

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

- 1) Evaluate the permutation: ${}_{10}P_8$ 1) _____
A) 80 B) 45 C) 1,814,400 D) 3,628,800
- 2) Evaluate the combination: ${}_{12}C_8$ 2) _____
A) 479,001,600 B) 495 C) 96 D) 19,958,400
- 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? 3) _____
A) ${}_2C_5$ B) ${}_2P_5$ C) ${}_5C_2$ D) ${}_5P_2$
- 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? 4) _____
A) 625 B) 7,776 C) 720 D) 1,296
- 5) Evaluate the following: ${}_7P_3$. 5) _____
A) 6 B) 35 C) 5,040 D) 210
- 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? 6) _____
A) 210 B) 420 C) 5,040 D) 840
- 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 7) _____
A) 5 B) 15 C) 30 D) 8
- 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? 8) _____
A) 330 B) 95,040 C) 40,320 D) 7920
- 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? 9) _____
A) ${}_6C_5 \cdot {}_{11}C_5$ B) ${}_6P_5 \cdot {}_{11}P_5$ C) ${}_6C_2 \cdot {}_{11}C_3$ D) ${}_6P_2 \cdot {}_{11}P_3$

- 10) How many different ways can four people: Andy, Betty, Cindy, and Doug, sit in a row at the opera if Andy and Betty must sit together? 10) _____
 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 dinners are possible if each includes one appetizer, one main course, and one dessert? 11) _____
 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 random, the chance that both are statistics books is 12) _____
 A) $\frac{10}{21}$ B) $\frac{1}{11}$ C) $\frac{1}{21}$ D) $\frac{10}{11}$
- 13) If 20 tickets are sold and 2 prizes are to be awarded, find the probability that one person will win both prizes if that person buys exactly 2 tickets. 13) _____
 A) $\frac{1}{380}$ B) $\frac{1}{190}$ C) $\frac{1}{480}$ D) $\frac{1}{1140}$
- 14) A student and a professor each choose a number between 1 and 9 (1 and 9 are both possible choices). What is the probability that the two choose the same number? 14) _____
 A) $\frac{2}{81}$ B) $\frac{1}{9}$ C) $\frac{2}{9}$ D) $\frac{1}{81}$
- 15) The numbers 1 through 9 are written in separate slips of paper, and the slips are placed into a box. Then, 4 of these slips are drawn at random. 15) _____
 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. What is the probability that all three officers are women? 16) _____
 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 will win both prizes if that person buys exactly 2 tickets. 17) _____
 A) $\frac{1}{700}$ B) $\frac{1}{2300}$ C) $\frac{1}{600}$ D) $\frac{1}{300}$