Exam

Name_____

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

Provide an appropriate response.

1) A safety engineer wishes to use the following data to show the number of deaths from the collision of passenger cars with trucks on a particular highway. Use a time series chart to display the data. Describe any trends shown. 1) _____

Year	Number of Deaths
1930	12
1940	17
1950	22
1960	21
1970	16
1980	13
1990	11
2000	12

The Highway Patrol, using radar, checked the speeds (in mph) of 30 passing motorists at a checkpoint. The results are listed below.

44	**38**	**41**	**50**	**36**	**36**	**43**	**42**	**49**	**48**
35	**40**	**37**	**41**	**43**	**50**	**45**	**45**	**39**	**38**
50	**41**	**47**	**36**	**35**	**40**	**42**	**43**	**48**	**33**

2) Construct a frequency distribution, a relative frequency distribution, and a cumulative frequency distribution using six classes. 2) _____

3) Construct a frequency histogram, a relative frequency histogram and a frequency polygon using six classes. 3) _____

4) Construct an ogive using six classes. 4) _____

Provide an appropriate response.

5) Find the mean, median, and mode of the following numbers: 5) _____

96 99 92 96 89 97 96 90 91 94

6) In a random sample, 10 students were asked to compute the distance they travel one way to school to the nearest tenth of a mile. The data is listed below. Compute the range, standard deviation and variance of the data. 6) _____

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1.1 5.2 3.6 5.0 4.8 1.8 2.2 5.2 1.5 0.8

7) You are the maintenance engineer for a local high school. You must purchase fluorescent light bulbs for the classrooms. Should you choose Type A with μ = 3000 hours and σ = 200 hours, or Type B with μ = 3000 hours and σ = 250 hours? 7) _____

8) The test scores of 30 students are listed below. 8) _____

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a) Draw a box-and-whisker plot that represents the data
b) Use the data to identify any outliers.
c) About how many scores fall on or below the third quartile?

31	41	45	48	52	55	56	56	63	65
67	67	69	70	70	74	75	78	79	79
80	81	83	85	85	87	90	92	95	99

9) You are performing a study about the weight of preschoolers. A previous study found the weights to be normally distributed with a mean of 30 and a standard deviation of 4. You randomly sample 30 preschool children and find their weights to be as follows. 9) _____

25	25	26	26.5	27	27	27.5	28	28	28.5
29	29	30	30	30.5	31	31	32	32.5	32.5
33	33	34	34.5	35	35	37	37	38	38

a) Draw a histogram to display these data. Use seven classes. Do the weights appear to be normally distributed? Explain.
b) Find the mean and standard deviation of your sample.

Provide an appropriate response. Use the Standard Normal Table to find the probability.

10) Assume that the heights of women are normally distributed with a mean of 160 cm and a standard deviation of 7 cm. The Army requires that the heights of women be between 150 and 200 cm. If a woman is randomly selected, what is the probability that her height is between 150 and 200 cm? 10) _____

Provide an appropriate response.

11) In a random sample of 60 computers, the mean repair cost was 150 TL. Assume the population standard deviation is 36 TL. 11) _____

a) Construct the 99% confidence interval for the population mean repair cost.
b) If the level of confidence was lowered to 95%, what will be the effect on the confidence interval?

12) A survey of 300 fatal accidents showed that 123 were alcohol related. Construct a 98% confidence interval for the proportion of fatal accidents that were alcohol related. 12) _____

13) A fast food outlet claims that the mean waiting time in line is less than 3.4 minutes. A random sample of 60 customers has a mean of 3.3 minutes with a population standard deviation of 0.6 minute. If α = 0.05, test the fast food outlet's claim. 13) _____

14) A local group claims that the police issue more than 60 speeding tickets a day in their area. To prove their point, they randomly select two weeks. Their research yields the number of tickets issued for each day. The data are listed below. At $\alpha = 0.01$, test the group's claim using P- values. 14) _____

70 48 41 68 69 55 70
57 60 83 32 60 72 58

15) A telephone company claims that 20% of its customers have at least two telephone lines. The company selects a random sample of 500 customers and finds that 88 have two or more telephone lines. If $\alpha = 0.05$, test the company's claim using critical values and rejection regions. 15) _____