

Satyug Darshan Institute of Engineering & Technology, Faridabad

Department of Management Studies

Academic year 2025-26

Programme: BBA-DM	Year & Semester: 2 nd
Course Name: BUSINESS STATISTICS	Course Code: BBG-110-V1
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Unit I

Short answer questions

Q.N.	Question	KL
1	What are the limitations of business statistics?	KL1
2	Is statistics science or art?	KL1
3	Explain the applications of business statistics.	KL2
4	Define classification of data.	KL1
5	Explain open ended series with example.	KL2

Long answer questions

Q.N.	Question	KL
1	Define the meaning, purpose, scope and limitations of statistics.	KL1
2	How far can statistics be applied to business and management decisions? Discuss briefly bringing out limitations, if any.	KL1
3	Comment on the statement “statistics is the science of averages”	KL3
4	Explain the different types of graphs with examples.	KL2
5	Explain the different types of diagrams in detail with examples.	KL2

Unit II

Short answer questions

Q.N.	Question	KL
1	Explain the limitations of median	KL2
2	Define mode.	KL1
3	Define harmonic mean	KL1
4	Define Range	KL1
5	Define mean and standard deviation	KL1

Long answer questions

Q.N.	Question	KL
1	Explain the different test of skewness	KL4
2	Discuss the different methods of measures of central tendency.	KL2

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3	An incomplete distribution family according to their expenditure per week is given below. The median and mode for the distribution is Rs.25 and Rs.24 respectively. Calculate missing frequencies: <table><tr><td>Expenditure</td><td>0-10</td><td>10-20</td><td>20-30</td><td>30-40</td><td>40-50</td></tr><tr><td>No. of Families</td><td>14</td><td>?</td><td>27</td><td>?</td><td>15</td></tr></table>	Expenditure	0-10	10-20	20-30	30-40	40-50	No. of Families	14	?	27	?	15	KL4																
Expenditure	0-10	10-20	20-30	30-40	40-50																									
No. of Families	14	?	27	?	15																									
4	You are given below the daily wages paid to workers in two factories X and Y: <table><tr><td>Daily wages</td><td colspan="2">No. of Workers</td></tr><tr><td></td><td>Factory X</td><td>Factory Y</td></tr><tr><td>12-13</td><td>15</td><td>25</td></tr><tr><td>13-14</td><td>30</td><td>40</td></tr><tr><td>14-15</td><td>44</td><td>60</td></tr><tr><td>15-16</td><td>60</td><td>35</td></tr><tr><td>16-17</td><td>30</td><td>12</td></tr><tr><td>17-18</td><td>14</td><td>15</td></tr><tr><td>18-19</td><td>7</td><td>5</td></tr></table> Which factory have more consistent wage structure?	Daily wages	No. of Workers			Factory X	Factory Y	12-13	15	25	13-14	30	40	14-15	44	60	15-16	60	35	16-17	30	12	17-18	14	15	18-19	7	5	KL3	
Daily wages	No. of Workers																													
	Factory X	Factory Y																												
12-13	15	25																												
13-14	30	40																												
14-15	44	60																												
15-16	60	35																												
16-17	30	12																												
17-18	14	15																												
18-19	7	5																												
5	Calculate Mode and Arithmetic Mean from the following data of marks in a class test: <table><tr><td>Marks Obtained</td><td>No. of Students</td><td>Marks Obtained</td><td>No. of students</td></tr><tr><td>0-2</td><td>5</td><td>25-30</td><td>20</td></tr><tr><td>2-4</td><td>10</td><td>30-40</td><td>10</td></tr><tr><td>4-10</td><td>20</td><td>40-50</td><td>5</td></tr><tr><td>10-15</td><td>30</td><td></td><td></td></tr><tr><td>15-20</td><td>40</td><td></td><td></td></tr><tr><td>20-25</td><td>50</td><td></td><td></td></tr></table>	Marks Obtained	No. of Students	Marks Obtained	No. of students	0-2	5	25-30	20	2-4	10	30-40	10	4-10	20	40-50	5	10-15	30			15-20	40			20-25	50			KL3
Marks Obtained	No. of Students	Marks Obtained	No. of students																											
0-2	5	25-30	20																											
2-4	10	30-40	10																											
4-10	20	40-50	5																											
10-15	30																													
15-20	40																													
20-25	50																													

Unit III

Short answer questions

Q.N.	Question	KL
1	Explain the properties of rank correlation coefficient	KL2
2	Explain standard error of estimate in regression	KL2
3	Difference between correlation and regression	KL3
4	Difference between positive and negative correlation	KL3
5	Explain multiple correlation	KL2

Long answer questions

Q.N.	Question	KL														
1	Define the coefficient of correlation. what is it intended to measure? How would you interpret the sign and magnitude of a calculated correlation coefficient?	KL3														
2	Find Karl Pearson's coefficient of correlation from the following data: <table><tr><td>X</td><td>9</td><td>28</td><td>45</td><td>60</td><td>70</td><td>50</td></tr><tr><td>Y</td><td>100</td><td>60</td><td>50</td><td>40</td><td>33</td><td>57</td></tr></table>	X	9	28	45	60	70	50	Y	100	60	50	40	33	57	KL3
X	9	28	45	60	70	50										
Y	100	60	50	40	33	57										

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	Also, calculate probable error and point out whether coefficient of correlation is significant or not.																																		
3	Find the regression line for the following data: <table><tr><td>X</td><td>6.25</td><td>6.5</td><td>6.5</td><td>6</td><td>6.25</td><td>6.25</td></tr><tr><td>Y</td><td>4.03</td><td>4.02</td><td>4.02</td><td>4.04</td><td>4.03</td><td>4.03</td></tr></table>	X	6.25	6.5	6.5	6	6.25	6.25	Y	4.03	4.02	4.02	4.04	4.03	4.03	KL3																			
X	6.25	6.5	6.5	6	6.25	6.25																													
Y	4.03	4.02	4.02	4.04	4.03	4.03																													
4	Calculate regression X and y from the data by the method of least square: <table><tr><td>X</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr><tr><td>Y</td><td>2</td><td>5</td><td>3</td><td>8</td><td>7</td></tr></table>	X	1	2	3	4	5	Y	2	5	3	8	7	KL3																					
X	1	2	3	4	5																														
Y	2	5	3	8	7																														
5	Ten competitors in a beauty contest are ranked by three judges in the following order <table><tr><td>1st judge</td><td>1</td><td>6</td><td>5</td><td>1</td><td>3</td><td>2</td><td>4</td><td>9</td><td>7</td><td>8</td></tr><tr><td>2nd judge</td><td>3</td><td>5</td><td>8</td><td>4</td><td>7</td><td>10</td><td>2</td><td>1</td><td>6</td><td>9</td></tr><tr><td>3rd judge</td><td>6</td><td>4</td><td>9</td><td>8</td><td>1</td><td>2</td><td>3</td><td>10</td><td>5</td><td>7</td></tr></table> Use rank correlation coefficient to determine which pair of judges has the nearest approach to beauty.	1 st judge	1	6	5	1	3	2	4	9	7	8	2 nd judge	3	5	8	4	7	10	2	1	6	9	3 rd judge	6	4	9	8	1	2	3	10	5	7	KL4
1 st judge	1	6	5	1	3	2	4	9	7	8																									
2 nd judge	3	5	8	4	7	10	2	1	6	9																									
3 rd judge	6	4	9	8	1	2	3	10	5	7																									
6	The following data give the experience (in years) of machine operators and their performance ratings given by number of good parts turned out per 100 pieces: <table><tr><td>Operator</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td></tr><tr><td>Experience (X)</td><td>16</td><td>12</td><td>18</td><td>4</td><td>3</td><td>10</td><td>5</td><td>12</td></tr><tr><td>Performance ratings(Y)</td><td>87</td><td>88</td><td>89</td><td>68</td><td>78</td><td>80</td><td>75</td><td>83</td></tr></table> Calculate the regression line of performance ratings on experience and estimate the approximate performance if an operator has 7 years of experience.	Operator	1	2	3	4	5	6	7	8	Experience (X)	16	12	18	4	3	10	5	12	Performance ratings(Y)	87	88	89	68	78	80	75	83	KL4						
Operator	1	2	3	4	5	6	7	8																											
Experience (X)	16	12	18	4	3	10	5	12																											
Performance ratings(Y)	87	88	89	68	78	80	75	83																											

Unit IV

Short answer questions

Q.N.	Question	KL
1	Explain scatter diagram method	KL2
2	Write the use of index number in business.	KL2
3	Define quantity index numbers.	KL1
4	What is Laspeyre's method of constructing index numbers.	KL1
5	What do you understand cyclical variations in time series.	KL1

Long answer questions

Q. N.	Question	K L
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1	Discuss the problems in construction of index numbers. Also discuss the different types of index numbers.	KL 2																														
2	What are seasonal variations in time series analysis? bring out the factors that cause seasonal variations.	KL 2																														
3	Calculate Laspeyre, Paasche and Fisher’s index number from the following data: <table><tr><td>Item</td><td colspan="2">2020</td><td colspan="2">2021</td></tr><tr><td></td><td>Price</td><td>Quantity</td><td>Price</td><td>Quantity</td></tr><tr><td>A</td><td>5</td><td>25</td><td>6</td><td>30</td></tr><tr><td>B</td><td>3</td><td>8</td><td>4</td><td>10</td></tr><tr><td>C</td><td>2</td><td>10</td><td>3</td><td>8</td></tr><tr><td>D</td><td>10</td><td>4</td><td>3</td><td>5</td></tr></table>	Item	2020		2021			Price	Quantity	Price	Quantity	A	5	25	6	30	B	3	8	4	10	C	2	10	3	8	D	10	4	3	5	KL 3
Item	2020		2021																													
	Price	Quantity	Price	Quantity																												
A	5	25	6	30																												
B	3	8	4	10																												
C	2	10	3	8																												
D	10	4	3	5																												
4	Below are given the figures of production (in thousand quintals) of a sugar factory: <table><tr><td>Year</td><td>2005</td><td>2006</td><td>2007</td><td>2008</td><td>2009</td><td>2010</td><td>2011</td></tr><tr><td>Production</td><td>80</td><td>90</td><td>92</td><td>83</td><td>94</td><td>99</td><td>92</td></tr></table> (a) Fit a straight line to these figures. (b) Plot these figures on a graph and show a trend line. (c) Estimate the production in 2004.	Year	2005	2006	2007	2008	2009	2010	2011	Production	80	90	92	83	94	99	92	KL 3														
Year	2005	2006	2007	2008	2009	2010	2011																									
Production	80	90	92	83	94	99	92																									
5	From the following data calculate trend values using 3 and 5 yearly moving averages: <table><tr><td>Year</td><td>2001</td><td>2002</td><td>2003</td><td>2004</td><td>2005</td><td>2006</td><td>2007</td></tr><tr><td>Production (million tons)</td><td>412</td><td>438</td><td>446</td><td>454</td><td>470</td><td>483</td><td>490</td></tr></table>	Year	2001	2002	2003	2004	2005	2006	2007	Production (million tons)	412	438	446	454	470	483	490	KL 3														
Year	2001	2002	2003	2004	2005	2006	2007																									
Production (million tons)	412	438	446	454	470	483	490																									
6	The following table gives the detail of the T.V sold: <table><tr><td>Year</td><td>2014</td><td>2015</td><td>2016</td><td>2017</td><td>2018</td><td>2019</td><td>2020</td><td>2021</td><td>2022</td><td>2023</td></tr><tr><td>T.V sold (000)</td><td>42</td><td>50</td><td>61</td><td>75</td><td>92</td><td>111</td><td>120</td><td>127</td><td>140</td><td>138</td></tr></table> Find the linear equation that describes the trend in the number of T.V sold. Also estimate the sale of T.V in 2025	Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	T.V sold (000)	42	50	61	75	92	111	120	127	140	138	KL 3								
Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023																						
T.V sold (000)	42	50	61	75	92	111	120	127	140	138																						