MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1) Evaluate the permutation: $_{10}P_8$

   A) 80   B) 45   C) 1,814,400   D) 3,628,800

1) _____

2) Evaluate the combination: $_{12}C_8$

   A) 479,001,600   B) 495   C) 96   D) 19,958,400

2) _____

3) Each of 5 students wishes to buy a particular textbook, but only 2 textbooks are available. How could one express the number of ways those textbooks could be distributed among the students?

   A) $_2C_5$ B) $_2P_5$ C) $_5C_2$ D) $_5P_2$

3) _____

4) If the letters A, B, C, D, E, and F are to be used in a five-letter code, how many different codes are possible if repetitions are *not* permitted?

   A) 625   B) 7,776   C) 720   D) 1,296

4) _____

5) Evaluate the following: $_7P_3$.

   A) 6   B) 35   C) 5,040   D) 210

5) _____

6) A business has seven locations to choose from and wishes to rank only the top three locations. How many different ways can this be done?

   A) 210   B) 420   C) 5,040   D) 840

6) _____

7) A furniture manufacturer offers bookcases in 5 different sizes and 3 different colors. If every color is available in every size, then the total number of different bookcases is

   A) 5   B) 15   C) 30   D) 8

7) _____

8) How many ways can a student select five questions from an exam containing 12 questions, if one of the five must be the last question?

   A) 330   B) 95,040   C) 40,320   D) 7920

8) _____

9) A certain system has two components. There are 6 different models of the first component and 11 different models of the second. Any first component can be paired with any second component. A salesman must select 2 of the first component and 3 of the second to take on a sales call. How many different sets of components can the salesman take?

   A) $_6C_5 \cdot _{11}C_5$ B) $_6P_5 \cdot _{11}P_5$ C) $_6C_2 \cdot _{11}C_3$ D) $_6P_2 \cdot _{11}P_3$

9) _____

10) How many different ways can four people: Andy, Betty, Cindy, and Doug, sit in a row   10) _____
at the opera if Andy and Betty must sit together?
   A) 18   B) 12   C) 24   D) 6

11) If a menu has a choice of 5 appetizers, 3 main courses, and 3 desserts, how many   11) _____
dinners are possible if each includes one appetizer, one main course, and one dessert?
   A) 14   B) 45   C) 30   D) 3

12) A bookcase contains 2 statistics books and 5 biology books. If 2 books are chosen at   12) _____
random, the chance that both are statistics books is
   A) $\dfrac{10}{21}$ B) $\dfrac{1}{11}$ C) $\dfrac{1}{21}$ D) $\dfrac{10}{11}$

13) If 20 tickets are sold and 2 prizes are to be awarded, find the probability that one person   13) _____
will win both prizes if that person buys exactly 2 tickets.
   A) $\dfrac{1}{380}$ B) $\dfrac{1}{190}$ C) $\dfrac{1}{480}$ D) $\dfrac{1}{1140}$

14) A student and a professor each choose a number between 1 and 9 (1 and 9 are both   14) _____
possible choices). What is the probability that the two choose the same number?
   A) $\dfrac{2}{81}$ B) $\dfrac{1}{9}$ C) $\dfrac{2}{9}$ D) $\dfrac{1}{81}$

15) The numbers 1 through 9 are written in separate slips of paper, and the slips are placed   15) _____
into a box. Then, 4 of these slips are drawn at random.

What is the probability that the drawn slips are "1", "2", "3", and "4", in that order?
   A) 0.00794   B) 0.19056   C) 0.007944   D) 0.000331

16) A committee consist of 8 women and 11 men. Three members are chosen as officers.   16) _____
What is the probability that all three officers are women?
   A) 0.0578   B) 0.0746   C) 0.1703   D) 0.01243

17) If 25 tickets are sold and 2 prizes are to be awarded, find the probability that one person   17) _____
will win both prizes if that person buys exactly 2 tickets.
   A) $\dfrac{1}{700}$ B) $\dfrac{1}{2300}$ C) $\dfrac{1}{600}$ D) $\dfrac{1}{300}$

1) C
2) B
3) C
4) C
5) D
6) A
7) B
8) A
9) C
10) B
11) B
12) C
13) B
14) B
15) D
16) A
17) D