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MID TERM EXAMINATIONS – November 2024

Programme	:	B.Tech.	Semester	:	Interim Semester 2024-25
Course Title	:	Database Management Systems	Course Code	:	CSE3001
Date/Session	:	14 Nov 2024/Session I	Slot	:	C11+C12+C13
Time	:	1 ½ hours	Max. Marks	:	50

Answer all the Questions

Q.No.	Sub. Sec.	Question Description	Marks
1		Assume we have the design a database that models Football teams, the games they play, and the players in each team. In the design, we want to capture the following: a. We have a set of teams, each team has an ID (unique identifier), name, main stadium, and to which city this team belongs. b. Each team has many players, and each player belongs to one team. Each player has a number (unique identifier), name, DoB, start year, and shirt number that he uses. c. Teams play matches, in each match there is a host team and a guest team. The match takes place in the stadium of the host team. d. For each match we need to keep track of the following: a. The date on which the game is played b. The final result of the match c. The players participated in the match. For each player, how many goals he scored, whether or not he took yellow card, and whether or not he took red card. d. During the match, one player may substitute another player. We want to capture this substitution and the time at which it took place Draw an entity relationship diagram for this database.	10
2		Explain the functional components of a Database Engine. Discuss each with the help of diagram.	10
3		Consider the following relational database schema consisting of the four relation schemas: $passenger(pid, pname, pgender, pcity)$ $agency(aid, aname, acity)$ $flight(fid, fdate, time, src, dest)$ $booking(pid, aid, fid, fdate)$ Give an expression in the relational algebra to express each of the following	10

queries:

a) Get the details about all flights from Chennai to New Delhi.
b) Find the passenger names for passengers who have bookings on at least one flight.
c) Find the agency names for agencies that located in the same city as passenger with passenger id 123.

4 *Given the following Relation:*

A	B	C
1	4	2
1	5	3
1	6	3
3	2	2

List and explain all the existing function dependencies **10**

5 Given the following Database:

$$emp(eno, ename, bdate, title, salary, dno)$$
$$proj(pno, pname, budget, dno)$$
$$dept(dno, dname, mgreno)$$
$$workson(eno, pno, resp, hours)$$

Write SQL query that returns:

a) the employee name, department name, and employee title.
b) the project name, hours worked, and project number for all works on records where hours > 10. **10**
c) the project name, department name, and budget for all projects with a budget < $50,000.
d) the employee numbers and salaries of all employees in the 'Consulting' department ordered by descending salary.
e) the employee name, project name, employee title, and hours for all works on records.

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