

PARUL UNIVERSITY
FACULTY OF LAW
I-B.Com. LL.B Summer 2018 – 19 Examination

Semester:4
Subject Code: 17302281
Subject Name: Business Statistics

Date:16/04/2019
Time:10:30 to 01:00pm
Total Marks: 60

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Do as directed.**(15)**

1. Define index number.
2. Newton's Forward interpolation method is used for unequal data points. True /false
3. State one difference between correlation and regression.
4. A circle which is divided into sections or wedges according to the proportion of the data set in each category is called _____
5. What are the three measures of central tendency.
6. In the _____ method the preceding year is taken as the base year for calculating index number.
7. Name any two types of graphs.
8. Define kurtosis.
9. Write the relation between mean, median and mode.
10. Third moment about the mean measures _____.
11. Mode of the following data 3,4,1,2,3,5,1,2,3,9,3 is,
 - a) 3
 - b) 2
 - c) 4
 - d) 1
12. The index number for the base year is,
 - a) 0
 - b) 100
 - c) 1
 - d) none of the above
13. The range of coefficient of correlation is
 - a) 0 to 1
 - b) 0 to ∞
 - c) -1 to 1
 - d) none of the above
14. Mean for the data 1,3,5,9,2 is,
 - a) 3
 - b) 20
 - c) 5
 - d) 4
15. The value of p for the data $x = 0,1,2,3,4$ and $y = 2,4,6,8,9$ for $x = 2.1$ in Newton's backward interpolation method, is
 - a) -1.9
 - b) 2.1
 - c) 0
 - d) 2.7

Q.2 A) Answer the following**(15)**

1. Construct an ogive for the following data.

| Interval | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 |
|-----------|-------|-------|-------|-------|-------|
| Frequency | 5 | 7 | 12 | 10 | 6 |

2. Construct forward interpolation table for the following data.

| | | | | | |
|---|----|----|----|----|----|
| X | 0 | 1 | 2 | 3 | 4 |
| y | 12 | 16 | 14 | 24 | 28 |

3. Find the mean of the following data.

| | | | | | | |
|-------|---|----|----|---|---|---|
| x_i | 0 | 1 | 2 | 3 | 4 | 5 |
| f_i | 3 | 20 | 15 | 8 | 3 | 1 |

4. Write any three merits of sampling.

5. For 50 families in a society, the number of children per family were found to be as follows.

3,0,1,2,3,4,5,3,4,5,
2,2,3,1,2,3,4,2,1,3
4,1,1,0,3,2,3,5,1,0
4,2,3,3,2,1,0,3,4
3,2,2,0,1,4,5,3,2,1,1

Prepare a discrete frequency distribution.

Q.3 A)

(08)

1. Construct the price index number for 2003, taking the year 2000 as base year

| Commodity | Price in the year | |
|-----------|-------------------|------|
| | 2000 | 2003 |
| A | 60 | 80 |
| B | 50 | 60 |
| C | 70 | 100 |
| D | 120 | 160 |
| E | 100 | 150 |

2. Prepare simple aggregative price index number from the following data:

| Commodity | Rate Unit | Price(1995) | Price(2004) |
|-----------|-----------|-------------|-------------|
| Wheat | Per 10kg | 100 | 140 |
| Rice | Per 10kg | 200 | 250 |
| Pulses | Per 10kg | 250 | 350 |
| Sugar | Per kg | 14 | 20 |
| Oil | Per litre | 40 | 50 |

OR

A) Find the Spearman's Rank correlation coefficient of the following ranks given by Judge A and Judge B

(08)

| | | | | | | | | | | |
|---------|---|---|---|---|---|----|---|----|---|---|
| Judge A | 3 | 5 | 8 | 4 | 7 | 10 | 2 | 1 | 6 | 9 |
| Judge B | 6 | 4 | 9 | 8 | 1 | 2 | 3 | 10 | 5 | 7 |

B) Estimate the population of 1995 using the following information by Lagrange interpolation method.

(07)

| | | | |
|-----------------------|------|------|------|
| Year | 1991 | 1996 | 2000 |
| Population(in lakhs) | 12 | 15 | 20 |

OR

B) Find the mean and mode of the following data.

(07)

| | | | | | |
|-------|-------|-------|-------|-------|-------|
| Class | 10-19 | 20-29 | 30-39 | 40-49 | 50-59 |
| f_i | 2 | 9 | 15 | 14 | 10 |

Q.4 A) Compute first, second and third moments for the following data.

(07)

| | | | | | |
|-----------|-----|-----|-----|-----|------|
| Class | 0-2 | 2-4 | 4-6 | 6-8 | 8-10 |
| Frequency | 5 | 18 | 42 | 27 | 8 |

B) Answer the following .

(08)

- Median and mode for 10 observations are respectively 44.4 and 45.5 . Find the mean.
- Draw the histogram of the following data, 1,1,2,2,2,2,2,3,3,3,3,4,4,5.
- How many types of data are there, name them by giving example.
- Write the cumulative frequency for the following data :
3,4,9,6,7,8,9,10