VIT-AP UNIVERSITY

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QUESTION PAPER

Name of the Examination: Fast Track Fall 2023-24 Semester – CAT

Course Code: CSE2007 **Course Title: Database Management Systems**

Set number: I **Date of Exam:** 07/07/2023(AN)

Duration: 90Mins **Total Marks: 50** (E2)

Instructions:

1. Assume data wherever necessary.
2. Any assumptions made should be clearly stated.

Q1. Assume that you want to design an information system for online shopping what kind of approach you would prefer either file system approach or database system approach? justify your answer? **(10M)**

Q2. i) Construct an E-R diagram for a hospital with a set of patients and a set of medical doctors. Associate with each patient a log of the various tests and examinations conducted. **(5M)**

ii) Construct appropriate tables for the above ER Diagram using SQL: **(5M)**

Q3. Consider the MOVIE DATABASE **(10M)**

Movies

title	director	myear	rating
Fargo	Coen	1996	8.2
Raising Arizona	Coen	1987	7.6
Spiderman	Raimi	2002	7.4
Wonder Boys	Hanson	2000	7.6

Actors

actor	ayear
Cage	1964
Hanks	1956
Maguire	1975
McDormand	1957

Acts

actor	title
Cage	Raising Arizona
Maguire	Spiderman
Maguire	Wonder Boys
McDormand	Fargo
McDormand	Raising Arizona
McDormand	Wonder Boys

Directors

director	dyear
Coen	1954
Hanson	1945
Raimi	1959

Write following relational algebra queries for a given set of relations.

1. Find movies made after 1997
2. Find movies made by Hanson after 1997
3. Find all movies and their ratings
4. Find all actors and directors
5. Find Coen's movies with McDormand

Q4. a) Suppose a relational schema R (P, Q, R, S), and set of functional dependency as following F : { P ->QR, Q -> R, P -> Q, PQ -> R } Find the canonical cover Fc (Minimal set of functional dependency). **(5M)**

b) Consider a relational schema R (W, X, Y, Z) having two FD sets FD1={W->X, X->Y, W->Y} and FD2={W->X, X->Y, W->Z} check whether two FD sets are equivalent or not. **(5M)**

Q5. Consider two a relation R (A, B, C, D, E, F, G, H, I, J) and set of functional dependencies F={AB->C, A->DE, B->F, F->GH, D->IJ}. What is the key for R? Identify the relation in which normal form? **(10M)**

QP MAPPING

Q. No.	Module Number	CO Mapped	PO Mapped	PEO Mapped	PSO Mapped	Marks
Q1	1	1	1,4	2	1	10
Q2	1,2	1,2	1,2,3,4	2	1	10
Q3	2	2	1,2,3,4	2	1	10
Q4	3	3	1,2,3,4	2	1	10
Q5	3	3	1,2,3,4	2	1	10