BE Computer Engineering
CER4C4 DBMS
Class Test 3 Session February-June, 2021

Duration : 70 Mins. **MM – 20**

Note: All questions are compulsory. Make suitable assumptions, if necessary.

#1 Consider the universal relation $R = \{A, B, C, D, E, F, G, H, I, J\}$ and the set of functional dependencies $F = \{\{A, B\} \rightarrow \{C\}, \{B, D\} \rightarrow \{E, F\}, \{A, D\} \rightarrow \{G, H\}, \{A\} \rightarrow \{I\}, \{H\} \rightarrow \{J\}\}$. What is the key for R? Decompose R into 2NF and then 3NF relations. **6**

#2 Consider the following relation: **6**

TRIP (Trip_id, Start_date, Cities_visited, Cards_used)

This relation refers to business trips made by company salespeople. Suppose the TRIP has a single Start_date, but involves many Cities and salespeople may use multiple credit cards on the trip.

a. Make up a mock-up population of the table.
b. Discuss what functional dependencies exists in this relation.
c. Show how you will go about normalizing it.

#3 Differentiate between dynamic and extendible hashing. Also how would you insert following keys in a B+ tree with order p = 3.
23, 65, 37, 60, 46, 92, 48, 71, 56, 59, 18, 21, 10, 74, 78, 15, 16, 20, 24, 28, 39 **8**