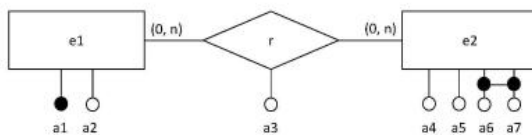


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**Question #: 1**

(1 point) Consider the attached and below entity-relationship diagram. Which of the following statements are true about its translation into SQL Data Definition Language statements following the process discussed in the lecture (*3 rules + 3 exceptions only*)? Let  $u$  and  $v$  be entity or relationship sets; if the table for  $u$  and the table for  $v$  are merged, we refer to it as the table for  $u$  or the table for  $v$  indistinctively. Select all answers that apply.



- A. The primary key of the table for  $r$  is  $(a1, a6, a7)$
- B. The primary key of the table for  $r$  is  $a3$
- C. The primary key of the table for  $e2$  is either  $a6$  or  $a7$
- D. The primary key of the table for  $e1$  is  $a1$
- E.  $a6$  is a foreign key in the table for  $r$  referencing  $a6$  in the table for  $e2$
- F.  $a7$  is a foreign key in the table for  $r$  referencing  $a7$  in the table for  $e2$
- G.  $a1$  is a foreign key in the table for  $r$  referencing  $a1$  in the table for  $e1$
- H.  $a1$  is a foreign key in the table for  $e1$  referencing  $a1$  in the table for  $r$

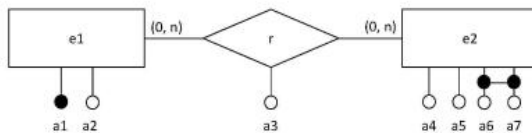
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**Question #: 2**

(1 point) Consider the attached and below entity-relationship diagram. Which of the following statements are true about its translation into SQL Data Definition Language statements following the process discussed in the lecture (*3 rules +3 exceptions only*)? Let  $u$  and  $v$  be entity or relationship sets; if the table for  $u$  and the table for  $v$  are merged, we refer to it as the table for  $u$  or the table for  $v$  indistinctively. Let  $u$  and  $v$  be entity or relationship sets; if the table for  $u$  and the table for  $v$  are merged, we refer to it as the table for  $u$  or the table for  $v$  indistinctively. Select all answers that apply.



- A. The integrity constraints declared in the CREATE TABLE statement for the table for  $r$  may prevent an insertion into the table for  $e2$ .
- B. The integrity constraints declared in the CREATE TABLE statement for the table for  $r$  may prevent a deletion from the table for  $e2$ .
- C. The integrity constraints declared in the CREATE TABLE statement for the table for  $r$  may prevent a deletion from the table for  $r$ .
- D. The integrity constraints declared in the CREATE TABLE statement for the table for  $r$  may prevent an update to the table for  $r$ .
- E. The integrity constraints declared in the CREATE TABLE statement for the table for  $r$  may prevent an update to the table for  $e1$ .

**Attachment:**

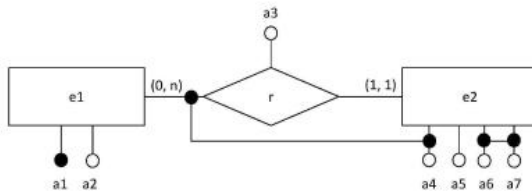
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**Question #:** 3

(1 point) Consider the attached and below entity-relationship diagram. Which of the following statements are true about its translation into SQL Data Definition Language statements following the process discussed in the lecture (*3 rules +3*

*exceptions only*)? Let  $u$  and  $v$  be entity or relationship sets; if the table for  $u$  and the table for  $v$  are merged, we refer to it as the table for  $u$  or the table for  $v$  indistinctively. Select all answers that apply.



- A. a4 is a foreign key in the table for r referencing a4 in the table for e2
- B. a1 is a foreign key in the table for r referencing a1 in the table for e1
- C. a1 is a foreign key in the table for e1 referencing a1 in the table for r
- D. The table for r and the table for e2 are merged into one table
- E. The table for r and the table for e1 are merged into one table

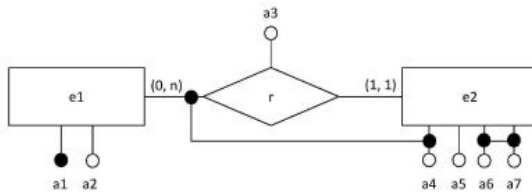
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**Question #:** 4

(1 point) Consider the attached and below entity-relationship diagram. Which of the following statements are true about its translation into SQL Data Definition Language statements following the process discussed in the lecture (*3 rules +3 exceptions only*)? Let  $u$  and  $v$  be entity or relationship sets; if the table for  $u$  and the table for  $v$  are merged, we refer to it as the table for  $u$  or the table for  $v$  indistinctively. Select all answers that apply.



- A. A possible primary key of the table for r is (a6, a7)
- B. A possible primary key of the table for r is a4
- C. A possible primary key of the table for r is (a1, a4)
- D. A possible primary key of the table for e2 is (a6, a7)
- E. A possible primary key of the table for e2 is (a1, a4)
- F. A possible primary key of the table for r is (a1, a6, a7)
- G. A possible primary key of the table for r is (a3, a6, a7)

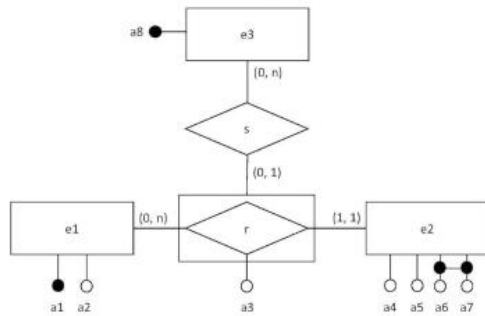
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**Question #: 5**

(1 point) Consider the attached and below entity-relationship diagrams. Which of the following statements are true about its translation into SQL Data Definition Language statements following the process discussed in the lecture (*3 rules + 3 exceptions only*)? Let  $u$  and  $v$  be entity or relationship sets; if the table for  $u$  and the table for  $v$  are merged, we refer to it as the table for  $u$  or the table for  $v$  indistinctively. Select all answers that apply.



- A. The primary key of the table for s is (a6, a7)
- B. The primary key of the table for s is (a6, a7, a8)
- C. The primary key of the table for s is (a1, a6, a7)
- D. The primary key of the table for s is (a1, a6, a7, a8)
- E. The tables for r and s are merged into one table
- F. The tables for r and e2 are merged into one table

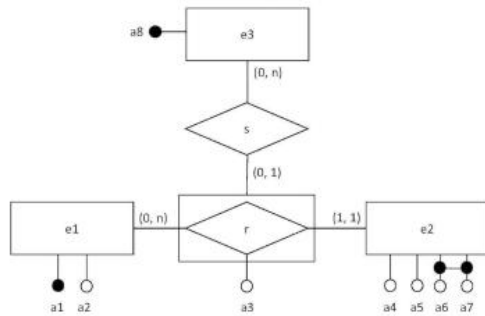
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**Question #: 6**

(1 point) Consider the attached and below entity-relationship diagram. Which of the following statements are true about its translation into SQL Data Definition Language statements following the process discussed in the lecture (*3 rules +3 exceptions only*)? Let  $u$  and  $v$  be entity or relationship sets; if the table for  $u$  and the table for  $v$  are merged, we refer to it as the table for  $u$  or the table for  $v$  indistinctively. Select all answers that apply.



- A. The primary key of the table for r is (a6, a7)
- B. The primary key of the table for r is (a1, a6, a7)
- C. The primary key of the table for r is (a1, a3, a6, a7)
- D. The primary key of the table for e2 is (a6, a7)
- E. The primary key of the table for e1 is a1
- F. The primary key of the table for e3 is a8

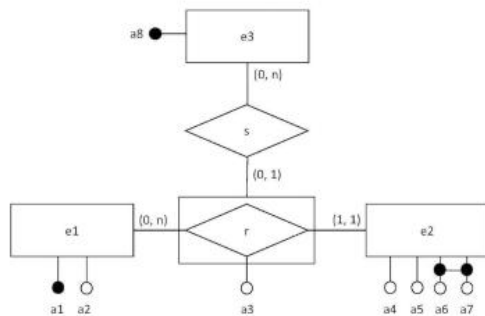
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**Question #:** 7

(1 point) Consider the attached and below entity-relationship diagrams. Which of the following statements are true about its translation into SQL Data Definition Language statements following the process discussed in the lecture (*3 rules + 3 exceptions only*)? Let  $u$  and  $v$  be entity or relationship sets; if the table for  $u$  and the table for  $v$  are merged, we refer to it as the table for  $u$  or the table for  $v$  indistinctively. Select all answers that apply.



- A. The foreign key constraints may prevent a deletion in the table for e3
- B. The foreign key constraints may prevent an update to the table for e3
- C. The foreign key constraints may prevent an insertion into the table for e3
- D. The primary key constraints may prevent an insertion into the table for e3
- E. The primary key constraints may prevent an update to the table for e3
- F. The primary key constraints may prevent a deletion in the table for e3

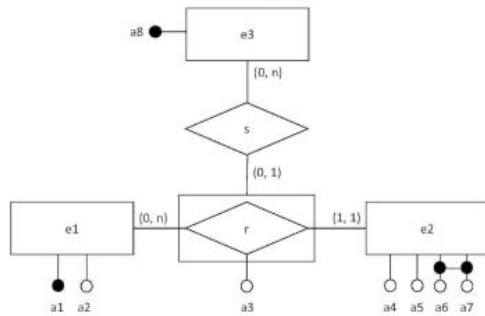
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**Question #:** 8

(1 point) Consider the attached and below entity-relationship diagram. Which of the following statements are true about its translation into SQL Data Definition Language statements following the process discussed in the lecture (*3 rules +3 exceptions only*)? Let  $u$  and  $v$  be entity or relationship sets; if the table for  $u$  and the table for  $v$  are merged, we refer to it as the table for  $u$  or the table for  $v$  indistinctively. How many tables are created? Select all answers that apply.



- A. 6
- B. 5
- C. 4
- D. 3

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#### Question #: 9

(5 points) For each European team, find the number of its non-European riders. Return the team name and the number of non-European riders. Sort the result in decreasing order of the number of non-European riders and alphabetical order of the team name.

The result should look like the table below. Queries with different results may get partial mark.

team_name	num_riders
INTERMARCHÉ - WANTY	2
INEOS GRENADIERS	1
LOTTO DSTNY	1
MOVISTAR TEAM	1



RED BULL - BORA - HANSGROHE	1
TEAM VISMA   LEASE A BIKE	1
ALPECIN-DECEUNINCK	0
ARKEA-B&B HOTELS	0
COFIDIS	0
DECATHLON AG2R LA MONDIALE TEAM	0
GROUPAMA-FDJ	0
SOUDAL QUICK-STEP	0
TEAM DSM-FIRMENICH POSTNL	0
TOTALENERGIES	0
UNO-X MOBILITY	0

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**Question #:** 10

(4 points) Find the bib of the riders who exited the tour (i.e. they have no result for some stage) but are not listed as such in the rider\_exists table.

The result should look like the table below. Queries with different results may get partial mark.

bib
31

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**Question #:** 11

(4 points) Find the names of the riders who ranked strictly better than 60th in all stages.

The result should look like the table below. Queries with different results may get partial mark.

name
Tadej Pogacar
Derek Gee

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**Question #:** 12

(4 points) What is the age difference between the oldest and youngest riders? Return the name of the oldest riders, the name of the youngest riders, and the age difference in days. Sort the result in decreasing order of the bib of the oldest and youngest riders. The query should work in the case there are multiple oldest or youngest riders with the same birthdate. For convenience, subtracting two values of domain DATE returns a result in days.

The result should look like the table below. Queries with different results may get partial mark.

name	name	days
Jakob Fuglsang	Johannes Kulset	6963