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Daffodil International University

Faculty of Science & Information Technology

Final Examination, Spring 2023

Course Code: CSE311 Course Title: Database Management System

Level: 3 Term: 1

Time: 2:00 Hrs **Marks: 40**

Answer ALL Questions

[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]

1. Consider the following schemas: **CO2**

Course (id, name, course_code)
Student (id, name, email, phone)
Enrolment (id, course_id, student_id, enrollment_date, enrollment_status)

a) Write an SQL query to list all of the students id, name and email in ascending order of ID who are enrolled in course with code "CSE311" **[2]**

b) Write an SQL query find the name and ID of the students who enrolled in "Database Management System" course after 15 March 2023. **[1]**

c) Write an SQL query to find the total number of students in each course with course name. **[2.5]**

d) Write an SQL query to find course names that have more than 15 student enrolment. **[3]**

2. Consider the following tables: **CO2**

Ticket No.	Travel Date	Travel Time	Seat No.	Passenger ID	Bus No.
T301	03-06-2023	10:30 AM	D3	163-15-54215	S_11
T301	03-06-2023	10:30 AM	D4	163-15-54215	S_11
T302	03-06-2023	10:30 AM	A1	183-15-2458	S_02
T302	03-06-2023	10:30 AM	A2	183-15-2458	S_02
T302	03-06-2023	10:30 AM	A3	183-15-2458	S_02
T304	05-06-2023	7:00 AM	D2	123-15-8546	S_12
T305	07-06-2023	7:00 AM	C2	131-15-3167	S_12

Passenger ID	Passenger Name	Passenger Contact
163-15-54215	Maruf Ahmed	0175224668
183-15-2458	Jahangir Khan	0185245687
123-15-8546	Romin Shetty	0154687453
131-15-3167	Bristy Zahan	0154687453

Bus No.	Bus Name	Staff	Route Name
S_11	Surjomukhi 11	Johir	Dhanmondi
S_12	Surjomukhi 12	Alamin	Uttara
S_02	Surjomukhi 2	Alamin	Mirpur

a) Write an SQL query to find the seat numbers of Student bearing ID 183-15-2458 travelling on 03-06-2023 at 10:30 AM. **[1]**

b) Find the contact information of the passenger who bought Ticket Number T302. **[2]**

c) List the names of all students who have travelled to Uttara Between 03-06-2023 to 09-06-2023. **[3]**

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d) Find the name of the staff who assisted the passenger with ticket no T302. **[2]**

3. Discover Normalization for the following table up to Third Normal Form. Be certain to indicate necessary constraints. **[10]** **CO4**

Order Number	Order Date	Customer ID	Customer Name	Customer Address	Product ID	Product Name	Quant ity	Price
001	2022-01-01	C001	John Smith	123 Main St	P001, P002	MacBook, Laser Printer	2, 1	1000, 500
002	2022-01-05	C002	Jane Doe	456 Oak Ave	P004	Asus Zenbook	1	1200
003	2022-01-10	C003	Bob Johnson	789 Maple St	P003, P005	Samsung Z-Fold, Realme Bud 3	3, 1	3000, 300

4. How do triggers work in a database management system, and what are some practical use cases for implementing triggers? **[4.5]** **CO3**

5. Create appropriate examples to demonstrate the use of rollback and commit within a database transaction? **[4.5]** **CO3**

6. How do ACID properties guarantee the reliability and consistency of transactions in a database system? **[4.5]** **CO3**

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