pReg. No. \_\_\_\_\_\_\_\_\_\_\_\_

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**End Semester Examination – Nov / Dec – 2019**

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| **Code :** | **14CS3005** | **Duration :** | **3hrs** |
| **Sub. Name :** | **ADVANCED DATABASE SYSTEMS** | **Max. Marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Explain the goal of query optimization and its importance. | CO1 | 3 |
| b. | What role do statistics gathered from the database play in query optimization? | CO1 | 3 |
| c. | Describe three techniques commonly used when developing algorithms for relational operators. Explain how these techniques can be used to design algorithms for the selection, projection, and join operators. | CO1 | 14 |
| **(OR)** | | | | |
| 2. | a. | Show that, if two schedules are conflict equivalent, then they are view equivalent. | CO2 | 5 |
| b. | Analyze and discuss whether the following schedule is Conflict Serializable and View Serializable.  S: r1(a) w1(a) r2(a) w2(a) r1(b) w1(b) r2(b) w2(b). | CO2 | 15 |
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| 3. | a. | Describe the steal and no-force policies. | CO2 | 5 |
| b. | What are the roles of the Analysis, Redo, and Undo phases in ARIES?   * 1. What is done during Analysis phase?   2. What is done during Redo phase?   3. What is done during Undo phase? | CO2 | 15 |
| **(OR)** | | | | |
| 4. | a. | Discuss the tools used for index selection and explain how does the index tuning wizards work. | CO1 | 8 |
|  | b. | Explain the impact of concurrent users in database and what are the techniques to reduce the blocking. | CO1 | 12 |
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| 5. | a. | Explain the intuition behind the two rules in the Bell-LaPadula model for mandatory access control. | CO2 | 4 |
|  | b. | |  | | --- | | Discuss Discretionary Access control using SQL commands. Explain SQL’s GRANT and REVOKE commands in terms of their effect on this graph. In particular, discuss what happens when user pass on privileges that they receive from someone else. | | CO2 | 16 |
| **(OR)** | | | | |
| 6. | a. | Describe the three main architectures for implementing parallel databases. | CO3 | 8 |
|  | b. | Explain how the individual operators scan, sort and join are parallelized in a shared nothing architecture. | CO3 | 12 |
|  |  |  |  |  |
| 7. |  | Explain indexing based on space filling curves. | CO3 | 20 |
| **(OR)** | | | | |
| 8. | a. | Compare DBMS vs Information Retrieval system. | CO1 | 4 |
| b. | Discuss the different models available for information retrieval. | CO1 | 16 |
|  | | **Compulsory:** |  |  |
| 9. |  | Explain how the spatial data management is done using R Trees. | CO3 | 20 |