A shoe store has exactly six cashiers–Jamarcus, Lui, Maria, Natasha, Sally and Tova. Three of the employees work morning shifts, and the other three work afternoon shifts. The employees switch shifts with each other, with each of two employees taking the other's shift. If an employee switches shifts for one week, that employee does not switch shifts for the next week. The employees switch shifts according to one of three plans, each of which must be different than the one used the preceding week:

       Plan 1: One morning shift employee switches with one afternoon shift employee.
       Plan 2: Natasha switches with Sally and Maria switches with Tova.
       Plan 3: Maria switches with Natasha and Sally switches with Jamarcus.

1. If in week 3, Lui, Tova and Natasha are working the afternoon shift, which one of the following could be true?

   A. Lui worked a morning shift with Maria in week 2.
   B. Sally worked an afternoon shift with Tova in week 2.
   C. Jamarcus worked an afternoon shift with Lui in week 2.
   D. Tova worked an afternoon shift with Lui in week 2.
   E. Natasha worked a morning shift with Sally in week 2.

2. Which one of the following could be true?

   A. Natasha switches with Jamarcus at the end of week 1.
   B. Sally switches with Lui at the end of week 1.
   C. Lui switches with Jamarcus at the end of week 1.
   D. Jamarcus switches with Maria at the end of week 2.
   E. Maria switches with Lui at the end of week 2.

3. If Tova does not switch shifts with any employee at the end of week 2, which one of the following could be true?

   A. Maria switches with Natasha at the end of week 1.
   B. Natasha switches with Sally at the end of week 1.
   C. Lui switches with Natasha at the end of week 1.
   D. Plan 3 was used at the end of week 1.
   E. Plan 2 was used at the end of week 2.

4. If at the beginning of week 3, Natasha, Jamarcus and Tova are all working morning shifts, which one of the following is three employees who could have worked the morning shift during week 2?

   A. Lui, Sally and Tova
   B. Maria, Jamarcus and Tova
   C. Maria, Sally and Jamarcus
   D. Natasha, Sally and Jamarcus
   E. Lui, Natasha and Sally

5. Which one of the following must be true?

   A. If Tova switches shifts at the end of week 1, Jamarcus switches shifts at the end of week 2.
   B. If Sally switches shifts at the end of week 1, Jamarcus switches shifts at the end of week 2.
   C. If Natasha switches shifts at the end of week 1, Jamarcus switches shifts at the end of week 2.
   D. If Maria switches shifts at the end of week 1, Jamarcus switches shifts at the end of week 2.
   E. If Maria switches shifts at the end of week 1, Tova switches shifts at the end of week 2.

6. If Tova switches with an employee other than Maria during week 1, then during week 2 Jamarcus must switch with

   A. Natasha
   B. Sally
   C. Lui
   D. Maria
   E. Tova

Game 43 – Shoe Store

1. A
2. C
3. B
4. C
5. A
6. B

This is a time conversion game. The key deduction is that whichever employees switch during one week, the other two or four must switch during the next week. For example, if Natasha, Sally, Maria and Tova switch, then next time, Jamarcus and Lui must switch. Make sure you understand for this game that because the same switch cannot be used twice, Natasha, Sally and Maria cannot switch under Plan 1. Also note the difference between switching shifts and switching from an afternoon to a morning shifts (in other words, two employees on morning shifts can switch and still be in the morning).

The key to Question 1 is that no other arrangement can be switched under one of the plans to produce the result given in the question–try them out and see.

On Question 2, remember that Natasha and Sally can't switch with Jamarcus or Lui, respectively, because both of these will have to switch according to Plan 2 or 3 the next week. In other words, if Sally switches with Lui as in answer B, it would have to be pursuant to Plan 1, which means Plan 2 or 3 must be used the next week–moving Sally again, in violation of the rules. The answer is C because Lui or Jamarcus can both move and are not necessarily moved by Plans 2 and 3.

For Question 3, if Tova doesn't switch, it means Tova switched at the end of week 1, pursuant to Plan 1 or Plan 2. D and E are incorrect because at least one employee always must change in this fashion, and A and C violate the rules because these are not switches which would've involved Tova.

For Question 4, C could be the result of a Plan 2 switch. None of the other answers are consistent with any of the switches. Question 5 is A because if Tova switches, it must be either with Maria under Plan 2 or with Lui under Plan 1 (anything else would violate the rules). Either way, Jamarcus switches next time. On Question 6, you can deduce that Plan 1 was used to switch Tova and someone other than Maria, which means Jamarcus must switch with Sally under Plan 3.