SQL Exercises: GROUP BY and HAVING

Schema

Student(sID, surName, firstName, campus, email, cgpa)  Offering(dept, cNum) ⊆ Course(dept, cNum)
Course(dept, cNum, name, breadth)  Took[sID] ⊆ Student[sID]
Offering(oID, dept, cNum, term, instructor)  Took[oID] ⊆ Offering[oID]
Took(sID, oID, grade)

Questions

1. Write a query to find the average grade, minimum grade, and maximum grade for each offering.

2. Suppose we wrote

```
SELECT ________________________
FROM Offering, Took
WHERE Offering.oID = Took.oID
GROUP BY dept;
```

Which of the following could go in the SELECT clause?

sID  count(sID)  grade  avg(grade)  dept  count(dept)  term  min(term)
3. Find the sid and average grade of each student, but keep the data only for those students who have an sid over 22222.

Here's a more interesting question: For each student who has passed at least 10 courses, report their sid and average grade on the courses that they passed.

4. Find only the sid (and not also the average grade) of each student with an average over 80.

5. Which of these queries is legal?

```sql
SELECT dept
FROM Took, Offering
WHERE Took.oID = Offering.oID
GROUP BY dept
HAVING avg(grade) > 75;
```

```sql
SELECT Took.oID, avg(grade)
FROM Took, Offering
WHERE Took.oID = Offering.oID
GROUP BY Took.oID
HAVING avg(grade) > 75;
```

```sql
SELECT Took.oID, dept, cNum, avg(grade)
FROM Took, Offering
WHERE Took.oID = Offering.oID
GROUP BY Took.oID
HAVING avg(grade) > 75;
```

```sql
SELECT oID, avg(grade)
FROM Took
GROUP BY sID
HAVING avg(grade) > 75;
```