

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY {D}
07 THRISSUR CLUSTER

FIRST SEMESTER M.TECH DEGREE EXAMINATION DECEMBER 2017

Computer Science and Engineering

(Common to M.Tech CSE and Cyber Security)

07CS6105- TOPICS IN DATABASE SYSTEM AND DESIGN

Max. Marks: 60

Duration: 3 Hours

Q no.	Module 1	Marks
1a.	Differentiate relational model constraints and relational database schema	4
Answer b or c		
b.	Briefly explain the unary relational operations with example	5
c.	Consider the following database with primary keys underlined	5

EMPLOYEE (employee-name, Ssn, Address, salary, super-ssn, Dno)

DEPARTMENT (Dname, Dnumber, Mgr-ssn, Mgr-start-date)

WORKS- ON (Essn, Pno, hours)

PROJECT (Pname, Pnumber, Plocation, Dnum)

DEPT-LOCATIONS (Dnumber, Dlocation)

DEPENDENT (Essn, Dependent-name, sex, Relationship)

Write the relational algebra for the following:

- i. Retrieve the name and address of all employees who work for the 'Research' department.
- ii. Find the names of employees who work on all the projects controlled by department Number 5
- iii. List the names of all employees with two or more dependents
- iv. Retrieve the names of employees who have no dependents
- v. List the names of managers who have at least one dependent

Q no.	Module 2	Marks
2a.	Explain the rules for generating closure of functional dependencies.	4
Answer b or c		
b.	Discuss about the multivalued dependency and fifth normal.	5
c.	Discuss BCNF with example.	5

Q no.	Module 3	Marks
3a.	Explain INSERT, DELETE AND UPDATE statements in SQL	4

Answer b or c

- b. Consider the data base with following tables** **5**

STUDENT (name, student-number, class, major)

Course (course-name, course-number, credit, hours, department)

Section (Section-identifier, course-number, semester, year, instructor)

Grade report (student-number, section identifier, grade)

Write the SQL for the following

- a) Retrieve the names of all students majoring in 'CS'.
- b) Retrieve the names of all courses taught by professor King in 2007 & 2008
- c) For each section taught by professor King retrieve the course number, semester, year, and number section who took the section
- d) Change the class of student 'smith' to 2
- e) Delete the record for the student whose name is 'smith' and whose student number is 17

- c. Define Triggers. Explain the types & benefits of Triggers** **5**

Q no.	Module 4	Marks
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- 4a.** Discuss about the object oriented relational features. **4**

Answer b or c

- b. Illustrate factory objects and data base objects using interfaces** **5**

- c. Generate ODL schema for university data base** **5**

Q no.	Module 5	Marks
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- 5a** Explain the association rule with example **5**

Answer b or c

- b. Define clustering. Explain the K-means clustering algorithm.** **7**

- c. Discuss about the data models for data warehouse** **7**

Q no.	Module 6	Marks
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- 6a.** What is PL/SQL? Explain the program units of PL/SQL **5**

Answer b or c

- b. Discuss the features & advantages of PL/SQL** **7**

- c. Develop a PL/SQL program to display the six highest paid employees from the EMPLOYEE table. The EMPLOYEE table has the attributes Ename, EmpNo and Salary** **7**