



B.E DEGREE EXAMINATIONS: NOV/DEC 2023

(Regulation 2018)

Third Semester

INFORMATION SCIENCE AND ENGINEERING

U18ISI3204: Database Management Systems

COURSE OUTCOMES

CO1: Construct ER Model for a given database application

CO2: Design relational schema using database design principles

CO3: Identify the Key Constraints for relations and devise queries using SQL.

CO4: Apply indexing techniques to access and generate user reports for a database.

CO5: Building Web Applications using PHP & MySQL.

CO6: Illustrate the concepts for transaction processing and concurrency control for RDBMS

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 2 = 20 Marks)

(Answer not more than 40 words)

- | | | |
|--|-----|-------------------|
| 1. Identify the levels of data abstraction. | CO1 | [K ₃] |
| 2. Recall about entity. | CO1 | [K ₁] |
| 3. Define ACID properties. | CO6 | [K ₂] |
| 4. Differentiate between File system and database. | CO6 | [K ₄] |
| 5. List the properties of B+ tree | CO4 | [K ₂] |
| 6. Identify the features of PHP. | CO5 | [K ₃] |
| 7. List the purpose of a database schema. | CO2 | [K ₁] |
| 8. Identify the advantages of using a relational query language over other types of query languages. | CO3 | [K ₃] |
| 9. State about PROJECT operation in Relational algebra | CO2 | [K ₂] |
| 10. Differentiate between functional dependency and multi-valued dependency in relational databases. | CO3 | [K ₄] |

Answer any FIVE Questions:-

PART B (5 x 16 = 80 Marks)

(Answer not more than 400 words)

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|--|----|-----|-------------------|
| 11. a) Describe the different levels of RAID and explain how they affect data storage and performance. | 10 | CO2 | [K ₃] |
|--|----|-----|-------------------|

- b) Convert the given table into third normal form. 6 CO2 [K₃]

EMP_ID	EMP_NAME	EMP_ZIP	EMP_STATE	EMP_CITY	EMP_ID
222	Harry	201010	UP	Noida	222
333	Stephan	02228	US	Boston	333
444	Lan	60007	US	Chicago	444
555	Katharine	06389	UK	Norwich	555
666	John	462007	MP	Bhopal	666

12. a) Illustrate the architecture diagram of database management system. 10 CO1 [K₂]

- b) Consider the table given below and write the subquery for the following. 6 CO3 [K₃]

- a) Display the customer with minimum age.
 b) Display the customer whose country is “USA”.

customer_id	first_name	last_name	age	country
1	John	Doe	31	USA
2	Robert	Luna	22	USA
3	David	Robinson	22	UK
4	John	Reinhardt	25	UK
5	Betty	Doe	28	UAE

13. a) Design the ER diagram for online shopping and explain terminology involved in the diagram. 10 CO1 [K₃]

- b) Demonstrate different types of Constraints in SQL 6 CO3 [K₂]

14. a) Explain about clustering and non- clustering index and their types with an example. 16 CO4 [K₂]

15. a) Identify the different types of hashing techniques and explain the same. List the deficiencies of Static Hashing. 12 CO4 [K₃]

- b) Recall the merits and demerits of dynamic hashing. 4 CO4 [K₂]

16. a) Illustrate about Serializability. Identify the different forms of serializability with an example. 8 CO6 [K₃]

- b) Demonstrate the various deadlock prevention methods. 8 CO6 [K₂]
