

**R17**
**Code No: 741AD**
**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**
**MBA I Semester Examinations, June/July-2018**
**BUSINESS STATISTICS**
**Time: 3hours**
**Max.Marks:75**
**Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

**PART - A**
**5 × 5 Marks = 25**

- 1.a) With the help of few examples explain the role of statistics as a managerial tool. [5]
- b) Describe briefly the various methods of measuring variation? [5]
- c) Distinguish between classification and tabulation of data. [5]
- d) Differentiate between one way and two ways ANNOVA by giving suitable examples. [5]
- e) What is an index number? Describe briefly its applications in business and industry. [5]

**PART - B**
**5 ×10 Marks = 50**

- 2.a) Give a brief note of the measures of central tendency together with their merits and demerits.
- b) Which is the best measure of central tendency and why?
- c) The median and mode of the following wage distribution are Rs. 33.5 and Rs. 34 respectively. However, three frequencies are missing. Determine their values. [10]

Wages (in hundred Rs.)	0-10	10-20	20-30	30-40	40-50	50-60	60-70	Total
Frequencies	4	16	?	?	?	6	4	230

**OR**

- 3.a) Prove that the arithmetic mean of two positive numbers a and b is at least as large as their geometric mean.
- b) Income of employees in an industrial concern are given below. The total income of the 10 employees in the class over Rs. 25,000 is Rs. 3,00,000. Compute the mean income. Every employee belonging to the top 25% of the earners is required to pay 5% of his income to workers' relief fund. Estimate the contribution to this fund. [10]

Income(Rs.)	Employers	Income(Rs.)	Employers
Below 5000	90	15000-20000	80
5000-10000	150	20000-25000	70
10000-15000	100	25000 and over	10

4. Particulars regarding the income of two villages are given below:

	Village X	Village Y
Number of employees	600	500
Average income(in Rs.)	1750	1860
S.D. of income(in Rs.)	100	81

- a) In which village is the variation in income greater?  
 b) What is the combined standard deviation of the village X and village Y put together?

[10]

**OR**

- 5.a) Under what circumstances range is more meaningful than any other measure of variation?  
 b) Is standard deviation independent of change of scale and origin?  
 c) A study of the age of 100 persons grouped in interval of 20-22, 22-24,.... etc , revealed the mean age and standard deviation to be 32.03 and 13.18 respectively. While checking, it was discovered that the observation 57 was misread as 27. Calculate the correct mean age and standard deviation.  
 d) What are the properties of a good measure of variation?
- 6.a) Describe briefly the classification of data.  
 b) Two different types of drugs A and B were tried on certain patients for increasing weight, 5 persons were given drug A and 7 persons were given drug B. The increase in weight(in pounds) is given below.

[10]

Drug A	8	12	13	9	3		
Drug B	10	8	12	15	6	8	11

Do the two drugs differ significantly with regard to their effect in increasing weight?

[5+5]

**OR**

- 7.a) Explain t-test distribution and its properties.  
 b) The profits( in lakhs of rupees) of 30 companies for the year 1999-2000 are given below:  
 20,22,35,42,37,42,48,53,49,65,39,48,67,18,16,23,37,35,49,63,65,55,45,58,57,69,25,29,58,65.  
 Classify the above data taking class interval.  
 c) What do you understand by degrees of freedom?
- 8.a) How is Scatter diagram helpful in the study of correlation?  
 b) Given the following bivariate data:

[10]

X	-1	5	3	2	1	1	7	3
Y	-6	1	0	0	1	2	1	5

- i) Fit a regression line of Y on X and predict Y if X=10  
 ii) Fit a regression line of Y on X and predict X if Y=25

[5+5]

**OR**

9. A company appoints four salesman A, B, C and D and observes their sales in three seasons-summer, winter and monsoon. The figures(in lakhs) are given in the following table:

Salesman					
Season	A	B	C	D	Total
Summer	36	36	21	35	128
Winter	28	29	31	32	120
Monsoon	26	28	29	29	112
Total	90	93	81	96	360

Carry out an analysis of variance.

[10]

10. Describe briefly on unweighted index number and what are the merits and limitation of this method?

[10]

**OR**

11. Fit a straight line trend by the method of least squares to the following data and find the trend values.

year	2003	2004	2005	2006	2007	2008
Sales of airconditioners(in lakhs)	10	13	16	21	24	30

[10]

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