

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**FIRST SEMESTER MCA (Second Year Direct) DEGREE EXAMINATION, DECEMBER  
2018**Course Code: RLMCA205****Course Name: DATABASE MANAGEMENT SYSTEMS**

Max. Marks: 60

Duration: 3 Hours

**PART A***Answer all questions, each carries 3 marks.*

Marks

- |   |   |     |
|---|---|-----|
| 1 | With the help of a diagram explain the different levels of data abstraction?              | (3) |
| 2 | What is Theta join operation. Define natural join operation giving an example.            | (3) |
| 3 | Distinguish between HAVING and WHERE clause in SQL with example?                          | (3) |
| 4 | Write down the general form of schema definition in SQL? Give an example.                 | (3) |
| 5 | Define BCNF? Why is it rarely used than 3NF?  | (3) |
| 6 | Which are the main axioms of functional dependencies?                                     | (3) |
| 7 | What is starvation in concurrent transaction execution?                                   | (3) |
| 8 | Describe the importance of timestamps in concurrency control? How timestamps are created? | (3) |

**PART B***Answer six questions, one full question from each module and carries 6 marks.***Module I**

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|---|---|-----|
| 9 | Write briefly on any six advantages of database approach over conventional file based approach. | (6) |
|---|---|-----|

**OR**

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| 10 | How specialization differs from generalization? Explain with the help of an E-R diagram? | (6) |
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**Module II**

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|----|--|-----|
| 11 | What is the need for <i>outer join</i> operation in relational algebra. Explain various outer join operations. | (6) |
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**OR**

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|----|---|-----|
| 12 | Write on any six fundamental operations in relational algebra, giving examples. | (6) |
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**Module III**

- 13 List and explain the various components of SQL language? (6)

**OR**

- 14 Illustrate Union, Intersection and Difference operations in SQL. How are they done with nested subquery. Give examples. (6)

**Module IV**

- 15 Consider the schema  $R = (A, B, C, D, E)$  together with the functional dependencies: (6)

$A \rightarrow C$

$A, B \rightarrow D$

$C, D \rightarrow E$

Suppose we decompose  $R$  into  $R_1 = (A, B, C, D)$  and  $R_2 = (A, D, E)$  Prove that this decomposition is a losslessjoin decomposition.

**OR**

- 16 Consider the following table *staff(name, dept, dept\_loc)*. Whether the above table is in 3NF? If not, state all anomalies of it and change to 3NF? (6)

name	dept	dept_loc
smith	402	100
jones	401	200
turner	400	200
king	402	100
olson	401	200

**Module V**

- 17 What is conflict serializability? Explain how to determine whether a schedule is conflict serializable or not. (6)

**OR**

- 18 Write on various possible states of transactions and ACID properties? (6)

**Module VI**

- 19 “Frequent Pattern Tree Algorithm uses association rules”. Justify the statement? (6)

**OR**

- 20 Distinguish between data mining and data warehousing. (6)

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