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**VIDYASAGAR UNIVERSITY**

**Question Paper**

**B.Sc. Honours Examination 2022**

(Under CBCS Pattern)

**Semester - II**

**Subject: COMPUTER SCIENCE**

**Paper: GE 2 - T**

**(Introduction to Database System)**

**Full Marks : 40**

**Time : 2 Hours**

*Candidates are required to give their answers in their own words as far as practicable.*

*The figures in the margin indicate full marks.*

**Group - A**

Answer any *four* questions.

5×4=20

1. Discuss the three-tier architecture of database with a diagram. 5
2. What is foreign key? Explain with example. 2+3
3. Define full functional dependency with the help of an example. Distinguish between full and partial dependency. 3+2
4. Define 3NF. Explain its advantages and drawbacks. 1+4
5. What is weak entity set? Explain with suitable example. 2+3
6. Discuss “insertion anomalies” with an example. Suggest a method to overcome from it. 2+3

P.T.O.

**Group - B**

Answer any *two* questions.

10×2=20

7. Draw an E-R Diagram for online hotel booking. Clearly show its the entities, attributes and mapping cardinalities among related entities. 10
8. Write short notes on following topics (any *two*) : 5×2
- (i) Data model and its types
  - (ii) Derived attribute and multivalued attribute
  - (iii) Data Abstraction
9. Define logical data independence and physical data independence. Describe the concept of generalization and specialization. What is cardinality ratio? 3+5+2
10. The given database Schema is : 5×2
- Employee(ENAME, ENO, DOB, Address, Sex, Salary, Manager\_eno, Dno)
- Department(Dname, Dnumber, mgrno, Dlocation)
- Where the underlined column names are primary keys.
- Write the queries in SQL with the above schema :
- (i) Retrieve the name and address of all employees who work for the 'Research department'.
  - (ii) Retrieve the average salary of all female employees.
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