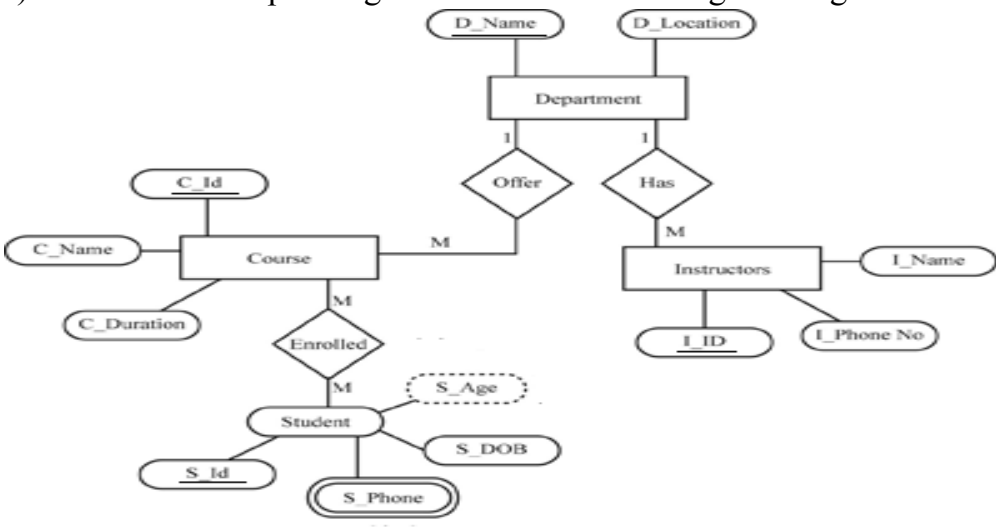
United International University (UIU)

Dept. of Computer Science & Engineering (CSE)

Midterm Exam, Trimester: Spring 2023
Course Code: CSE-3521 Course Title: Database Management Systems
Total Marks: 30 Duration: 1 hour 45 minutes

Any examinee found adopting unfair means will be expelled from the trimester / program as per UIU disciplinary rules.

1.	a) UIU CSE Alumni Association is planning to launch a web portal for job seekers of UIU and recruiters all over the globe. The job portal manages each job seeker's profile where each person is represented by their user id, name, unique email, address, date of birth, educational qualifications, and job experiences. Educational qualification will contain degree name, institution name, achieved year, and grade. Job experience will have job title, institution name, job type, starting date, and duration. Job seeker's can be hired by individual recruiters or by the companies. The recruiters also have their own profiles which will have recruiter id, name, email, and reputation score. The recruiters and companies can post job openings to the job portal. The job portal keeps track of each post's date, time, contents, and number of viewers. The system also keeps track of which job seeker is interested in which job posts. One recruiter/company can recruit more than one job seekers for a job. Each of the companies are maintained by their unique id, name, address and contact no. Each user can provide his or her anonymous review of companies. Each of the reviews contains review id, date, time, review details. Design an ER Diagram for the scenario that satisfies all the given requirements.	**7**
	b) Write the corresponding schema of the following ER diagram 	**4**

	c) Answer the following questions i. What is mapping cardinality? ii. What are the possible mapping cardinalities for a binary relationship set? iii. What are the problems with many-to-many relationships? iv. How do you resolve a many-to-many relationship in the database?	**4**
2.	a) Consider the following schema Player (**id**, name, position, ranking, team_id, age) Team (**id**, name, ranking, trophy_count) Coach (**id**, name, nationality, year_of_experience, trophy_count, ranking, t_id) Match (**id**, home_team, away_team, h_score, a_score, day, month, year, result, POTM) Match_details (**p_id**, **m_id**, rating, goal, assist, key_pass, tackle_won, saves) Now write sql queries for the below i. Find player name and team name for all the players above 25. ii. Find the player name who has won the maximum number of POTM awards. iii. Find the name and average rating of players of the top 5 teams in respect of trophy count. iv. Find coach name and total goals scored in the last 10 home matches of his team. Your result set only includes the coaches whose name is at least 5 characters long and finishes with 'dan'	**6**
	b) Consider the following relational database schema 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 i. Get the details about all flights from Dhaka to Cox's Bazar. ii. Find the passenger names for passengers who have bookings on at least one flight. iii. Find the passenger names for those who do not have any bookings in any flights. iv. Find the details of all male passengers who are associated with ShareTrip agency.	**4**
	c) Write sql script to create the database in question 2b. You must fulfill all the constraint requirements. Assume the datatype best suited for each attribute.	**3**
	d) List two reasons and briefly describe why null values might be introduced into a database.	**2**