




Statistics 114

Sample Fourth Long Examination

TGCapistrano

**I. FILL IN THE BLANKS.**

1. The distribution of the data set with the following boxplot  is skewed to the \_\_\_\_\_.
2. In a stem-and-leaf display, if the unit=10 then 3 | 41 represents the value \_\_\_\_\_.
3. Methods used in exploratory data analysis that change only slightly when a small part of the data is replaced by numbers that are different from the original ones are called \_\_\_\_\_ methods.
4. The depth of the fourth is \_\_\_\_\_.
5. 30:150 :: \_\_\_\_\_:10.
6. If the price of an item that originally costs P550.50 is being sold at a discounted price of P400.00 then the discount is \_\_\_\_\_%.
7. If the price index for 1998 is 89 and the base period is 1994 then the prices decreased from 1994 to 1998 by \_\_\_\_\_%.
8. If the price index for 1998 is 89 and the base period is 1994 then the prices in 1994 is \_\_\_\_\_% of the prices in 1998.
9. If the price index for 1998 is 89 and the base period is 1994 then the prices in 1998 is \_\_\_\_\_% of the prices in 1994.
10. If the population size in 2000 is 3000 and the population size 10 years later is 20,000 then the annual rate of increase in population is \_\_\_\_\_.
11. If the production of Item A is 225% more in Region 1 than in Region 2 and the production in Region 1 is 1,823,750 tons then the production in Region 2 is \_\_\_\_\_ tons.
12. The formula used to compute for the price index using Edgeworth-Marshall is \_\_\_\_\_.
13. The formula used to compute for the quantity index using Edgeworth-Marshall is \_\_\_\_\_.
14. The \_\_\_\_\_ shows how much the peso in the base period is worth in another period.
15. The \_\_\_\_\_ is the annual rate of change or year-on-year change in CPI.

Refer to the table below on the percent relative series of the production of corn to answer nos. 16 to 20:

Year	1991	1992	1993	1994	1995	1996	1997	1998	1999
Percent relatives (1991=100)	100.0	86.8	104.3	116.3	136.1	135.1	118.3	126.8	118.5

16. The production of corn in 1999 is \_\_\_\_\_% of the production of corn in 1991.
17. The a) (increase/decrease) in the production of corn in 1999 is b) \_\_\_\_\_% of the production of corn in 1991.
18. Using 1991 as the base period, the a) (increase/decrease) in percent relatives from 1998 to 1999 is b) \_\_\_\_\_ percentage points.
19. The a) (increase/decrease) in the production of corn from 1998 to 1999 is b) \_\_\_\_\_% of the production in 1998.
20. The a) (increase/decrease) in the production of corn from 1993 to 1994 is b) \_\_\_\_\_% of the production in 1993.

**II. Answer the following problems. Always show your solution.**

1. The charges per day for a semiprivate room in a hospital were as follows:

Year	1	2	3	4
Charge(Php)	650	660	690	720

- a) Compute for the link relative series.
- b) Determine the average of the computed link relative series, that is, determine the average annual increase in the daily charge for this room? Use the most appropriate measure of central tendency in answering the question.

2. The following are the body weights (in grams) of 30 rats used in a study of vitamin deficiencies:

103	125	91	115	109	137	148	127	112	153
133	135	65	128	115	119	124	115	93	134
141	117	118	125	116	104	123	125	121	115

- a) Compute for all the letter values in the 5-number summary.
- b) Construct the boxplot based on the computed values in (a).

3. The following are the engine size of a sample of different models of cars. Construct the stem-and-leaf display. Do not forget to indicate the units of the leaves.

1.8	3.2	2.8	2.8	3.5	2.2	3.8	5.7	3.8	4.9
4.6	2.2	2.2	3.4	2.2	3.8	4.3	5.0	5.7	3.3
3.0	3.3	1.5	2.2	2.5	3.0	2.5	3.0	3.5	1.3
1.8	2.3	2.3	2.0	3.0	3.0	4.6	1.0	1.6	2.3
1.5	2.2	1.5	1.8	1.5	2.0	4.5	3.0	3.0	3.8

4. The tables below show the prices and production of four building materials from 1996 to 1999.

Material	Prices				Production			
	1996	1997	1998	1999	1996	1997	1998	1999
Southern pine boards	82.21	77.55	76.08	80.65	8436	6720	6888	7591
Portland cement	2.89	3.21	3.27	3.30	316	298	311	339
Linseed oil	0.14	0.14	0.14	0.13	620	566	457	487

- a) Compute for the 1998 price index with 1996 as the base period using the following methods:
  - (i) simple aggregate index
  - (ii) Laspeyres method
- b) Compute for the 1998 quantity index with 1996 as the base period using the following methods:
  - (i) Paasche method
  - (ii) Fishers method

5. The accident record for a plant is as follows.

Year	1	2	3
No. of hours worked (in millions)	3.5	4	4.25
No. of Accidents	12,535	10,810	11,691

- a) Compute for the number of hours worked per accident for each year.
- b) Compute for the average of these three ratios:
  - i. using the formula for the ratio of sums, R
  - ii. using the formula for the weighted arithmetic mean
  - iii. using the formula for the weighted harmonic mean

(Note: Always write the formula used and indicate the weights used in (ii) and (iii).)