

## UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, December 2017

**Program: M.Tech CSE**  
**Subject (Course): Advance Database Management Systems**  
**Course Code : CSEG 7002**  
**No. of page/s: 02**

**Semester – I**  
**Max. Marks : 100**  
**Duration : 3 Hrs**

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**Section – A**  
**(Attempt all Questions each carrying 4 marks)**

**20 Marks**

- Q1. Explain DBMS architecture with diagram.
- Q2. What is two-phase locking protocol?
- Q3. Explain Write-Ahead Logging (WAL) protocol for a recovery algorithm that requires both Undo and Redo.
- Q4. Write the differences between OLAP and OLTP.
- Q5. Explain Fragment and Location transparency in detail.

**Section – B**  
**(Attempt all Questions each carrying 10 marks)**

**40 Marks**

- Q6. What do you mean by Normalization? Explain Functional, Multivalued and join dependency with example.
- Q7. Explain the terms transactions and Schedules. Stating an example explain Time Stamp based concurrency control.

Or

What do you mean by DTD in XML? Explain different types of DTD.

- Q8. What are the roles of the Analysis, Redo and Undo phases in ARIES? Explain with suitable example.

Q9. State the differences between i) Specialization and Generalization ii) Aggregation and Association.

**Section – C**

**40 Marks**

**(Attempt all Questions each carrying 20 marks)**

Q10. Explain Linear and Extendible hashing methods with example.

Or

What do you mean by Deadlock? Explain different techniques of handling deadlocks.

Q11. Consider the market basket transactions in the following table. Let  $\text{min\_sup}=40\%$  and  $\text{min\_conf}=40\%$ .

Transaction ID	Items
T1	A, B, C
T2	A, B, C, D, E
T3	A, C, D
T4	A, C, D, E
T5	A, B, C, D

A) Find all the frequent itemset using apriori algorithm.



Roll No: -----



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**Section –A**  
(Attempt all Questions each carrying 4 marks)

**20 Marks**

- Q1. What do you mean by referential Integrity Constraint? Explain
- Q2. What are ACID properties of a Transaction?
- Q3. What are the roles of the Analysis, Redo and Undo phases in ARIES? Explain with suitable example.
- Q4. What is data preprocessing? Explain the methods for data cleaning.
- Q5. Explain the architecture of Object Oriented Databases.

**Section – B**  
(Attempt all Questions each carrying 10 marks)

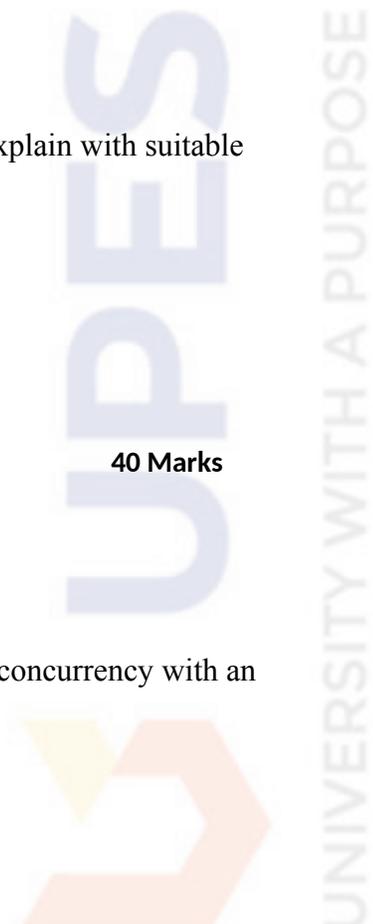
**40 Marks**

- Q6. Explain how data insertion is done using B-Tree.
- Q7. What is concurrency in database? Explain the problems associated with concurrency with an example of each.

Or

Explain different architectures for parallel database.

- Q8. Explain Transaction Processing Monitor architectures.
- Q9. Why do we need data warehouse? Explain the characteristics of Data warehouse.



Section – C

40 Marks

(Attempt all Questions each carrying 20 marks)

Q10. Discuss the steps to convert a basic EER model to Relational database schema.

Or

Explain the procedure of Knowledge Discovery in databases, explaining each stage in detail.

Q11. Consider the market basket transactions in the following table. Let  $\text{min\_sup}=40\%$  and  $\text{min\_conf}=40\%$ .

Transaction ID	Items
T1	M, O, N, K, E, Y
T2	D, O, N, K, E, Y
T3	M, A, K, E
T4	M, U, C, K, Y
T5	C, O, O, K, I, E

A) Find all the frequent itemset using apriori algorithm.

