1. (TCO 9) The hours of study and the final exam grades have this type of relationship: $\hat{y} = 6.75(\text{hours}) + 37.45$. Based on this linear regression equation, estimate the expected grade for a student spending 8 hours studying. Round your answer to two decimal places. (Points : 6)

==91.45==

54

93.42

89.45

2. (TCO 5) A company produces electronic equipments claims that 98% of their products never need any kind of maintenance. We selected 10 of their products and we wanted to know the probability that 8 of them never need maintenance. Choose the best answer of the following: (Points : 6)

This is an example of a Poisson probability experiment

==This is an example of a Binomial probability experiment==

This is neither a Poisson nor a Binomial probability experiment

Not enough information to determine the type of experiment

3. (TCO 5) Microfracture knee surgery has a 75% chance of success on patients with degenerative knees. The surgery is performed on 5 patients. Find the probability of the surgery being successful on more than 3 patients? (Points : 6)

0.487304

0.367188

==0.632813==

0.762695

4. (TCO 5) It has been recorded that 10 people get killed by shark attack every year. What is the probability of having 7 or 8 people get killed by shark attack this year? (Points : 6)

0.130141

==0.202678==

0.220221

0.797321

5. (TCO 2) The mode teaching hours for a full time faculty at a state university is eight hours per week. What does this tell you about the typical teaching hours for full time faculty at that university? (Points : 6)

Half the full time faculties teach less than eight hours per week while half teaches more than eight hours per week.

The average teaching hours for full time faculty is eight hours per week.

==More full time faculty teaches eight hours per week than any other number of teaching hours.==

The number of teaching hours for full time faculty in not very consistent because eight is such a low number.

6. (TCO 6) Assuming that the data are normally distributed with a mean of 45 and a standard deviation of 3.25, what is the z-score for a value of 40? (Points : 6)
1.54
2.38
-1.36
-1.54

7. (TCO 8) The mean hours of Internet usage by adults in the US in claimed to be less than 25 hours per week. A hypothesis test is performed at a level of significance of 0.05 with a P-value of 0.11. Choose the best interpretation of the hypothesis test. (Points : 6)
Reject the null hypothesis; there is enough evidence to reject the claim that the mean of hours Internet usage by adults in the US is 25 hours.
Reject the null hypothesis; there is enough evidence to support the claim that the mean hours Internet usage by adults in the US is 25 hours per week.
Fail to reject the null hypothesis; there is not enough evidence to reject the claim that the mean hours of Internet usage by adults in the US is 25 hours per week.
Fail to reject the null hypothesis; there is not enough evidence to support the claim that the mean hours of Internet usage by adults in the US is 25 hours per week.

(Note: The answer choices here do not match up exactly with the problem statement. The "claim" in the problem statement is that Internet usage is **less than 25 hours**. The null hypothesis would be that usage is 25 hours or more. The claim would go with the alternative hypothesis. Since the p-value is greater than the level of significance, the null hypothesis is not rejected. So one of the last two answers is the one that should be selected. However, both of those choices are stated as though the claim is that usage = 25 hours. This does match with the phrasing of the null hypothesis (sort of), but does not match with the stated claim in the problem statement. I think the highlighted answer above is the best choice, but my opinion is that the question is poorly worded.)

8. (TCO 8) A result of an entry level exam reveals that 22% of students fail that exam. In a hypothesis test conducted at a level of significance of 2%, a P-value of 0.045 was obtained. Choose the best interpretation of the hypothesis test. (Points : 6)
Fail to reject the null hypothesis; there is not enough evidence to reject the claim that 22% of students fail the entry level exam.
Fail to reject the null hypothesis; there is not enough evidence to support the claim that 22% of students fail the entry level exam.
Reject the null hypothesis; there is enough evidence to reject the claim that 22% of students fail the entry level exam.
Reject the null hypothesis; there is enough evidence to support the claim that 22% of students fail the entry level exam.

(Another poorly worded question, but I believe that the highlighted answer is the best choice.)

9. (TCO 2) You want to buy light bulbs and you want to choose between two vendors. Vendor A's light bulbs have a mean life time of 800 hours and a standard deviation of 175 hours. Vendor B's light bulbs also have a mean life time of 800 hours, but a standard deviation of 225 hours. You want light bulbs that have more life time consistency, which vendor will you purchase from? (Points : 6)
Vendor A because you will be more likely get light bulbs with the same life time
Vendor B because you will be more likely get light bulbs with the same life time
Either one because both produce light bulbs with the same mean life time.
Neither one because a mean height of 800 inches is too short for a light bulb.

10. (TCO 4) A jar contains balls of four different colors; red, blue, yellow and green. The total balls are divides as 45% red, 35% blue, 15% yellow, and 5% green. If you are to select one ball at random. Find the expected value of your winning amount if the payments are set to be $5, $15, $25, $60 for red, blue, yellow and green ball respectively.

Winning amount
5
15
25
60
Probability
45%
35%
15%
5%
(Points : 6)
The expected winning amount is $28.50
The expected winning amount is $14.25
The expected winning amount is $25.50
The expected winning amount is $11.25

11. (TCO 3) The grades of 22 students are listed below. Use the stem & leaf to determine the shape of the distribution. Choose the best answer.
4 | 7 5
5 | 1 7 5
6 | 5 6 7 8 9
7 | 1 6 7 8 8 9
8 | 2 4 7 6
9 | 4 7

(Points : 6)
The data is symmetric
The data is skewed to the right
The data is skewed to the left
The data is bimodal

12. (TCO 1) A researcher is interested in studying people's mean age in a certain region. If the population standard deviation is known to be 8 years and 1.5 year of error margin is allowed, find the minimum simple size the researcher needs to use, knowing that he is going to conduct his study using 95% confidence level. (Points : 6)
Sample Size = 77
Sample Size = 25
Sample Size = 210
Sample Size = 110

13. (TCO 6) Horse race time is found to be normally distributed with a mean value of 18 minutes and a standard deviation of 4 minutes. Horses whose race time is in the top 6% will not be eligible to participate in a second round. What is the lowers race time that makes a horse losses his eligibility to participate in a second round? (Points : 6)
26.6
11.8
24.2
20.3

14. (TCO 5) A class containing 15 students 5 of them are females. In how many ways can we select a group of 4 male students? (Points : 6)
260
120
5040
210

15. (TCO 6) Research shows that the life time of Everlast automobile tires is normally distributed with a mean value of 60,000 miles and a standard deviation of 5,000 miles. What is the probability of having a tire that lasts more than 67,000 miles? (Points : 6)
0.9192
0.0808
1.40
0.0793

16. (TCO 10) A research shows that employee salaries at company XYX, in thousands of dollars, are given by the equation y-hat= 48.5 + 2.2 a + 1.5 b where 'a' is the years of experience, and 'b' is the education level in years. In thousands of dollars, predict the salary for an employee with 7 years experience and 12 years education level. (Points : 6)
52.2
81.9
67.5
63.9

17. (TCO 9) For the graph below, choose the statement that best describes the relationship between the variables.

(Points : 6)
As hours of absences increases, grades decreases.
As hours of absences decreases, grades increases.
As hours of absences increases, grades increases.
There is no relationship between hours of absences and grades.