CS 775/875 - Constraints/Triggers

Some of the constraints/triggers will not execute in MySQL, but they are part of the SQL standard.

1. Consider the following schema:

   CREATE TABLE R(a INT PRIMARY KEY, b INT);

   CREATE TABLE S(c INT PRIMARY KEY, d INT REFERENCES R(a) ON DELETE CASCADE);

   CREATE TABLE T(e INT PRIMARY KEY, f INT REFERENCES S(c) ON DELETE CASCADE);

   R contains (1,2), (3,4).   S contains (10,1) (20,1), (30,3).

   T contains (100,10), (200,10), (300,20), (400, 30).

   (a) (6) Which of the following would cause an error: Check **all** correct options.

   　　i. insert into R value (10,2)
   　　ii. insert into T value (500, 40)
   　　iii. update R set a=5 where a=1
   　　iv. update S set c=40 where d=3
   　　v. delete from S where d=3
   　　vi. delete from T where f=10

   (b) (2) Suppose entry (1,2) is deleted from R. What are the contents of table T after this action?
   　　(300, 20), 400, 30)

2. (4) CREATE TABLE R (a INT, b INT, *CHECK(—-)*);

   Currently R contains (1,2) (1,4), (4,6). Suppose the command

   INSERT INTO R VALUES (7,8)

   is executed. Which of the following tuple-based CHECK constraints will cause the above insertion to be rejected? (Select **ONE** option.) NOTE: When a tuple-based check is invoked for an insert and includes a subquery over the same table, the subquery is evaluated after including the inserted tuple.

   (a) b > ALL(SELECT a FROM R)

   (b) a <= SELECT max(b) FROM R

   (c) b >= SELECT sum(a) FROM R

   (d) b > SELECT avg(a) FROM R

   (e) all the above checks will result in the new insertion being rejected.

3. (4) Suppose table R(a,b) is empty.

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CREATE TRIGGER lastQuiz
AFTER INSERT ON R
FOR EACH ROW
INSERT INTO R(a,b)
  (SELECT DISTINCT new.a, R.b+1
   FROM R
   WHERE R.a = new.b);
```

   We insert (5,6) first; next, we insert (3,5). R contains (5,6) and (3,5). List the other contents of R, if any, after this insertion of (3,5). 　　(3, 7)