manages (empname, management)

प्रत्येक अनुरोध के लिए SQL में एक अभिव्यक्ति दें।

i) उन सभी कर्मचारियों के नाम खोजें जो फर्स्ट बैंक कॉर्पोरेशन के लिए काम करते हैं।

ii) फर्स्ट बैंक कॉर्पोरेशन के लिए काम करनेवाले सभी कर्मचारियों के नाम, सडक के पते और शहरों का पता लगाएँ और प्रति वर्ष 200000 से अधिक कमाएँ।

iii) इस डेटाबेस के सभी कर्मचारियों के नाम खोजें, जो उसी शहर में रहते हैं जिसके लिए कंपनी काम करती है।

b) Diagrammatically illustrate and discuss the steps involved in processing a query. http://www.rgpvonline.com 7

आरेखीय रूप से एक क्वेरी को संसाधित करने में शामिल चरणों का वर्णन और चर्चा करें।

5. a) Explain Closure of set of functional dependency and closure of attribute sets. 7

क्लोसर ऑफ सेट ऑफ फंक्शनल डिपेंडेंसी और क्लोसर ऑफ ऐट्रिब्यूट्स सेट्स को समझाइए।

b) Explain canonical cover and extraneous attributes with examples. 7

उदाहरण के साथ कैनोनिकल कवर और एक्स्ट्रॉन्ज एट्रीब्यूट्स को समझाइए।

6. a) Explain the deferred and immediate modification versions of the log based recovery scheme. 7

लॉग आधारित पुनर्प्राप्ति योजना के अस्थगित और तत्काल संशोधन संस्करण की व्याख्या करें।

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b) How concurrency is performed? Explain the protocol that is used to maintain the concurrency concept. 7

सम्मिलन कैसे किया जाता है? उस प्रोटोकॉल को समझाइए, जिसका उपयोग सम्मिलन कंसेप्ट को बनाए रखने के लिए किया जाता है?

7. a) Discuss on strict two-phase locking protocol and time stamp-based protocol. 7

सख्त दो-चरण लॉकिंग प्रोटोकॉल और समय स्टैम्प-आधारित प्रोटोकॉल पर चर्चा करें।

b) Explain privilege and role management process. 7

विशेषाधिकार और भूमिका प्रबंधन प्रक्रिया की व्याख्या करें।

8. Write short note on following : 14

a) Distributed database

b) Nested and parameterized cursors

c) Branching and looping constructs in ANSI SQL.

निम्नलिखित पर संक्षिप्त नोट लिखें।

अ) वितरित डेटाबेस

ब) नेस्टेड और पैरामीटरयुक्त कर्सर

स) ANSI SQL में ब्रांचिंग और लूपिंग निर्माण

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Total No. of Questions : 8] *[Total No. of Printed Pages : 2*

Roll No .....

CS-5003 (CBGS)

B.E. V Semester

Examination, November 2018

Choice Based Grading System (CBGS)

Data Base Management System

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.
ii) All questions carry equal marks.

1. a) Define Database Management System (DBMS). What are the major component of this system? Explain each component.
   b) What are the different Modules present? Explain in detail.

2. a) Draw an E-R diagram of university by determining entities of interest and the relationships that exist between these entities.
   b) Briefly explain the following:
      i) Functions of DBA
      ii) Generalization, aggregation and specialization.

3. a) Discuss different types of keys. For each case, give a suitable example. What is Foreign key constraint? Why is such constraint important?
   b) Discuss the different relational algebra operations.

4. a) Consider the following relations (primary keys are underlined)
      i) account (acc - no, balance, branch - name)
      ii) depositor (acc-no, cust-no)
      iii) customer (cust-no, name, city)
      iv) loan (loan-no, amt, branch-name)
      v) borrower (cust-no. loan-no)

Solve the following queries using SQL.
   i) Find all customer-no and loan-no who have a loan at the 'Perryridge' branch.
   ii) Find all customer who have an account but no loan at the bank.
   iii) Find branch-name and average account balance where average account balance is greater than 1000.

   b) Discuss the correspondence between ER model constructs and relational model constructs. Show how each ER model construct can be mapped to relational model and also discuss alternative mappings.

5. a) Compute the closure of the following FD for the relation schema.
   $R = \{A, B, C, D, E\}$
   $A \rightarrow BC$
   $CD \rightarrow E$
   $B \rightarrow D$
   $E \rightarrow A$
   List the candidate key R, reduce it in 3NF also.
   b) What is meant by term heuristic optimization? Discuss the main heuristic that is applied during query optimization. What is cost based optimization?

6. a) Define BCNF. How does it differ from 3NF? Explain briefly.
   b) What is meant by concurrent execution of database transaction in a multiuser system? Discuss why concurrency control is needed and give example.

7. a) Explain how strict 2-phase locking is implemented. Show with the example.
   b) What is distributed Database system? How it is different from the centralized Database system? Give the uses of distributed system.

8. Write short notes on the following (any four):
   i) Serialisability
   ii) Triggers
   iii) Comparison between OODBMS and DBMS
   iv) Normalization
   v) Timestamp ordering protocol for concurrency control.

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Total No. of Questions : 8] *[Total No. of Printed Pages : 2*

Roll No .....

CS-5003 (CBGS)

B.E. V Semester

Examination, December 2017

Choice Based Grading System (CBGS)

Data Base Management System

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.
ii) All questions carry equal marks.

1. a) Briefly explain about Database system architecture. 7
   b) Explain E-R Model in detail with suitable example. 7

2. a) Consider the following tables: 7
   Employee (Emp_no, Name, Emp_city)
   Company (Emp_no, Company_name, Salary)
   i) Write a SQL query to display Employee name and company name.
   ii) Write a SQL query to display employee name, employee city, company name and salary of all the employees whose salary > 10000.
   iii) Write a query to display all the employees working in "XYZ" company.
   b) Consider the following relational schema 7
   Employee (empno, name, office, age)
   Books (isbn, title, authors, publisher)
   Loan (empno, isbn, date)
   Write the following queries in relational algebra.
   i) Find the names of employees who have borrowed a book published by McGraw-Hill.
   ii) Find the names of employees who have borrowed all books published by McGraw-Hill.

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

3. a) What is 1NF, 2NF, 3NF and BCNF (Boyce-Codd Normal Form)? 7
   b) Explain functional dependency and Trivial functional dependency with examples. 7

4. a) What is two-phase locking and how does it guarantee serializability? 7
   b) Discuss the concurrency control mechanism in detail using suitable example. 7

5. a) Explain Triggers and its types with examples. 7
   b) Discuss the various type of join operations? Why are these join required. 7

6. a) Explain the purpose of checkpoint mechanism. How often should checkpoints be performed. 7
   b) What do you understand by distributed databases? Give the various advantages and disadvantages of distributed database management system. 7

7. a) What is structured query language? How the DDL and DML are different? Explain. 7
   b) Describe the three-level architecture of DBMS? Also explain its importance in a database environment. 7

8. a) What do you mean by mapping cardinalities? Explain various type of cardinalities. 7
   b) Define the following in context of SQL. 7
   i) Distinct clause
   ii) Group by Clause
   iii) Union
   iv) Natural Join
   v) Order by clause

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Total No. of Questions : 8] *[Total No. of Printed Pages : 2*

Roll No .....

CS-5003 (CBGS)

B.E. V Semester

Examination, December 2017

Choice Based Grading System (CBGS)

Data Base Management System

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.
ii) All questions carry equal marks.

1. a) Briefly explain about Database system architecture. 7
   b) Explain E-R Model in detail with suitable example. 7

2. a) Consider the following tables: 7
   Employee (Emp_no, Name, Emp_city)
   Company (Emp_no, Company_name, Salary)
   i) Write a SQL query to display Employee name and company name.
   ii) Write a SQL query to display employee name, employee city, company name and salary of all the employees whose salary > 10000.
   iii) Write a query to display all the employees working in "XYZ" company.
   b) Consider the following relational schema 7
   Employee (empno, name, office, age)
   Books (isbn, title, authors, publisher)
   Loan (empno, isbn, date)
   Write the following queries in relational algebra.
   i) Find the names of employees who have borrowed a book published by McGraw-Hill.
   ii) Find the names of employees who have borrowed all books published by McGraw-Hill.

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

3. a) What is 1NF, 2NF, 3NF and BCNF (Boyce-Codd Normal Form)? 7
   b) Explain functional dependency and Trivial functional dependency with examples. 7

4. a) What is two-phase locking and how does it guarantee serializability? 7
   b) Discuss the concurrency control mechanism in detail using suitable example. 7

5. a) Explain Triggers and its types with examples. 7
   b) Discuss the various type of join operations? Why are these join required. 7

6. a) Explain the purpose of checkpoint mechanism. How often should checkpoints be performed. 7
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   b) Describe the three-level architecture of DBMS? Also explain its importance in a database environment. 7

8. a) What do you mean by mapping cardinalities? Explain various type of cardinalities. 7
   b) Define the following in context of SQL. 7
   i) Distinct clause
   ii) Group by Clause
   iii) Union
   iv) Natural Join
   v) Order by clause

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Code No: RT31054 **R13** SET - 1

III B. Tech I Semester Regular/Supplementary Examinations, October/November - 2017

DATABASE MANAGEMENT SYSTEMS

(Common to Computer Science Engineering and Information Technology)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1	a)	Define Database Management Systems.	[4M]
	b)	Why we need integrity constraints?	[3M]
	c)	What are the major components used in E-R diagram design ?	[4M]
	d)	Why do we need normalization?	[3M]
	e)	Illustrate transaction properties.	[4M]
	f)	Differentiate volatile and non volatile storage.	[4M]

PART -B

2	a)	What is Data Base Administrator? Discuss the functions of DBA.	[8M]
	b)	Explain DBMS applications.	[8M]
3	a)	How do we represent null values? Discuss the importance of handling null values.	[8M]
	b)	Discuss in detail the operators SELECT, PROJECT and UNION with suitable examples.	[8M]
4	a)	Explain about the following clauses with example queries. (i) Group by (ii) Order by (iii) Aggregation functions.	[8M]
	b)	How to maintain class hierarchies in ER-Diagrams? Explain with employee database.	[8M]
5	a)	Explain the advantages of decomposition? Discuss the problems faced in decomposition.	[8M]
	b)	Explain the functional dependency with multi-valued dependencies with example.	[8M]
6	a)	Discuss about conflict Serializability with an example.	[8M]
	b)	What is 2-phase locking protocol? Compare 2PL with Strict 2PL protocol.	[8M]
7	a)	Write short notes on the following topics. (i) Optical disk. (ii) Magnetic tapes.	[8M]
	b)	Write about indexed sequential files with advantages and disadvantages.	[8M]

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Code No: RT31054 **R13** SET - 2

III B. Tech I Semester Regular/Supplementary Examinations, October/November - 2017

DATABASE MANAGEMENT SYSTEMS

(Common to Computer Science Engineering and Information Technology)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1	a)	What are the disadvantages in file system?	[4M]
	b)	Give syntaxes to Create and Alter a table.	[4M]
	c)	List aggregate functions supported by SQL.	[3M]
	d)	What is surrogate key?	[3M]
	e)	What is Deadlock? Write its conditions.	[4M]
	f)	Define single level and multilevel indexing.	[4M]

PART -B

2	a)	What is data independence? Discuss three tire schema architecture of data independence.	[8M]
	b)	Explain storage manager component.	[8M]
3	a)	Explain the role of views. Why role got importance? What are the problems in view updating?	[8M]
	b)	Give syntax for DML commands? Show their operations with an example?	[8M]
4	a)	Explain the following terms: (i) Entity and entity set. (ii) Attribute and attribute sets. (iii) Relationship and relationship sets.	[8M]
	b)	Define generalization and aggregation. Demonstrate generalization and aggregation using E-R diagram.	[8M]
5	a)	Explain 3NF with example and Compare BCNF and 3NF.	[8M]
	b)	Explain t 4NFs. How it is different from other normal forms?	[8M]
6	a)	Discuss write-ahead log protocol and check pointing.	[8M]
	b)	Explain Two Phase- Locking protocol .What benefit does strict two-phase locking protocol provides? Discuss its disadvantages.	[8M]
7	a)	Explain how B+ tree eliminate the redundant storage of search key values.	[8M]
	b)	Explain Dense and Sparse indices.	[8M]

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Code No: RT31054 **R13** SET - 3

III B. Tech I Semester Regular/Supplementary Examinations, October/November - 2017

DATABASE MANAGEMENT SYSTEMS

(Common to Computer Science Engineering and Information Technology)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1	a)	Explain object-oriented data model.	[4M]
	b)	Differentiate between primary key and a candidate key.	[4M]
	c)	List and Explain SET operations of SQL.	[3M]
	d)	What is 3NF?	[3M]
	e)	Why do we need locks? Explain.	[4M]
	f)	What are the disadvantages of static hashing?	[4M]

PART -B

2	a)	Explain briefly the languages supported by database systems.	[8M]
	b)	What is Data modeling? Explain relational model.	[8M]
3	a)	Why foreign key constraints are important? Explain with employee database.	[8M]
	b)	What is meant by referential integrity? Explain.	[8M]
4	a)	Where do we need nesting of queries? Give an example.	[8M]
	b)	Differentiate between updatable views and non updatable views?	[8M]
5	a)	Is the decomposition in 4NF always dependency preserving and lossless? Explain with an example,	[8M]
	b)	Consider the following relation R(A,B,C,D,E)and FD's A→BC, C→A,D→E, F→A, E→D is the decomposition of R into R1(A, C, D), R2(B, C, D) AND R3(E,F,D) lossless?	[8M]
6	a)	What is time stamp ordering? Explain how it is used for concurrency control?	[8M]
	b)	Explain view Serializability with an example? How it is different from conflict Serializability?	[8M]
7	a)	Explain Open hashing? Discuss their advantages and disadvantages.	[8M]
	b)	Compare dynamic hashing with static hashing.	[8M]

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Code No: RT31054 **R13** SET - 4

III B. Tech I Semester Regular/Supplementary Examinations, October/November - 2017

DATABASE MANAGEMENT SYSTEMS

(Common to Computer Science Engineering and Information Technology)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1	a)	List various types of database users. Explain.	[4M]
	b)	What is the instance of a relation?	[3M]
	c)	Write string operations supported by SQL.	[4M]
	d)	What is functional dependency?	[3M]
	e)	Explain the advantages of check pointing.	[4M]
	f)	Explain primary and secondary indexes.	[4M]

PART -B

2	a)	Discuss abstract view of data with diagram.	[8M]
	b)	Explain about Entity-Relationship model with an example.	[8M]
3	a)	Consider the following relation schema: Sailors(sid: integer, sname: string, rating: integer, age: real) Boat(bid: integer, bname: string, color: string) Reserves(sid: integer, bid: integer, day: date) Write the following queries in SQL. (i) Find the average age of the sailor who are eligible for voting for each rating level that has at least two sailors. (ii) Find the name of sailors who have reserved both red and a green boat. (iii) Find the sailor_id of sailors who have reserved a red boat	[8M]
	b)	Explain about domain constraints and key constraints.	[8M]
4	a)	Discuss the following clauses with examples (i) HAVING (ii) GROUP BY iii) Relational set operations.	[8M]
	b)	What is a join? Discuss different types of joins.	[8M]
5	a)	Explain the purpose of normalization and schema refinement.	[8M]
	b)	Explain the role of minimal cover for set of FDs in 3rd normal form.	[8M]
6	a)	How to perform rollback, commit, check pointing operations on transactions? Explain.	[8M]
	b)	Discuss Various anomalies caused due to interleaved execution with examples.	[8M]
7	a)	Explain about hash based indexing with an example.	[8M]
	b)	What is dynamic hashing? Give the implementation details of it.	[8M]

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