

Q 6.1

```
SELECT c1.sid, c2.sid
FROM CATALOG c1, CATALOG c2
WHERE c1.pid = c2.pid and c1.sid <> c2.sid and c1.price > c2.price;
```

Q 6.2

```
SELECT s.sid
FROM SUPPLIER s
WHERE s.address = 'Ruston City' OR s.sid IN ( SELECT c.sid
                                              FROM PART p, CATALOG c
                                              WHERE p.color='red' AND p.pid = c.pid );
```

Q 8.1

R1(HScode, HSname, HScity)
R2(GPA, priority)
R3(SSN, SName, Saddress, GPA)
R4(HScode, SSN)

Q 8.2

Syntactic Checks: check the syntax of every operator.
Entity checks: check to see if every relation is valid.
View Expansion: If a relation name refers to a view, replace the relation node with the parse tree of the view.
Attribute checks: check to see if every attribute is valid.
Type checks: check if every attribute participating in an expression has the proper type.

Q 9.1

1. $STU_{sub1}(CWID, Name, subject)$ and $STU_{sub2}(CWID, Location, Score)$

$SUB1 \cup SUB2 = (CWID, Name, subject, Location, Score)$ ✓

$SUB1 \cap SUB2 = (CWID)$ ✓

$CWID^+ = CWID, Name, subject$ ✓

lossless

2. $STU_{sub1}(CWID, Name, Location, Score)$ and $STU_{sub2}(Location, Score)$

$SUB1 \cup SUB2 = (CWID, Name, Location, Score)$ X

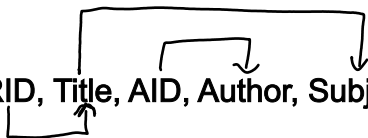
$SUB1 \cap SUB2 = (Location, Score)$

lossy

B

Q9.2

REPORT(RID, Title, AID, Author, Subject)



FD = { RID→Title, Title→Subject, AID→Author }

3NF:

R1(RID, Title, Subject)

R2(AID, Author)