# Question One

***1.25 Marks***

Learning Outcome(s):

*LO3*

*Create Entity-Relationship model, Relational model, and write SQL queries*

Consider the following database schema for student game, where each team is led by a student of the team and each game is between two teams (Host and Guest):

**Students**

|  |  |  |
| --- | --- | --- |
| Student\_Id | Student\_Name | Address |

|  |  |  |  |
| --- | --- | --- | --- |
| Team\_Id | Team\_Name | Rank | Team\_Leader |

**Teams**

|  |  |
| --- | --- |
| Student\_id | Team\_Id |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Game\_id | Score | Date | Host\_Team | Guest\_Team |

**Membership**

**Games**

Your task is to show all the primary and foreign keys in Schema.

# Question Two

***1.75 Marks***

Learning Outcome(s):

*LO3*

*Create Entity-Relationship model, Relational model, and write SQL queries.*

Consider the following schema:

**Suppliers (sid, sname, city)**

**Parts (pid, pname, color)**

**Catalog (sid, pid, price)**

Write relational algebra expressions for the following queries:

1. Find the sids of suppliers and names who are located in Riyadh.
2. Find the name of suppliers who are located in Riyadh and Jeddah.
3. Find the names of supplier who supply part name “fog light”.
4. Find the sids of suppliers who supply every part.

# Question Three

***2 Marks***

Learning Outcome(s):

*LO3*

*Create Entity-Relationship model, Relational model, and write SQL queries.*

**Create an Entity Relationship diagram that captures the information about the UPS system? Be certain to indicate identifiers and cardinality constraints.**

UPS prides itself on having up-to-date information on the processing and current location of each shipped item. To do this, UPS relies on a company-wide information system. Shipped items are the heart of the UPS product tracking information system. Shipped items can be characterized by item number (unique), weight, dimensions, insurance amount, destination, and final delivery date. Shipped items are received into the UPS system at a single retail center. Retail centers are characterized by their type, uniqueID, and address. Shipped items make their way to their destination via one or more standard UPS transportation events (i.e., flights, truck deliveries). These transportation events are characterized by a unique scheduleNumber, a type (e.g, flight, truck), and a deliveryRoute.