** D.Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY**

**Set-: I**

**Q. Paper Code:**

**KASABA BAWADA KOLHAPUR-416006**

**(An Autonomous Institute)**

T. Y. B. Tech/B. Arch

**END SEMESTER EXAMINATION (ESE), Nov. – 2022**

Course Name: **Database Engineering** Course Code: **201CSL303**

Seat No:

**Day and Date: Friday, 09/12/2022**

**Time: 2.00 pm to 4.00pm Max. Marks- 50**

***Instructions:***

1. ***All Questions are compulsory.***
2. ***Figures to the right indicate full marks.***

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| **BT** | **CO’s** | **Q. No.** |  | | **Marks** | |
|  |  | **Q.1** | **All Questions are compulsory** | | **20** | |
| **2** | **CO1CO2** | **a** | What is a database administrator? List its responsibilities. State different types of mapping cardinalities with an example. | | **6M** | |
| **3** | **CO3** | **b** | Explain basic structure of SQL queries.  Construct the SQL queries for each of the following relational algebra expression:   1. ∏ID, name, salary (instructor)   ii) ∏name (σ dept\_name=“Physics” Λ salary = 90000 (instructor))  iii) ∏course\_id (σ semester=“Fall” Λ year=2009 (section)) **∪**   ∏course\_id (σ semester=“Spring” Λ year=2010 (section))  iv) ∏name, course\_id (σdept\_name=“Physics” ( σ instructor.ID = teaches.ID  (instructor x teaches))) | | **7 M** | |
| **2** | **CO4** | **c** | Define normalization? Explain 1NF and 2NF with example | | **7 M** | |
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|  |  | **Q.2** | | **All questions are compulsory** | **10** | |
| **2** | **CO4** | **a** | | Write short note on data dictionary storage. | **4** | |
| **2** | **CO4** | **b** | | Give difference between dense index and sparse index with an example. | **6** | |
|  | | | | | | |
|  |  | **Q.3** | | **Attempt any two out of three questions** | | **10** |
| **2** | **CO5** | **a** | | Explain conflict serializability with an example. | | **5** |
| **2** | **CO5** | **b** | | Explain two phase locking protocol with an example. Give its advantages and disadvantages. | | **5** |
| **2** | **CO5** | **c** | | Explain Validation based protocol with an example. | | **5** |
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|  |  | **Q.4** | | **Attempt any two out of three questions** | | **10** |
| **2** | **CO6** | **a** | | State and explain various types of failures that may occur in a system with example. What are the two main parts of recovery algorithms? | | **5** |
| **2** | **CO6** | **b** | | Explain log based recovery in detail. | | **5** |
| **2** | **CO6** | **c** | | What is the need of checkpoint? Explain how checkpoints are performed with suitable example. | | **5** |

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