K. J. Somaiya College of Engineering, Mumbai-77
(Department of Computer Engineering)

Type: Assignment (Numerical Based) for IA3

Submission Platform: LMS Marks: 10

1. Check whether the given schedule S is View serializable or not; If yes, then determine serialized schedules.
$$R2(A), W2(A), R1(A), W1(A), R1(B), W1(B), R2(B), W2(B)$$

2. For given relation R (ABCDEFGH), find the normal form, if it's not in highest normal form then convert it (Give proper steps).
$$F = \{CH \rightarrow G, A \rightarrow BC, B \rightarrow CFH, E \rightarrow A, F \rightarrow EG\}$$

3. Consider the four relations $R1(ABC), R2\ (XYZ), R3(ABD), R4(UXY)$. The domains of the attributes are: A- integers; B – Strings , C – Single Characters; $D - \{'M', 'F'\}$; U – Integers, X- Strings, Y- Single Characters; $Z - \{'M', 'F'\}$. Identify the pair of union – compatible relations. Give proper reasoning with stepwise solution.

4. Which of the following SQL operations isn't commutative?
   A. Inner Join
   B. Full Outer Join
   C. Left Outer Join
   D. Intersect
   Explain your answer with proper justification through example (Numerical).

5. A relation $r(A, B)$ in a relational database has 1200 tuples. The attribute A has integer values ranging from 6 to 20, and the attribute B has integer values ranging from 1 to 20. Assume that the attributes A and B are independently distributed. Estimate the number of tuples in the output of$\sigma_{(A>10)V(B=18)}(r)$. Give Step wise solution.

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