Reg. No | | | | | | | | | | |

AY 23

GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR

(GIET UNIVERSITY)

M.C.A. (First Semester) Regular Examinations, January – 2025

MCA23103 – Database Management Systems

(MCA)

Time: 3 hrs | Maximum: 60 Marks

(The figures in the right hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** questions	CO #	Blooms Level
a. Define data, information, and database.	CO1	K1
b. Write down the advantages of DBMS.	CO1	K2
c. Draw the diagrams for transaction states.	CO4	K2
d. Differentiate candidate key and super key.	CO2	K2
e. Describe briefly types of attributes.	CO2	K1

PART – B **(10 x 5 = 50 Marks)**

Answer ***ALL*** questions	Marks	CO #	Blooms Level
2. a. Discuss the various disadvantages of file system. Explain how it can be overcome in DBMS	5	CO1	K2
b. Draw the ER Diagram for Hospital Management System	5	CO1	K3
(OR)			
c. Explain the structure of DBMS with neat diagram	5	CO1	K2
d. Discuss about DBMS users. Explain about DBA and his/her responsibility on DBMS	5	CO1	K3
3.a. With relevant examples discuss the various operations in Relational Algebras.	5	CO2	K2
b. Write short notes on (i) Serialization (ii) Generalization (iii) Aggregation	5	CO2	K1
(OR)			
c. Define Reduction of ER Diagram to Relational Model with rules.	5	CO2	K2
d. What is Constraints? Discuss what are types of constraints used in database	5	CO2	K1
4.a. Discuss about Transitional dependency with suitable example tables?	5	CO3	K2
b. Define following a) functional dependency. b)Partial dependency (c)Join dependency	5	CO3	K2
(OR)			
c. Explain 2NF,3NF,BCNF suitable examples	5	CO3	K2
d. Consider the universal relation R={A,B,C,D,E,F,G,H,I} and the set of functional dependencies F={A,B→C, A→D,E,B→F,F→G,H,D--→I, J} i. What is the key for R? ii. Decompose R into 2NF,then 3 NF relations	5	CO3	K3
5.a. Discuss on strict, two-phase locking protocol and time stamp- based protocol	5	CO4	K2
b. Explain the Properties of transactions? How can you implement atomicity in transactions? Explain.	5	CO4	K2
(OR)			
c. Discuss about different states of transaction.	5	CO4	K2

d.	Define Transaction. What is ACID property explain briefly.	5	CO4	K2
6.a.	What are Armstrong‘s axioms and why its required? Use Armstrong axioms to prove the soundness of decomposition rule and pseudo transitive rule.	5	CO3	K2
b.	Illustrate about RAID in detail	5	CO5	K2
	(OR)			
c.	Describe the storage structure of B+ tree files and their access method with examples.	5	CO5	K2
d.	Describe static hashing and dynamic hashing	5	CO5	K2

--- End of Paper ---