



CUMMINS COLLEGE OF ENGINEERING FOR WOMEN

**(An Autonomous Institute affiliated to Savitribai Phule Pune
University)**

Third Year Electronics & Telecommunication DATABASE MANAGEMENT SYSTEMS (SWAYAM ONLINE) (PEEC3201E)

Duration : 02:00 Hours

Max Marks : 50

Instructions :

1. All questions are compulsory.
2. Use of scientific calculator is allowed.
3. Draw diagrams wherever necessary.

Unit-1

Q No 1 a)

(5)

To achieve a good database design discuss its process and phases in brief

Unit-2

Q No 2 a)

(5)

Discuss the mobile app architecture with a suitable diagram. What are the restrictions that a mobile app faces?

Unit-3

Q No 3 a)

(5)

Discuss the role of Application security measures in a database system.

Unit-4

Q No 4 a)

(5)

Discuss the concept of RAID and the factors that should be considered in selecting its levels. Compare level 1 and 5.

Unit-5

Q No 5 a)

(5)

Discuss Multitable Clustering File Organization, as a file storage technique.

For the relations given below:

dept_name	building	budget
ECE	Taylor	100000
Physics	Watson	70000

The *department* relation

ID	name	dept_name	salary
10101	Sanjay	ECE	65000
33456	Prince	Physics	85000
41565	Vishal	ECE	75000
50021	Rudra	ECE	50000

The *instructor* relation

Write an SQL query that computes a natural join of the *department* and the *instructor* relations. Show the resultant multitable clustering file structure.

Unit-6

Q No 6 a)

(5)

Discuss the properties of transactions that a database system should maintain.

Unit-7

Q No 7 a)

(5)

With reference to a simple transaction model:

a) Write a transaction that transfers Rs.50 from account A to account B, adhering to the ACID properties.

b) Show a condition in the transaction that can be termed as an Inconsistent state.

[Given: Before the transactions; account A and account B have Rs.1000 and Rs.2000 respectively]

Unit-8

Q No 8 a)

(5)

Consider the schedule given below:

T1	T2
read(A)	
write(A)	
	read(A)
	commit
read(B)	

This schedule is termed as a non-recoverable schedule. Justify this statement with appropriate reasons.

Unit-9

Q No 9 a)

(5)

Let X and Y be two accounts that are accessed by transactions T1 and T2.

- a) Make a serial schedule and write transaction T1, that transfers \$50 from account Y to account X.
- b) Make a serial schedule and write a transaction T2, that displays the total amount in the accounts X and Y (i.e $X+Y$).

NOTE: Make use of locks for these transactions to ensure Isolation.

[Given: Prior to the transactions; account X and account Y have \$2000 and \$1000 respectively]

Unit-10

Q No 10 a)

(5)

What is the significance of a Recovery System in DBMS?
Discuss the types of failures in a system in brief.