Math 1324 - Practice Exam 3 - Spr18

MULTIPLE CHOICE. (5pts each) Choose the one alternative that best completes the statement or answers the question.

Solve the problem.

1) How many ways can a committee of 4 be selected from a club with 12 members? 1) _____

A) 495 B) 24 C) 248 D) 11,880

2) A software company employs 9 sales representatives and 8 technical representatives. How many ways can the company select 5 of these employees to send to a computer convention if at least 4 technical representatives must attend the convention? 2) _____

A) 360 B) 180 C) 1440 D) 686

Find the probability.

3) A packet of sour worms contains four strawberry, four lime, two black currant, two orange sour, and three green apples worms. What is the probability that Dylan will not choose a green apple sour worm, P(not green apple)? 3) _____

A) P(not green apple) = $\frac{4}{15}$ B) P(not green apple) = 0

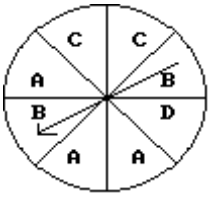
C) P(not green apple) = $\frac{4}{5}$ D) P(not green apple) = $\frac{3}{15}$

4) Samantha is taking courses in math and English. The probability of passing math is estimated at 0.4 and English at 0.6. She also estimates that the probability of passing at least one of them is 0.8. What is her probability of passing both courses? 4) _____

A) 0 B) 0.8 C) 0.12 D) 0.2

Find the odds.

5) If the sectors are of equal size, what are the odds of spinning an A on this spinner? 5) _____



A) 6:2 B) 2:6 C) 3:5 D) 4:2

Estimate the indicated probability.

6) College students were given three choices of pizza toppings and asked to choose one favorite. The following table shows the results. 6) _____

toppings	freshman	sophomore	junior	senior
cheese	14	14	21	22
meat	23	22	14	14
veggie	14	14	23	22

A randomly selected student who is a a junior or senior is also prefers veggie. Round the answer to the nearest hundredth.

A) .397 B) .207 C) .616 D) .388

The graduates at a southern university are shown in the table.

	Art & Science A	Education E	Business B	Total
Male, M	342	424	682	1448
Female, F	324	102	144	570
Total	666	526	826	2018

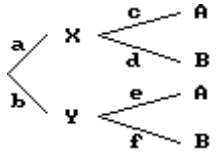
A student is selected at random from the graduating class.

7) Find the probability that the student is female, given that an education degree is not received, P(F|E'). 7) _____

A) $P(F|E') = \frac{102}{526}$ B) $P(F|E') = \frac{117}{373}$ C) $P(F|E') = \frac{324}{666}$ D) $P(F|E') = \frac{424}{526}$

Use the tree diagram to find the requested probability.

8) Find P(X|A). Give your answer as a decimal and round your answer to three decimal places if necessary. 8) _____



a = 0.9, b = 0.1, c = 0.2, d = 0.8, e = 0.4, f = 0.6

A) 0.18 B) 0.818 C) 0.3 D) 0.2

Provide an appropriate response.

9) The number of loaves of whole wheat bread left on the shelf of a local quick stop at closing (denoted by the random variable X) varies from day to day. Past records show that the probability distribution of X is as shown in the following table. Find the probability that there will be at least three loaves left over at the end of any given day. 9) _____

x_i	0	1	2	3	4	5	6
p_i	0.20	0.25	0.20	0.15	0.10	0.08	0.02

A) 0.65 B) 0.20 C) 0.35 D) 0.15

10) A small company employs a supervisor at $1200 a week, an inventory manager at $800 a week, 5 stock boys at $400 a week each, and 3 drivers at $700 a week each. Compute the mean. 10) _____

A) $610 B) $1017 C) $1260 D) $550

SHORT ANSWER. (5pts each) Write the word or phrase that best completes each statement or answers the question. Write the answer in the space provided. No work will be graded. No partial credit.

11) Find the mean for the following grouped data. 11) _____

Interval	Frequency
9.5-12.5	2
12.5-15.5	3
15.5-18.5	8
18.5-21.5	4

12) Following is a sample of the percent increases in the price of a house from 2000 to 2005 in 8 regions of the U. S. 12) _____

75 130 145 150 150 225 225 300

Find the median.

13) Find the mode for the data set: 13) _____

2, 11, 35, 2, 9, 35, 11, 9, 7, 2, 2, 2, 2, 9, 2

Use Bayes' rule to find the indicated probability.

14) The incidence of a certain disease on the island of Tukow is 4%. A new test has been developed to diagnose the disease. Using this test, 91% of those who have the disease test positive while 4% of those who do not have the disease test positive (*false positive*). If a person tests positive, what is the probability that he or she actually has the disease? 14) _____

ESSAY. (6pts each) Show all work to justify your answer. Answer with no work or insufficient work will receive no credit. Partial credit may be given.

Solve the problem.

15) In how many ways can a jury of 12 people be chosen from an available pool of fourteen women and six men if the jury must consist of eight women and four men?

16) At the Stop 'n Go tune-up and brake shop, the manager has found that an SUV will require a tune-up with a probability of 0.6, a brake job with a probability of 0.1 and both with a probability of 0.02. What is the probability that an SUV requires neither type of repair?

Use Bayes' rule to find the indicated probability.

17) An water well is to be drilled in the desert where the soil is either rock, clay or sand. The probability of rock P(R) = 0.53. The clay probability is P(C) = 0.21. The sand probability is P(S) = 0.26. It if it rock, a geological test gives a positive result with 35% accuracy. If it is clay, this test gives a positive result with 48% accuracy. The test gives a 75% accuracy for sand. Given the test is positive, what is the probability that soil is rock, P(rock | positive)?

Construct a frequency table.

18) The following is the number of hours students studied per week on average. Use five intervals, starting with 0 - 4.

2	9	14	19	20	21	18	10	5	2
5	13	17	24	15	13	4	9	14	19

Find the expected value.

19) Mr. Cameron is sponsoring an summer concert. He estimates that he will make $300,000 if it does not rain and make $60,000 if it does rain. The weather bureau predicts the chance of rain is 0.34 for the day of the concert. An insurance company is willing to insure the concert for $150,000 against rain for a premium of $30,000. If he buys this policy, what are his expected earnings from the concert?

1) A
2) D
3) C
4) D
5) C
6) D
7) B
8) B
9) C
10) A
11) 16.47
12) 150
13) 2
14) 0.487
15) $C(14, 8) \cdot C(6, 4) = 45{,}045$
16) 0.32
17) P(rock | positive) = 0.385
18)

Interval	Frequency
0-4	3
5-9	4
10-14	5
15-19	5
20-24	3

19) $239,400