

**MASSACHUSETTS MATHEMATICS LEAGUE  
CONTEST 6 - MARCH 2008 SOLUTION KEY**

**Team Round – continued**

F) These are the combinations of 1 and 2 steps:

|                         |   | # of different arrangements         |
|-------------------------|---|-------------------------------------|
| 11111 11111             | → | 1                                   |
| 2 1111 1111             | → | $\frac{9!}{8!}$ or ${}_9C_1 = 9$    |
| 22 111 111              | → | $\frac{8!}{2!6!}$ or ${}_8C_2 = 28$ |
| 222 11 11               | → | $\frac{7!}{3!4!}$ or ${}_7C_3 = 35$ |
| 2222 1 1                | → | $\frac{6!}{2!4!}$ or ${}_6C_2 = 15$ |
| 22222                   | → | 1                                   |
| Total: <b><u>89</u></b> |   |                                     |