**DATA-540 Lab 4**

Questions 1 to 4

**Question 1:**

**1)**

3 strong entity types: Instructor, Department, Student - Because all 3 of those entities can exist on their own while Course and Section use a partial primary key and depend on the existence on another entity.

**2)**

There are 4 one-to-many relationships in the diagram (many-to-one the same as one-to-many) -

i) Instructor to Department

ii) Department to Course

iii) Course to Section.

iv) Student to Instructor

**3)**

At least 5 instances of type Student must be present for an instance of type Section.

**4)**

No foreign keys, because cannot tell how many foreign keys from an ER design document.

**5)** Bold = PK, Underline = FK

**Instructor(InstrId**, name, address, deptid**)**

**Department(deptid**, name**)**

**Student(studentId**, name, InstrId**)**

**Course(number**, credits, description, name, **deptid)**

**Section(SectId**, **semester**, **year**, size, **number**, **deptid)**

**Instructor\_section(InstrId**, **SectId, semester, year, number, deptid)**

**Student\_section(studentId, SectId, semester, year, number, deptid)**

**Question 2:**

**1)**

1. <LineItem productId = "P1"><price>25.00</price><quantity>11</quantity></LineItem>
   1. <quantity> should come before <price> as defined in the XML schema.
   2. Validity error because goes against XML schema.
2. <totalAmount>A LOT</totalAmount>
   1. <totalAmount> should be of type decimal
   2. Validity error.
3. <Order orderId = "3" customerId = "C1>
   1. customerId value, “C1”, not closed with closing quotation marks.
   2. Validity error.
4. <LineItem productId = "P4"><quantity>2</quantity><price50.00</price></LineItem>
   1. <price tag not closed before value is given.
   2. Validity error.
5. <Customer customerId = "C1">

<cname>Aditya Bian</cname>

</Customer>

* 1. No <address> element included for this customer
  2. Well-formed error.

1. <cname>Francisco Pena
   1. <cname> tag not closed
   2. Validity error.
2. <numOrders>4</numOrders>
   1. <numOrders> is not a defined nested element of <Customer>
   2. Validity error.
3. <numOrders>4</numOrders>
   1. No numOrders tag defined in the XML schema document.
   2. Validity error
4. Root <Orders> is not closed at the end.
   1. Validity error.

**2)**

/Orders/Order/LineItem[quantity>5]

**3)**

/Orders/Order/LineItem[@productId=”P1” and quantity>1]

**Question 3:**

**1)**

{"id":5,"name":"Jenny","age":18,"marks":[54,76,99,72]}

**OR**

{

"id": 5,

"name": "Jenny",

"age": 18,

"marks": [

54,

76,

99,

72

]

}

**2)**

{"obj1":{"a":5,"c":{"arr":[3,4,5],"d":"e"},"prop2":{"a":4,"b":10}}}

**OR**

{

"obj1": {

"a": 5,

"c": {

"arr": [

3,

4,

5

],

"d": "e"

},

"prop2": {

"a": 4,

"b": 10

}

}

}

**Question 4:**

1. Delete on emp, Select on emp, Select on workson
2. Update (eno, pno) on workson, Select on workson, Select on emp

**Question 5:**

On r\_markdown file or markdown pdf.