

**INSTITUTE OF AERONAUTICAL ENGINEERING****(Autonomous)****Dundigal, Hyderabad - 500 043****MODEL QUESTION PAPER-II**

B.Tech V Semester End Examinations, November - 2019

Regulations: R16**ADVANCED DATABASES**

(Information Technology)

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

Answer ONE Question from each Unit

All Questions Carry Equal Marks

All parts of the question must be answered in one place only

UNIT – I

1. a) Give the syntax for following statements and discuss briefly on: [7M]
i) Starburst ii) Oracle iii) DB2
- b) State the syntax for satisfying the following statement “The location of a project must be one of the locations of its department.” [7M]

Project Table:

P Name	Number	PLocation	Dnumber
Product X	1	Bellaire	5
Product Y	2	Sugarland	5
Product Z	3	Houston	5
Computer	10	Stafford	4
Reo	20	Houston	1
New	30	Stafford	4

Dept Locations Table:

Dnumber	Dlocation
1	Houston
5	Bellaire
4	Stafford
5	Sugarland
5	Houston

2. a) Write the syntax for finding supervisor “The supervisor of an employee must be older than the employee” Using a trigger. [7M]

Fname	Lname	Bdate	Sex	Salary	HireDate
John	Smith	09-05-1955	M	30000	01-01-1985
Franklin	Wong	08-12-1945	M	40000	01-01-1982
Alicia	Zelaya	19-07-1958	F	25000	01-01-1985
Jennifer	Wallace	20-06-1931	F	43000	01-01-1982
Ramesh	Narayan	15-09-1952	M	38000	01-01-1985
Joyce	English	31-07-1962	F	25000	01-01-1985
Ahmad	Jabbar	29-03-1959	M	25000	01-01-1985
James	Borg	10-11-1927	M	55000	01-01-1980

- b) List and explain the Applications of Active Database with suitable examples. [7M]

UNIT – II

3. a) Summarize the phrase ‘The complexities of time in Temporal databases’, with suitable examples. [7M]
b) Create a table using the attributes (name, address, city, and region) of employees living in INDIA. Write a query to find the list of persons living in INDIA. [7M]
4. a) Discuss various types of commands which can be used for manipulating text in the T-SQL code. (i.e. for example, Replace a text string, Obtain a portion of the text etc.) [7M]
b) Write the syntax for “Who has been on a drug for more than a total of six months”? [7M]
Using following Scenario:
I. Patient records include information on the drugs prescribed to each patient.
II. The valid time specifies the period(s) during which the drug was prescribed.

UNIT – III

5. a) State the Syntax and Semantics of Datalog Languages and discuss in detail about the Syntax of First-Order Logic and Datalog. [7M]
b) Write a Datalog program to compute how many courses are required for a CS degree where an each CS senior student is missing. [7M]
6. a) Give the meaning of Rule-Rewriting Method. Illustrate the Left-Linear and Right-Linear Recursion with suitable examples. [7M]
b) Consider the following database. PART_COST (BASIC PART, SUPPLIER, COST) ASSEMBLY (PART, SUBPART) and Write a program to find the basic part contain top tube (on Right Linear Recursion). [7M]

UNIT – IV

7. a) Write short notes on Traditional Indexing Methods. Give the meaning for Secondary keys and Spatial access methods with suitable examples. [7M]
b) Compare and Contrast the difference between a Text retrieval system Vs Database Management System? [7M]
8. a) Write short notes on Multimedia indexing? Lists the applications of Multimedia indexing with an example. [7M]
b) What do you mean by indexing? Discuss in detail about the Generic Multimedia Indexing with different types of similarity? [7M]

UNIT – V

9. a) Explain about the Uncertainty in image and temporal databases? State the example for both Uncertainty in image and temporal databases. [7M]
b) State and prove the following Models of uncertainty with suitable examples: [7M]
i. Fuzzy Sets
ii. Lattice-Based Approaches.

10. a) Discuss the Tuple-Level Approach and Attribute-Level Approach to Uncertainty? State and prove the best level of approach used in Relationship to Fuzzy Logic. [7M]
- b) Discuss in detail about the Lattice based Relations and give the Notation and Selection relation with examples? [7M]



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COURSE OBJECTIVES:

The course should enable the students to:

I	Define entity relationship model and transaction processing system.
II	Understand various storage structures for database
III	Describe the distributed and parallel database processing
IV	Describe object oriented database concepts and models.
V	Understand various advancements in database technology

COURSE OUTCOMES (COs):

CO 1	Understand the concept of Active Databases in Starburst, Oracle, and DB2.
CO 2	Analyze the concepts of Temporal and Object Databases-SQL.
CO 3	Understand the Concepts of Relational calculi, relational algebra and recursion.
CO 4	Explore the concept of Spatial, Text and Multimedia Databases.
CO 5	Understand the concept of Uncertainty in Databases.

COURSE LEARNING OUTCOMES (CLOs):

AIT505.01	Understand and explain the key ideas underlying database systems and the database approach to information storage and manipulation.
AIT505.02	Design and implement database applications.
AIT505.03	Understand the types of tasks involved in database administration and the facilities provided in a typical database system to support these tasks
AIT505.04	Be able to design adequate backup, recovery and security measures for a database installation, and understand the facilities provided by typical database systems to support these tasks.
AIT505.05	Define and use important temporal concepts, such as time point, time interval, and time-interval operators such as before, after and overlaps.
AIT505.06	Understand the temporal data model at the conceptual level.
AIT505.07	Describe some of the extensions to conventional query languages that have been proposed to support temporal query processing.
AIT505.08	Critically assess the strengths and weaknesses of Object databases with respect to Relational systems.
AIT505.09	Describe why Object databases appear to be such a good fit for a number of major growth areas in computing, such as Web-based and multimedia information systems.
AIT505.10	Describe the strategy being adopted by major database supplier Oracle to address the apparent threat of Object database systems, and critically compare this approach with a pure Object technology approach
AIT505.11	Formulate, using relational calculus solutions to a broad range of query problems

AIT505.12	To identify a range of concepts, techniques and tools for creating and editing the interactive multimedia database
AIT505.13	To identify the current and future issues related to multimedia technology to store information
AIT505.14	To impart an overview of emerging data models like temporal, mobile and spatial databases
AIT505.15	Be familiar with a commercial relational database system (Oracle) by writing SQL using the system.

MAPPING OF SEMESTER END EXAMINATION - COURSE OUTCOMES

SEE Question No		Course Learning Outcomes	Course Outcomes	Bloom's Taxonomy Level	
1	a	AIT505.01	Understand and explain the key ideas underlying database systems and the database approach to information storage and manipulation.	CO 1	Understand
	b	AIT505.02	Design and implement database applications.	CO 1	Remember
2	a	AIT505.02	Understand the types of tasks involved in database administration and the facilities provided in a typical database system to support these tasks	CO 1	Understand
	b	AIT505.04	Design and implement database applications	CO 1	Remember
3	a	AIT505.05	Be able to design adequate backup, recovery and security measures for a database installation, and understand the facilities provided by typical database systems to support these tasks.	CO 2	Remember
	b	AIT505.06	Define and use important temporal concepts, such as time point, time interval, and time-interval operators such as before, after and overlaps.	CO 2	Understand
4	a	AIT505.05	Understand the temporal data model at the conceptual level.	CO 2	Understand
	b	AIT505.06	Define and use important temporal concepts, such as time point, time interval, and time-interval operators such as before, after and overlaps	CO 2	Understand
5	a	AIT505.07	Describe some of the extensions to conventional query languages that have been proposed to support temporal query processing.	CO 3	Remember
	b	AIT505.09	Describe some of the extensions to conventional query languages that have been proposed to support temporal query processing.	CO 3	Understand
6	a	AIT505.07	Critically assess the strengths and weaknesses of Object databases with respect to Relational systems.	CO 3	Remember
	b	AIT505.09	Critically assess the strengths and weaknesses of Object databases with respect to Relational systems.	CO 3	Understand
7	a	AIT505.15	Formulate, using relational calculus solutions to a broad range of query problems	CO 4	Remember
	b	AIT505.13	To identify a range of concepts, techniques and tools for creating and editing the interactive multimedia database	CO 4	Understand
8	a	AIT505.12	To identify the current and future issues related to multimedia technology to store information	CO 4	Remember
	b	AIT505.13	To identify a range of concepts, techniques and tools for creating and editing the interactive multimedia database	CO 4	Understand
9	a	AIT505.16	To impart an overview of emerging data models like temporal, mobile and spatial databases	CO 5	Remember
	b	AIT505.17	Be familiar with a commercial relational database system (Oracle) by writing SQL using the system.	CO 5	Remember

10	a	AIT505.16	Critically assess the strengths and weaknesses of Object databases with respect to Relational systems.	CO 5	Remember
	b	AIT505.17	Critically assess the strengths and weaknesses of Object databases with respect to Relational systems.	CO 5	Remember

Signature of Course Coordinator

HOD, IT