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BCS–092

CERTIFICATE IN MOBILE APPLICATION DEVELOPMENT (CMAD)

Term-End Examination

June, 2026

BCS-092 : INTRODUCTION TO DATABASES

Time : 3 Hours *Maximum Marks : 75*

Note : *(i) Question 1 is compulsory.*

*(ii) Attempt any **three** questions from the rest.*

1. (a) Define metadata. Explain any *four* features of a database system that distinguish it from a file based system. 5

   (b) Describe 3-level database architecture. 3

   (c) A hospital database stores data about doctors, patients and appointments. Identify entities, attributes 4 key along with relationships. Draw ER-diagram. 12

(d) Given relations :

Patient (PID, Name, Age)

HSP : Visit (PID, Data, Diagnosis)

Write SQL commands for the following queries : 8

(i) Patients aged > 60

(ii) Diagnosed with 'Flu'

(iii) Visit count per patient

(iv) Unique patients count

(e) List any *four* advantages of normalization. 2

2. (a) Explain hierarchical, network and relational data models. 5

(b) Define relation, tuple, domain and attributes with examples. 5

(c) Compare logical and physical data independence. 5

3. (a) Normalize following table to 3NF : 6

Stud. ID	Name	Course	Instruction
SO1	Neha	DBMS	Rao
SO1	Neha	OOP	Sharma
SO2	Ram	DBMS	Rao

(b) Write SQL query to create following table : 3

Library (Book ID, Title, Author, Price)

Note : Price should be greater than 100.

(c) Explain GROUP BY clause with example. 6

4. (a) Explain primary key, foreign key, and candidate key with example. 6

(b) Describe composite, multivalued and derived attributes with example and diagrams. 6

(c) What is referential integrity ? 3

5. Answer any *five* from the following : 15

(a) Compare Inner *vs.* Outer Join

(b) Recursive Relationship

(c) Compare Weak *vs.* Strong Entity

(d) Check constraint in SQL

(e) Maintenance phase in SDLC

(f) Data Integrity

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