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SEAT No. :

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F.Y. B.B.A.(CA)  
CA 105 : BUSINESS STATISTICS  
(2019 Pattern) (Semester - I)

[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 and abbreviations have their usual meaning.
- 4) Simple calculator is allowed.

Q1) A) Fill in the blanks:

[2×5=10]

- i) The degree to which numerical data tend to spread about an average value is called the .....
- ii) ..... makes clear presentation of data.
- iii) The two numbers designating the class interval are called as .....
- iv) The observation with maximum frequency or the most repeated observation is called as .....
- v) ..... diagrams are graphs of the data that are helpful in displaying the relationship between variables.

B) State whether the following statement are true OR False.

[3×2=6]

- i) The correlation coefficient can take a value between -1 and 1.
- ii) If each frequency is doubled, then the arithmetic mean is also doubled.
- iii) Variance is never negative.

P. T. O.

Q2) Attempt any FOUR of the following:

[4x4=16]

- a) Write meaning and definition of statistics. Explain the importance of statistics.
- b) Calculate mode of the given frequency distribution:

Marks	0-10	10-20	20-30	30-40	40-50
No. of students	7	10	22	10	8

- c) Find standard deviation: 6, 4, 5, 3, 12, 10.
- d) Out of 800 employees appeared for a promotion test, 320 were married. Among 240 who were unsuccessful, 96 were married. Present the information in a tabular form.
- e) Prepare histogram from the following data:

Class	0-20	20-40	40-60	60-80	80-100
Frequency	2	18	42	28	5

- f) Compute the median from the following data:

Size	2	3	4	5	6	7	8	9	10	11	12	13
Frequency	3	8	10	12	16	14	10	8	17	5	4	1

Q3) Attempt any FOUR of the following:

[4x4=16]

- a) Calculate mean and mode from the following:  
5, 20, 18, 12, 20, 21, 18, 26, 5, 15, 20
- b) Calculate coefficient of correlation for the following:  
X: 6 2 10 4 8  
Y: 9 11 5 8 7
- c) Define correlation. Explain the properties of Karl Pearson's coefficient of correlation.

P.T.O.

d) Following are the marks out of 60 of 40 students.

55, 51, 57, 40, 26, 43, 46, 41, 46, 48,  
33, 40, 26, 40, 40, 41, 43, 53, 45, 53,  
33, 50, 40, 33, 40, 26, 53, 59, 33, 39,  
55, 48, 15, 26, 43, 59, 51, 39, 15, 45.

Construct frequency distribution from the above given marks using intervals 10-20, 20-30 and so on.

e) The following is the distribution of height of students in a class of secondary school.

Height in cm	130-134	135-139	140-144	145-149	150-154	155-159
No. of students	5	15	28	24	17	11

- State the type of classification.
  - Find the class mark of 4<sup>th</sup> class
  - How many students have height less than 145cm?
  - How many students have height more than 150cm?
- f) Average marks of 30 candidates was 40. Later on it was found that a score of 47 was misread as 74. Find the correct average.

Q4) Attempt any FOUR of the following:

[4x4=16]

- Write short note on scatter diagram.
- Compute quartile deviation and its coefficient from the following data:  
8, 12, 10, 18, 28, 17, 20, 22, 12, 9, 16
- Find combined standard deviation:  
Group I:  $n_1 = 100, \bar{x}_1 = 50, \sigma_1 = 10$   
Group II:  $n_2 = 150, \bar{x}_2 = 55, \sigma_2 = 11$ .
- Find correlation coefficient between X and Y given that:  
 $n = 100, \bar{x} = 62, \bar{y} = 53, \sigma_x = 10, \sigma_y = 12, \sum(x - \bar{x})(y - \bar{y}) = 8000$ .

P. T. O.

e) Represent the following data expressing yearly values in thousand rupees by multiple bar diagram.

Year	Expenditure	Income
2010	63	70
2011	84	96
2012	105	125

f) Explain the different parts of statistical table.

Q5) Attempt any ONE of the following: [1x6=6]

a) From the data given below, find both the regression equations:

X	14	19	24	21	28	22	15	20	19	20
Y	31	36	48	37	50	45	33	41	39	40

b) Calculate mean, median and mode from the following data:

Class	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	15	20	37	36	12	4

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