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M.SC Semester-II Examination, 2022

COMPUTER SCIENCE

PAPER: COS-201

(Advance Database Management System)

Full Marks: 40 **Time: 2 Hours**

GROUP-A

Answer any four questions of the following: **4×2=8**

1. What is Data Independence? Compare between Physical and logical data independence.
2. What do mean by integrity constraints? What do you mean by Instance?
3. What do you mean by Shadow paging?
4. Write the properties of a relationship.
5. What is a view? Give an example.
6. Write the functions of DBA.
7. What is 2PL?
8. What is DML? Give example.

GROUP-B

Answer any four questions of the following: **4×4=16**

1. Draw an ER-diagram for a hospital with a set of patients and a set of medical doctors, each patient a log of the various conducted tests is also associated.
2. Describe three schema architecture Of DBMS with help of a diagram.
3. Write down the ACID properties of a transaction.
4. What is Normalization? Why BCNF is stronger than 3NF? Explain.
5. Explain the importance of avoiding NULL values in a database.
6. Compare the database system with conventional file system.
7. Write Syntax of SQL Order By and Group By clauses.
8. Describe Wait/Die and Wound/Wait deadlock protocols.

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GROUP-C

Answer any two questions of the following: **2×8=16**

1. Consider the following relational database schema consisting of the four relation schemas:

   passenger (pid, pname, pgender, pcity)

   agency (aid, aname, acity)

   flight (fid, fdate, time, src, dest)

   booking (pid, aid, fid, fdate)

   Answer the following questions using relational algebra SQL representation;

   a) Get the details about all flights from Chennai to New Delhi.

   b) Find only the flight numbers for passenger with pid 123 for flights to Chennai before 06/11/2020.

   c) Find the agency names for agencies that located in the same city as passenger with passenger id 123.

   d) Get the details of flights that are scheduled on both dates 01/12/2020 and 02/12/2020 at 16:00 hours.

   e) Find the details of all male passengers who are associated with Jet agency.

2. State 1NF, 2NF & 3NF and explain with examples.

3. Explain insertion, deletion and modification anomalies with suitable examples.

4. Differentiate specialization and generalization with help of an example and schematic diagram.

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