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Daffodil International University

Faculty of Science & Information Technology

Mid Examination, Spring 2023

Course Code: CSE311: Course Title: Database management System

Sections & Teachers: All

Level: 3 **Term: 1** **Batch: 58, 59**

Time: 1.5 Hrs **Marks: 25**

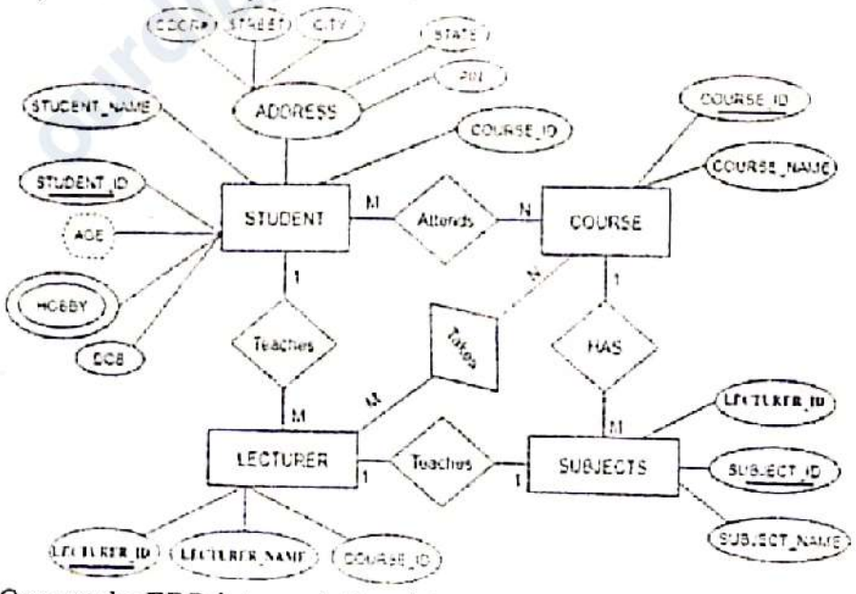
Answer ALL Questions [Optional]

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

1. Bidyanondo Publishers has decided to store information about all their products and peers in a database. They usually publish around 20 books every year. Each book has a title, an ISBN number, author name and price. Also each book has a theme of their own, like "Novel" or "Poetry". There can be more than one authors of a single book. Information of book authors are also stored into the database. Each author has NID number, name, age, and commission amount for each book. One author can publish multiple books by the publisher. The books are sold in many libraries in all over the country. Listed libraries have their unique id, name, owner name, district and phone number. All libraries sell some books from Bidyanondo publisher, but all the books are not sold in every library. Bidyanondo publishers have their own distributers who distribute books to libraries. They are uniquely identified by their trade license number, and also their name, business area and phone numbers are listed in the database. One library takes books from only one distributor and one distributor covers all the libraries inside their business area. CO1

a) Now, design an **ERD** based on the above scenario. Be certain to indicate **primary keys** and **cardinality constraints**. 6

b)



Convert the **ERD** into a **relational database schema**. Be certain to indicate **primary keys** and **foreign keys**. 5

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2. What are relational model constraints? Explain with example. 3 CO1

3. Carefully look at the following database instance and write down the SQL queries for the following questions. CO2

id	name	category	price	quantity
1001	Realme Buds Air 3	Audio	4500	15
1002	Insta360 One X2 Action Camera	Camera	43000	4
1003	OnePlus 7 Pro	Mobile	45000	3
1004	Logitech z623 2.1 Home Theatre	Audio	16500	0
1005	Asus ROG G15 2022	Laptop	215000	2
1006	Apple IPhone 14 Max Pro	Mobile	150000	6
1007	Sony ZV-e10 Mirrorless Camera	Camera	85000	0
1008	Google Pixel 6A	Mobile	85000	2
1009	Xiaomi Haylou LS02 Smart Watch	Watch	5000	14

a) Write an SQL query to view the information for the most expensive mobile phone. 2
b) Write an SQL query for viewing products that are not available. 1
c) Write an SQL Query for showing the average price of products in each category. 2
d) Write an SQL query to view products that costs more than 1,00,000 BDT. 1

4. Carefully look at the following database instance and write the output of the queries followed by them. CO2

id	order	customer	price	date
1001	Chillox Burgers	Rahat	450	2023-02-23
1002	Chillox Masala Chicken	Ashik	150	2023-02-15
1003	Chillox Burgers	Fahim	500	2023-01-25
1004	Chillox Burgers	Ashik	1000	2023-01-19
1005	Chillox Pizza	Ashik	1300	2023-01-16
1006	Chillox Spicy Noodles	Rahat	150	2023-01-14

a) SELECT name, MAX(price) from order ; 1
b) SELECT * FROM order WHERE date BETWEEN '2023-01-15' AND '2023-02-15'; 1
c) SELECT * FROM order WHERE price > (SELECT AVG(price) FROM order); 2
d) SELECT DISTINCT(customer) FROM order; 1