BP   DATE:_____,   Name_____

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

Provide an appropriate response.

1) Which of the following cannot be the probability of an event?   1) _____

A) $\dfrac{\sqrt{5}}{3}$ B) –32   C) 0   D) 0.001

2) If A, B, C, and D, are the only possible outcomes of an experiment, find the probability of D using   2) _____
the table below.

Outcome	A	B	C	D
Probability	1/7	1/7	1/7	

A) 4/7   B) 3/7   C) 1/7   D) 1/4

3) The probability that event A will occur is $P(A) = \dfrac{\text{Number of successful outcomes}}{\text{Number of unsuccessful outcomes}}$ 3) _____

A) True   B) False

4) The probability that event A will occur is $P(A) = \dfrac{\text{Number of successful outcomes}}{\text{Total number of all possible outcomes}}$ 4) _____

A) False   B) True

5) In terms of probability, a(n) _____ is any process with uncertain results that can be   5) _____
repeated.
A) Experiment   B) Event   C) Sample space   D) Outcome

6) A(n) _____ of a probability experiment is the collection of all outcomes possible.   6) _____
A) Event set   B) Prediction set   C) Bernoulli space   D) Sample space

7) True or False: An outcome is any collection of events from a probability experiment.   7) _____
A) False   B) True

8) In a 1–pond bag of skittles the possible colors were red, green, yellow, orange, and purple. The   8) _____
probability of drawing a particular color from that bag is given below. Is this a probability model?
Answer Yes or No.

Color	Probability
Red	0.2299
Green	0.1908
Orange	0.2168
Yellow	0.1889
Purple	0.1816

A) Yes   B) No

9) An unusual event is an event that has a   9) _____
A) Probability of 1   B) Low probability of occurrence
C) A negative probability   D) Probability which exceeds 1

10) The table below represents a random sample of the number of deaths per 100 cases for a certain illness over time. If a person infected with this illness is randomly selected from all infected people, find the probability that the person lives 3–4 years after diagnosis. Express your answer as a simplified fraction and as a decimal.

Years after Diagnosis	Number deaths
1–2	15
3–4	35
5–6	16
7–8	9
9–10	6
11–12	4
13–14	2
15+	13

A) $\frac{1}{35}$; 0.029   B) $\frac{35}{100}$; 0.35   C) $\frac{35}{65}$; 0.538   D) $\frac{7}{120}$; 0.058

10) _____

11) A die is rolled. The set of equally likely outcomes is {1, 2, 3, 4, 5, 6}. Find the probability of getting a 2.

A) 0   B) $\frac{1}{6}$ C) 2   D) $\frac{1}{3}$

11) _____

12) A fair coin is tossed two times in succession. The set of equally likely outcomes is {HH, HT, TH, TT}. Find the probability of getting the same outcome on each toss.

A) $\frac{3}{4}$ B) $\frac{1}{4}$ C) 1   D) $\frac{1}{2}$

12) _____

13) A single die is rolled twice. The set of 36 equally likely outcomes is {(1, 1), (1, 2), (1, 3), (1, 4), (1, 5), (1, 6), (2, 1), (2, 2), (2, 3), (2, 4), (2, 5), (2, 6), (3, 1), (3, 2), (3, 3), (3, 4), (3, 5), (3, 6), (4, 1), (4, 2), (4, 3), (4, 4), (4, 5), (4, 6), (5, 1), (5, 2), (5, 3), (5, 4), (5, 5), (5, 6), (6, 1), (6, 2), (6, 3), (6, 4), (6, 5), (6, 6)}. Find the probability of getting two numbers whose sum is greater than 10.

A) $\frac{1}{18}$ B) 3   C) $\frac{5}{18}$ D) $\frac{1}{12}$

13) _____

14) A single die is rolled twice. The set of 36 equally likely outcomes is {(1, 1), (1, 2), (1, 3), (1, 4), (1, 5), (1, 6), (2, 1), (2, 2), (2, 3), (2, 4), (2, 5), (2, 6), (3, 1), (3, 2), (3, 3), (3, 4), (3, 5), (3, 6), (4, 1), (4, 2), (4, 3), (4, 4), (4, 5), (4, 6), (5, 1), (5, 2), (5, 3), (5, 4), (5, 5), (5, 6), (6, 1), (6, 2), (6, 3), (6, 4), (6, 5), (6, 6)}. Find the probability of getting two numbers whose sum is less than 13.

A) $\frac{1}{2}$ B) $\frac{1}{4}$ C) 1   D) 0

14) _____

15) Three fair coins are tossed in the air and land on a table. The up side of each coin is noted. How many elements are there in the sample space?

A) 4   B) 6   C) 8   D) 3

15) _____

16) In a survey of college students, 880 said that they have cheated on an exam and 1721 said that they have not. If one college student is selected at random, find the probability that the student has cheated on an exam.

A) $\frac{880}{2601}$ B) $\frac{2601}{880}$ C) $\frac{1721}{2601}$ D) $\frac{2601}{1721}$

16) _____

Multiplication Rule

$$P(A \text{ and } B \text{ and } C \text{ and} ...) = P(A)P(B)P(C)...$$

A. There are *14 large* and *6 medium* size T-shirts for sales. If 2 T-shirts are sold**,** then

    1.Write all the possibilities   2.   Compute all the probabilities

After two T-shirts are drawn randomly then find the probability that,

P(Both Large) =   P(Both Medium) =

P(At least one Medium) =   P(At most one Large) =

B. In a box there are 14 Blue and 6 Red balls. If two balls are drawn at random **with replacement**, then

    1.Write all the possibilities   2.   Compute all the probabilities

After two balls are drawn randomly then find the probability that,

P(Both Blue) =   P(Both Red) =

P(At least one Red) =   P(At most one Red) =

ANSWERS

Problem A

                                          P(LL) = 47.9%
                                          P(LM) = 22.1%
                                          P(ML) = 22.1%
                                          P(MM) = 7.9% +

                                          100%

After two T-shirts are drawn randomly then find the probability that,

P(Both Large) = 47.9%   P(Both Medium) = 7.9%

P(At least one Medium) = 52.1%   P(At most one Large) = 52.1%

Problem B

                                          P(BB) = 49%
                                          P(BR) = 21%
                                          P(RB) = 21%
                                          P(RR) = 9% +
                                          100%

After two balls are drawn randomly then find the probability that,

P(Both Blue) = 49%   P(Both Red) = 9%

P(At least one Red) = 51%   P(At most one Red) = 91%

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