

Total number of printed pages:

D/5<sup>th</sup> /DCSE501

2023

### Database Management Systems

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

Answer any five questions.

1.	a)	What do you mean by data independence? Describe different types of data independence.	8
	b)	What are the disadvantages of Traditional File Processing System? How DBMS overcome these disadvantages?	10
	c)	Define data model.	2
2.		Define following Terminology of Entity Relationship Model with example: Composite Attribute, Multivalued Attribute, Mapping Cardinality, Weak Entity Set, Total and Partial Participation, Specialization and Generalization	2+2+5+3+ 4+4=20
3.	a)	Differentiate between DML and DDL statement in SQL.	4
	b)	Consider the following database where primary keys are underlined: Employee( <u>emp_name</u> , street, city) Works( <u>emp_name</u> , company_name, salary) Company ( <u>company_name</u> , city) Manages( <u>emp_name</u> , manager_name)  Write following query in SQL.  i) Find the name of all employees who belongs to "Mancestor" city.  ii) Find the name of all employees whose salary is greater than at least one employee.  iii) Find the name of manager who belongs to "Horizon" city.	16

	iv)	Find the all company which are located at the city name end with "rk".	
4.	a)	What is the difference between procedural and non-procedural query language.	4
	b)	What is normalization? Define 3NF and BCNF.	8
	c)	Define following Relation Algebra Operations: Selection, Projection, Union, Set Difference,	8
5.	a)	Explain the different properties of a transaction.	6
	b)	What is schedule? What are the advantages of concurrent execution of multiple transaction?	4
	c)	What is conflict serializable? Define recoverable and casecadless schedule with example	10
6.	a)	Define two phase locking protocol? What is strict and rigorous two phase locking protocol?	6
	b)	What is deadlock? Explain different deadlock prevention schemes in details.	10
	c)	Define functional dependency. What is attribute closure?	4

ESTD. : 2006  
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