NATIONAL INSTITUTE OF TECHNOLOGY KURUKSHETRA

Computer Engineering Department

BTech(CS), CSPC-25/Database System, Mid Term-III Exam, Odd Sem. 2021-22

Duration: 50 Minutes **Date:** 16.11.2021

Maximum Marks: 15 **Roll No**: _ _ _ _ _ _

Q. 1	Answer the following (**briefly**) **(a)** What is data redundancy in the DB? Explain using a suitable example? **(b)** How the candidate keys of a Db table are related to super keys? Also list down the utility of super keys of relation. **(c)** Why role of System logs are important in the transaction processing? **(d)** How Partial dependencies and Transitive dependencies affect the several anomalies in the DB? Briefly explains. **(e)** What are the limitations, a *Binary 2-Phase locking* mechanism of transaction concurrency control protocol faces? List these limitations.	(1*5)
Q. 2	**(a)** List the information sources required to define the set of functional dependencies (FDs) in a relation? **(b)** Consider a relation R (A, B, C, D, E) with the following dependencies {AB-> C, CD-> E, DE->B}. Is AB a candidate key of this relation? If not, is ABD? Explain your answer.	(2,2)
Q. 3	Consider the relation for published books: BOOK (*Book_title, Author_name, Book_type, List_price, Author_affil, Publisher*). *Author_affil* refers to the affiliation of author. Suppose the following Functional dependencies exist : Book_title- > Publisher, Book_type Book_type > List_price Author_name- > Author_affil **(a)** What normal form is the relation in? Explain your answer. **(b)** Apply normalization until you cannot decompose the relations further. State the reasons behind each decompositions.	(3,3)

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