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SEAT No. :

PA-3537

[Total No. of Pages : 5

[5953]-205

F.Y. B.B.A. (Semester - II)

205 : BUSINESS STATISTICS

(2019 Pattern)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates :

- 1) All questions are compulsory.
- 2) Figures to the right indicate full marks.
- 3) Notations & abbreviations have their usual meaning.
- 4) Simple calculator is allowed.

Q1) A) Fill in the blanks :

[5 × 2 = 10]

- a) In an exclusive type distribution, the limits excluded are \_\_\_\_\_.
- b) If the lower & upper limit of the class are 10 & 40 respectively, the mid-point of the class is \_\_\_\_\_.
- c) Mean is a measure of \_\_\_\_\_.
- d) The functional relationship of a dependent variable with Independent variable(s) is called \_\_\_\_\_.
- e) Best measure of dispersion is \_\_\_\_\_.

B) State whether the following statements are True or False : [3 × 2 = 6]

- a) Second quartile is same as Median.
- b) Mid-values of the classes are also called class-mark.
- c) Index numbers are expressed in terms of absolute value.

Q2) Attempt any four of the following :

[4 × 4 = 16]

- a) Define Arithmetic mean. State its two merits & demerits.
- b) Write a note on measures of dispersion.

P.T.O.

- c) Draw a frequency polygon for the following data.

Monthly House Rent	No. of families
100 - 300	6
300 - 500	16
500 - 700	24
700 - 900	20
900 - 1100	10
1100 - 1300	4

- d) Compute regression coefficients & hence verify that correlation coefficient lies between them.

$$h = 100, \bar{x} = 60, \bar{y} = 50, \sigma_x = 10, \sigma_y = 12$$

$$\sum (x - \bar{x})(y - \bar{y}) = 8400$$

- e) Suppose in Dec. 1995 land was purchased at cost Rs. 50,000. It was sold at cost Rs. 1,50,000 in Feb 2002. Find the real capital gain if the cost of inflation index in 1995-96 is 281 & that in 2001-02 is 426.
- f) Following is the data related to the frequency distribution of monthly wages of 100 workers.

Monthly Wages in Rs.	No. of Workers
4000 - 5000	11
5000 - 6000	15
6000 - 7000	27
7000 - 8000	19
8000 - 9000	16
9000 - 10,000	12

Find

- Class - width of first class
- Class - mark of second class
- Number of workers having wages less than Rs. 6,000
- Number of workers having wages more than Rs 6,000.

**Q3)** Attempt any four of the following :

**[4 × 4 = 16]**

- a) Explain the need of classification. Explain the different methods of classification.
- b) Explain the limitations of Index Numbers.
- c) Yearwise & Genderwise strength of certain college is given below :

Year	2003	2004	2005	2006	2007
Boys	1250	1500	1600	1900	2000
Girls	1000	1300	1600	1800	1900

Represent the data by multiple bar diagram.

- d) From the following data find the missing frequencies, it is given that mean is 15.3818 & total frequency is 55.

Class	9-11	11-13	13-15	15-17	17-19	19-21
Frequency	3	7	-	20	-	5

- e) Revenue department is trying to estimate the monthly amount of unpaid taxes. Suppose X denote field audit labour hours & Y denote unpaid taxes. Using last 10 months data the following summary is obtained.

$$\Sigma x = 441, \Sigma y = 272, \Sigma x^2 = 19461$$

$$\Sigma y^2 = 7428, \Sigma xy = 12,005$$

Determine the Regression line Y on X.

**Q4)** Attempt any four of the following :

**[4 × 4 = 16]**

- a) Define 'Regression'. State the situations where regression analysis is used.
- b) What is dispersion? What purpose does it serve in the study of distribution?

c) Compute S.D. for the following data.

Marks	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50
No. of students	3	7	25	20	5

d) Calculate median for the following frequency distribution.

Marks	below 20	21-40	41-60	61-80	81-100
No. of students	1	9	32	16	7

e) Define Index numbers & Give the comparison between Laspeyre's & Paasche's Index numbers.

f) Draw a pie diagram to represent the following data.

Group of item	Average monthly expenses of a family (in Rs)
Food	2400
Clothing	1400
House rent	1600
Fuel & lighting	600
Miscellaneous	2000

Q5) Attempt any one of the following :

[1 × 6 = 6]

a) The following data represents the goal scored by two teams in football matches.

Number of Goals	0	1	2	3	4
No. of matches by team A	20	12	8	3	2
No. of matches by team B	18	10	7	6	4

Which team scores more goal in average? Which team is more consistent?

- b) Following data gives expenditure incurred on Advertisement & sales for 10 years.

Expenses in Thousand (X)	Sales in lakh (Y)
10	5.0
12	5.1
15	5.4
14	5.5
16	5.7
20	5.9
19	6.0
24	7.3
26	7.5
30	7.8

- i) Find appropriate line of regression to estimate sales for given advertisement. Also estimate sales if Advertisement expenses is Rs. 35,000.
- ii) To achieve sales target of Rs. 10 lakhs how much you need to invest in advertisement.

