

Vidya Vikas Mandal's

Shree Damodar College of Commerce and Economics, Margao-Goa

FYBBA (FS), Semester II, End Semester Examination, April 2015

DATA ANALYSIS AND QUANTITATIVE TECHNIQUES

Duration: 2 Hours

Total Marks: 60

Instructions: 1) All questions are compulsory.

2) Figures to the right indicate full marks.

1. Answer **ANY TWO** of the following. (6 X 2 =12)

a) Two cards are drawn from a pack of 52 cards. Find the probability that

- 1) Both are spades
- 2) One is red and one is black
- 3) Both are of the same suit

b) The watches produced by a certain company include only one defective watch in every 500 watches. 5 packets of 25 watches each are considered. Find the probability that in 5 packets there is

- 1) No defective watch
- 2) One defective watch
- 3) At least one defective watch.

c) The weights of 4000 students are found to be normally distributed with mean 50kg and standard deviation 5 kg. Find the number of students with weights

- 1) Less than 45kg
- 2) Between 45kg and 60 kg.

(Given  $F(0)=0.5$ ,  $F(1)=0.8413$ ,  $F(2)=0.9772$ )

2. Answer **ANY TWO** of the following. (6X2=12)

a) The prices of sugar per 100kg are given in the following data

Construct (a) Fixed base index numbers (taking 1987 as the base year)

| Year           | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
|----------------|------|------|------|------|------|------|------|------|
| Price of sugar | 210  | 225  | 236  | 250  | 290  | 310  | 330  | 355  |



- b) Construct Laaspeyre's and Paasche's index numbers of price from the following data

| Commodity | Current Year  |          | Base Year     |          |
|-----------|---------------|----------|---------------|----------|
|           | Price (in Rs) | Quantity | Price (in Rs) | Quantity |
| A         | 12            | 4        | 9             | 8        |
| B         | 11            | 10       | 12            | 7        |
| C         | 7             | 9        | 6             | 10       |

- c) The price quotations of four different commodities for 1981 and 1985 are given below.

Calculate the index number for 1985 with 1981 as base by using

- 1) Weighted aggregative price index number
- 2) Simple aggregative price index number
- 3) Simple average of price relatives

| Commodity | Weight | Price (in Rs) |      |
|-----------|--------|---------------|------|
|           |        | 1981          | 1985 |
| A         | 5      | 2             | 4.5  |
| B         | 7      | 2.5           | 3.2  |
| C         | 6      | 3             | 4.5  |
| D         | 2      | 1             | 8.1  |

3. Answer **ANY TWO** of the following.

(6X2=12)

- a) Calculate the mean and the harmonic mean for the following data

| x | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 |
|---|------|-------|-------|-------|-------|-------|
| f | 12   | 18    | 27    | 20    | 17    | 6     |

- b) Compute the median for the following data

| Less than value | 10 | 20 | 30 | 40 | 50 | 60  | 70  | 80  |
|-----------------|----|----|----|----|----|-----|-----|-----|
| Frequency       | 4  | 15 | 40 | 76 | 96 | 112 | 120 | 125 |

- c) Calculate the quartiles for the data given below:

| x | 15-25 | 25-35 | 35-45 | 45-55 | 55-65 |
|---|-------|-------|-------|-------|-------|
| f | 10    | 12    | 18    | 5     | 15    |



4. Answer **ANY TWO** of the following.

(6X2=12)

- a) Calculate the mean deviation from the mean and median for the following data

|   |     |     |     |     |     |     |     |     |     |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| x | 100 | 150 | 200 | 250 | 360 | 490 | 500 | 600 | 671 |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|

- b) Calculate the semi-inter quartile range for the following data

|   |       |       |       |       |       |
|---|-------|-------|-------|-------|-------|
| x | 15-25 | 25-35 | 35-45 | 45-55 | 55-65 |
| f | 20    | 18    | 32    | 18    | 12    |

- c) Calculate the standard deviation for the following data

|                 |      |       |       |       |       |
|-----------------|------|-------|-------|-------|-------|
| Marks           | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 |
| No. of students | 12   | 21    | 23    | 34    | 10    |

5. Answer **ANY ONE** of the following.

(1X12=12)

- a) Calculate for the following data

(1) Karl Pearson's coefficient of correlation

(2) Spearman's Rank Correlation Coefficient

|   |    |   |   |    |    |    |   |
|---|----|---|---|----|----|----|---|
| x | 12 | 9 | 8 | 10 | 11 | 13 | 7 |
| y | 14 | 8 | 6 | 9  | 11 | 12 | 3 |

- b) Obtain the two regression lines from the following data and hence determine (1) most likely value of y when x is 3.5

(2) most likely value of x when y is 10

|   |   |    |    |   |   |
|---|---|----|----|---|---|
| x | 6 | 2  | 10 | 4 | 8 |
| y | 9 | 11 | 5  | 8 | 7 |

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