**Answer the following questions**

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| **Q. No** | | **Questions** | **Unit** | **Marks** | **CO** | **Cognitive Level** |
| 1 | a) | Mention the main differences between trivial and non-trivial dependencies. | 3 | 2 | 2 | Remember |
| b) | State Thomas’ write rule. | 4 | 2 | 3 | Remember |
| c) | What is MTTF? | 5 | 2 | 5 | Remember |
| **UNIT-3** | | | | | | |
| 2 | Explain 1NF, 2NF, 3NF and 4NF with suitable example. | | | 8 | 2 | Apply |
| **OR** | | | | | | |
| 3 | Consider a relation R = {ABCDE}. The FD’s = {A →B, BC→E, ED→A} list all candidate keys for R? | | | 8 | 2 | Apply |
| **UNIT-4** | | | | | | |
| 4 | a) | Explain about how concurrency can be controlled using time stamp methods with an example. | | 4 | 3 | Apply |
| b) | Illustrate validation based Protocols with a suitable example. | | 4 | 3 | Apply |
| **OR** | | | | | | |
| 5 | Explain storage structure and their access methods in detail. | | | 8 | 5 | Understand |
| **UNIT-5** | | | | | | |
| 6 | Explain about B+ - tree file organization with its data structure, search and deletion operations. | | | 8 | 6 | Apply |
| **OR** | | | | | | |
| 7 | a) | Distinguish between Extendible and Linear Hashing with an example. | | 4 | 6 | Apply |
| b) | Illustrate static and dynamic hashing techniques with an example. | | 4 | 6 | Apply |

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Signature of the Faculty:

**Answer the following questions**

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| **Q. No** | | **Questions** | **Unit** | **Marks** | **CO** | **Cognitive Level** |
| 1 | a) | What are the anomalies in bad design of database? | 3 | 2 | 2 | Remember |
| b) | Draw the state diagram of the transaction. | 4 | 2 | 3 | Remember |
| c) | What is RAID? | 5 | 2 | 5 | Remember |
| **UNIT-3** | | | | | | |
| 2 | A set of FD’s for the relation R {A, B, C, D, E, F} is AB→C, C→A, BC→D, ACD→B, BE→C, EC→FA, FC→BD, and D→E. Find a minimum cover for this set of FD’s? | | | 8 | 2 | Apply |
| **OR** | | | | | | |
| 3 | a) | Define BCNF. How does BCNF differ from 3NF? Explain with an example | | 4 | 2 | Apply |
| b) | Illustrate Multi-valued dependencies and Fourth Normal Form with an example. | | 4 | 2 | Apply |
| **UNIT-4** | | | | | | |
| 4 | a) | Illustrate Failure Classification of all storage devices. | | 4 | 5 | Understand |
| b) | Explain Remote backup Systems. | | 4 | 5 | Understand |
| **OR** | | | | | | |
| 5 | Illustrate multiple granularity locking algorithm with a suitable example | | | 8 | 3 | Apply |
| **UNIT-5** | | | | | | |
| 6 | Illustrate about B+ tree index file with a suitable example. | | | 8 | 6 | Apply |
| **OR** | | | | | | |
| 7 | a) | Explain static and dynamic hashing techniques. | | 4 | 6 | Understand |
| b) | Illustrate about clustered, primary and secondary indices in detail. | | 4 | 6 | Understand |

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