1324 - Practice 4 (Final) - Spr18

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

Provide an appropriate response.

1) What proportion of the following sample of ten measurements lies within 1 standard deviation of the mean? 1) _____

5 6 5 4 6
6 7 8 7 6

A) 60% B) 100% C) 40% D) 80%

2) Here are the prices for 8 different MP3 players. Find the range. 2) _____

$195 $358 $201 $276 $161 $301 $387 $128

A) 230 B) 195 C) 259 D) 200

3) If a baseball player has a batting average of 0.420, what is the probability that the player will get at least 2 hits in the next four times at bat? 3) _____

A) 0.042 B) 0.559 C) 0.333 D) 0.50

Given a normal distribution with mean 120 and standard deviation 5, find the number of standard deviations the measurement is from the mean. Express the answer as a positive number.

4) 134.9 4) _____

A) 2.98 B) 2.18 C) 3.25 D) 3.02

Provide an appropriate response.

5) The life expectancy (in hours) of a fluorescent tube is normally distributed with mean 7,000 and standard deviation 1,000. Find the probability that a tube lasts for more than 8,900 hours. 5) _____

A) 0.0287 B) 0.0281 C) 0.9719 D) 0.9713

Solve the problem.

6) 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? 6) _____

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

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

Use a Venn Diagram and the given information to determine the number of elements in the indicated region.

8) At Southern States University (SSU) there are 399 students taking Finite Mathematics or Statistics. 238 are taking Finite Mathematics, 184 are taking Statistics, and 23 are taking both Finite Mathematics and Statistics. How many are taking Finite Mathematics but not Statistics? 8) _____

A) 192 B) 376 C) 161 D) 215

Solve the problem. Round to the nearest cent.

9) Larry wants to start an IRA that will have $410,000 in it when he retires in 21 years. How much should he invest semiannually in his IRA to do this if the interest is 6% compounded semiannually? 9) _____

A) $4985.59 B) $4998.59 C) $14,297.43 D) $3379.81

Find the monthly house payment necessary to amortize the following loan.

10) In order to purchase a home, a family borrows $70,000 at 12% for 15 years. What is the monthly payment? 10) _____

A) $840.12 B) $46.67 C) $902.99 D) $700.00

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide an appropriate response.

11) The test scores of 40 driver license applicants are summarized in the frequency table below. Find the standard deviation. 11) _____

Score	Students
50 - 59	8
60 - 69	7
70 - 79	12
80 - 89	7
90 - 99	6

Round your answer to one decimal place.

12) In a certain college, 33% of the math majors belong to foreign student. If 10 students are selected at random from the math majors, that is the probability that no more than 6 are foreign? 12) _____

Assume the distribution is normal. Use the area of the normal curve to answer the question. Round to the nearest whole percent.

13) The mean clotting time of blood is 7.35 seconds, with a standard deviation of 0.35 seconds. What is the probability that blood clotting time will be less than 7 seconds? 13) _____

Provide an appropriate response.

14) Find the mode for the data set: 14) _____
2, 11, 35, 2, 9, 35, 11, 9, 7, 2, 2, 2, 2, 9, 2

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

15) A botanist wants to grow a rare plant in his greenhouse. The probability that a given bulb will mature is 0.42. Suppose 6 bulbs are planted.
(A) Write the probability function defining this distribution.
(B) What is the probability that 3 or more bulbs will mature?
(Round your answer to three decimal places.)

16) A normal random variable X has mean 40 and standard deviation 16. Find the area under the normal curve above the interval 16-60.

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)?

Find the expected value.

18) 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?

Solve the problem.

19) At the end of every 3 months, Judy deposits $100 into an account that pays 6% compounded quarterly. After 4 years, she puts the accumulated amount into a certificate of deposit paying 7.5% compounded semiannually for 1 year. When this certificate matures, how much will Judy have accumulated?

1) D
2) C
3) B
4) A
5) A
6) D
7) D
8) D
9) B
10) A
11) 13.4
12) 0.9815
13) 16%
14) 2
15) (A) $P(x) = C_{6,\,x}\,(0.42)^{x}(0.58)^{6-x}$
(B) P(3 or more successes) = 0.497
16) 0.8276
17) P(rock | positive) = 0.385
18) $239,400
19) $1930.25