Chapter 7-8 Practice MC Questions

Multiple Choice
Identify the choice that best completes the statement or answers the question.

A small bakery has determined the following probability distribution for the number of cheesecakes that they sell in a given day.

Number Sold	0	1	2	3	4
Prob (Number Sold)	.05	.20	.30	.35	.10

1. Find the probability that the bakery sells at least 1 cheesecake in a day.

   a) 0.05 b) 0.10 c) 0.55 d) 0.90 e) 0.95

2. Find the probability that the bakery sells more than 2 cheesecakes in a day..

   a) 0.10 b) 0.45 c) 0.55 d) 0.75 e) 0.90

3. Find the mean number of cakes the bakery can expect to sell in a day.

   a) 2 b) 2.25 c) 2.5 d) 2.75 e) 3

4. What tells us that the mean you found in the previous question will only be approximate after many, many days?

   a) The Law of Means
   b) The Law of Sampling Variability
   c) The Law of Random Variables
   d) The Law of Small Numbers
   e) The Law of Large Numbers

5. A random variable Y has the following distribution:

Y	-1	0	1	2
P(Y)	3C	2C	0.4	0.1

   The value of the constant C is:
   a) 0.10. b) 0.15. c) 0.20. d) 0.25. e) 0.75.

6. A random variable X has a probability distribution as follows:

X	0	1	2	3
P(X)	2k	3k	13k	2k

   Then the probability that $P(X < 2)$ is equal to
   a) 0.90. b) 0.25. c) 0.65. d) 0.15. e) 1.00.

7. Seventeen people have been exposed to a particular disease. Each one independently has a 40% chance of contracting the disease. A hospital has the capacity to handle 10 cases of the disease. What is the probability that the hospital's capacity will be exceeded?
   a) 0.011 b) 0.035 c) 0.092 d) 0.965 e) 0.989

8. Which of the following random variables is geometric?
   a) The number of times I have to roll a die to get two 6's.
   b) The number of cards I deal from a well-sheffled deck of 52 cards until I get a heart.
   c) The number of digits I read in a table of the random digits until I find a 7.
   d) The number of 7's in a row of 40 random digits.
   e) The number of 6's I get if I roll a die 10 times.

9. A test for extrasensory perception (ESP) involves asking a person to tell which of 5 shapes - a circle, star, triangle, diamond or heart - appears on a hidden computer screen. On each trial, the computer is equally likely to select any of the 5 shapes. Suppose researchers are testing a person who does not have ESP and so is just guessing on each trial. What is the probability the the person guesses the first 4 shapes incorrectly but gets the fifth correct?

   a) $\frac{1}{5}$ b) $\left(\frac{4}{5}\right)^4$ c) $\left(\frac{4}{5}\right)^4\left(\frac{1}{5}\right)$ d) $\left(\frac{1}{5}\right)^4\left(\frac{4}{5}\right)$ e) $\frac{1}{5}$

10. To calculate the binomial probability of 5 successes out of 8 trials when success in any given trial has probability 0.65, use the calculation

    a) $\frac{8!}{5!3!}(.35)^5(.65)^3$
    b) $(.65)^5(.35)^3$
    c) $(.35)^5(.65)^3$
    d) $\frac{8!}{5!3!}(.65)^5(.35)^3$
    e) $\frac{5!3!}{8!}(.65)^5(.35)^3$

11. Russell's parents roll a fair, six-sided die every morning, and if the result is a 1 or 2, they pack yogurt in his lunch. What is the probability that he gets yogurt on exactly 2 of the 5 school days next week?
    a) 0.111 b) 0.400 c) 0.165 d) 0.329 e) 0.671

12. In a gas station promotion, customers receive a game piece every time they fill their tank with at least 8 gallons. With each game piece, there is 1 in 250 chance of winning a $10 gas card for use at that gas station. Josie decides to try winning the gas card by filling up at the station until she wins. If she is unsuccessful after 5 tries, she will give up and stop going to that station. What is the probability that she will win the gas card?
    a) 0.0004 b) 0.0008 c) 0.0198 d) 0.0032 e) 0.9960

The U.S. Department of Education conducted a study in 2003 that revealed that 14% of U.S. adults lack basic literacy skills (they cannot read or write at a functional level).

13. Suppose that 20 U.S. adults are selected at random and contacted by telephone for a news article related to this study. What is the probability that at least 1 of these people is not literate?
    a) 0.049 b) 0.140 c) 0.159 d) 0.841 e) 0.951

14. Suppose that U.S. adults are selected at random and contacted by telephone for a news article related to this study. The author of the article will call someone until they find someone who is not literate. What is the probability that the author will talk to 10 people in order to find such a person?
    a) 0.036 b) 0.042 c) 0.049 d) 0.057 e) 0.066

15. Suppose that U.S. adults are selected at random and contacted by telephone for a news article related to this study. The author of the article will call someone until they find someone who is not literate. What is the expected number of people that the author will talk to in order to find such a person?
    a) 7 b) 7.14 c) 8 d) 8.2 e) 14

Chapter 7-8 Practice MC Questions
Answer Section

MULTIPLE CHOICE

1. ANS: E PTS: 1
2. ANS: B PTS: 1
3. ANS: B PTS: 1
4. ANS: E PTS: 1
5. ANS: A PTS: 1
6. ANS: B PTS: 1
7. ANS: B PTS: 1
8. ANS: C PTS: 1
9. ANS: C PTS: 1
10. ANS: D PTS: 1
11. ANS: D PTS: 1
12. ANS: C PTS: 1
13. ANS: E PTS: 1
14. ANS: A PTS: 1
15. ANS: B PTS: 1