

(For those admitted in June 2023 and later)

SEM	CATEGORY	COMPONENT	COURSE CODE	COURSE TITLE
III	PART - III	ELECTIVE GENERIC - 3	U23BB3A3	BUSINESS STATISTICS

**Maximum: 75 Marks**

1

CO5	K2	10.	What is the mean of a Chi Square distribution with 6 degrees of freedom? a) 4 b) 2 c) 6 d) 12																																			
Course Outcome	Bloom's K-level	Q. No.	<b>SECTION – B (5 X 5 = 25 Marks)</b> <b>Answer <u>ALL</u> Questions choosing either (a) or (b)</b>																																			
CO1	K3	11a.	Discover the characteristics of statistics <b>(OR)</b>																																			
CO1	K3	11b.	Calculate harmonic mean from the following frequency distribution . <table><tr><td>X</td><td>0-10</td><td>10-20</td><td>20-30</td><td>30-40</td><td>40-50</td></tr><tr><td>F</td><td>8</td><td>15</td><td>20</td><td>4</td><td>3</td></tr></table>						X	0-10	10-20	20-30	30-40	40-50	F	8	15	20	4	3																		
X	0-10	10-20	20-30	30-40	40-50																																	
F	8	15	20	4	3																																	
CO2	K3	12a.	Calculate the coefficient of correlation from the following data PG 260 <table><tr><td>Adv. Exp Rs Lakhs</td><td>X</td><td>10</td><td>12</td><td>15</td><td>23</td><td>20</td></tr><tr><td>Sales Rs (crores)</td><td>Y</td><td>14</td><td>17</td><td>23</td><td>25</td><td>21</td></tr></table> <b>(OR)</b>						Adv. Exp Rs Lakhs	X	10	12	15	23	20	Sales Rs (crores)	Y	14	17	23	25	21																
Adv. Exp Rs Lakhs	X	10	12	15	23	20																																
Sales Rs (crores)	Y	14	17	23	25	21																																
CO2	K3	12b.	Calculate the standard deviation of the following series <table><tr><td>X</td><td>6</td><td>9</td><td>12</td><td>15</td><td>18</td></tr><tr><td>F</td><td>7</td><td>12</td><td>13</td><td>10</td><td>8</td></tr></table>						X	6	9	12	15	18	F	7	12	13	10	8																		
X	6	9	12	15	18																																	
F	7	12	13	10	8																																	
CO3	K4	13a.	Draw a trend line by the methods of semi averages. <table><tr><td><b>Year</b></td><td><b>1987</b></td><td><b>1988</b></td><td><b>1989</b></td><td><b>1990</b></td><td><b>1991</b></td><td><b>1992</b></td><td><b>1993</b></td></tr><tr><td>Production in tones</td><td>90</td><td>110</td><td>130</td><td>150</td><td>100</td><td>150</td><td>200</td></tr></table> <b>(OR)</b>						<b>Year</b>	<b>1987</b>	<b>1988</b>	<b>1989</b>	<b>1990</b>	<b>1991</b>	<b>1992</b>	<b>1993</b>	Production in tones	90	110	130	150	100	150	200														
<b>Year</b>	<b>1987</b>	<b>1988</b>	<b>1989</b>	<b>1990</b>	<b>1991</b>	<b>1992</b>	<b>1993</b>																															
Production in tones	90	110	130	150	100	150	200																															
CO3	K4	13b.	Assuming no trend in the series, Calculate seasonal indices for the following data. <table><tr><td>Year</td><td>I</td><td>II</td><td>III</td><td>IV</td></tr><tr><td>1994</td><td>78</td><td>66</td><td>84</td><td>80</td></tr><tr><td>1995</td><td>76</td><td>74</td><td>82</td><td>78</td></tr><tr><td>1996</td><td>72</td><td>68</td><td>80</td><td>70</td></tr><tr><td>1997</td><td>74</td><td>70</td><td>84</td><td>74</td></tr><tr><td>1998</td><td>76</td><td>74</td><td>86</td><td>82</td></tr></table>						Year	I	II	III	IV	1994	78	66	84	80	1995	76	74	82	78	1996	72	68	80	70	1997	74	70	84	74	1998	76	74	86	82
Year	I	II	III	IV																																		
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1997	74	70	84	74																																		
1998	76	74	86	82																																		
CO4	K4	14a.	An enquiry into the budget of middle class families in a village near Hyderabad gave the following information. <table><tr><td></td><td>Food 30%</td><td>Rent 25%</td><td>Clothing 15%</td><td>Education 10 %</td><td>Misc 20 %</td></tr><tr><td>Price Rs 1999</td><td>1800</td><td>1000</td><td>700</td><td>400</td><td>700</td></tr><tr><td>Price Rs 2000</td><td>2000</td><td>1200</td><td>900</td><td>500</td><td>1000</td></tr></table> Construct cost of living index and comment on the change in the cost of living in 2000 as compared to 1999 <b>(OR)</b>							Food 30%	Rent 25%	Clothing 15%	Education 10 %	Misc 20 %	Price Rs 1999	1800	1000	700	400	700	Price Rs 2000	2000	1200	900	500	1000												
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Price Rs 1999	1800	1000	700	400	700																																	
Price Rs 2000	2000	1200	900	500	1000																																	
CO4	K4	14b.	Analyze the various types of index Number.																																			
CO5	K5	15a.	A Cigarette company interest in the effect of sex on the type of cigarettes smoked and has collected the following data from a random sample of 150 persons.																																			

			<table border="1"> <tr> <th>Cigarette</th><th>Male</th><th>Female</th><th>Total</th></tr> <tr> <td>A</td><td>25</td><td>30</td><td>55</td></tr> <tr> <td>B</td><td>540</td><td>15</td><td>55</td></tr> <tr> <td>C</td><td>30</td><td>10</td><td>40</td></tr> <tr> <td>D</td><td>95</td><td>55</td><td>150</td></tr> </table> <p>Evaluate test whether the type of cigarette smoked and sex are independent.</p> <p style="text-align: center;"><b>(OR)</b></p>	Cigarette	Male	Female	Total	A	25	30	55	B	540	15	55	C	30	10	40	D	95	55	150
Cigarette	Male	Female	Total																				
A	25	30	55																				
B	540	15	55																				
C	30	10	40																				
D	95	55	150																				
CO5	K5	15b.	Evaluate the t-distribution and its important properties.																				

Course Outcome	Bloom's K-level	Q. No.	<div>SECTION – C (5 X 8 = 40 Marks)</div> <div>Answer <u>ALL</u> Questions choosing either (a) or (b)</div>																																																																																																			
CO1	K3	16a.	Explain the different methods collection of primary data.																																																																																																			
CO1	K3	16b.	<div>(OR)</div> <div>Calculate the median from the following data pertaining to the profits ( in cores Rs) in 125 companies.</div> <table><tr><td colspan="5">Profits Rs crores</td><td colspan="5">No of companies</td></tr><tr><td colspan="5">Less than 10</td><td colspan="5">4</td></tr><tr><td colspan="5">Less than 20</td><td colspan="5">16</td></tr><tr><td colspan="5">Less than 30</td><td colspan="5">40</td></tr><tr><td colspan="5">Less than 40</td><td colspan="5">76</td></tr><tr><td colspan="5">Less than 50</td><td colspan="5">96</td></tr><tr><td colspan="5">Less than 60</td><td colspan="5">112</td></tr><tr><td colspan="5">Less than 70</td><td colspan="5">120</td></tr><tr><td colspan="5">Less than 80</td><td colspan="5">125</td></tr></table>										Profits Rs crores					No of companies					Less than 10					4					Less than 20					16					Less than 30					40					Less than 40					76					Less than 50					96					Less than 60					112					Less than 70					120					Less than 80					125				
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CO2	K4	17a.	Compare correlation with regression.																																																																																																			
CO2	K4	17b.	<div>(OR)</div> <table><tr><td>X</td><td>2</td><td>4</td><td>6</td><td>8</td><td>10</td></tr><tr><td>F</td><td>1</td><td>4</td><td>6</td><td>4</td><td>1</td></tr></table> <div>Find mean deviation for the above data.</div>										X	2	4	6	8	10	F	1	4	6	4	1																																																																														
X	2	4	6	8	10																																																																																																	
F	1	4	6	4	1																																																																																																	
CO3	K4	18a.	Using four yearly moving averages, calculate the trend and short term fluctuations																																																																																																			
			<table><tr><td>Year production</td><td>1983</td><td>1984</td><td>1985</td><td>1986</td><td>1987</td><td>1988</td><td>1989</td><td>1990</td><td>1991</td><td>1992</td></tr><tr><td>Year production</td><td>21</td><td>22</td><td>23</td><td>25</td><td>24</td><td>22</td><td>25</td><td>26</td><td>27</td><td>26</td></tr></table>								Year production	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	Year production	21	22	23	25	24	22	25	26	27	26																																																																						
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CO3	K4	18b.	<div>(OR)</div> <div>Fit a straight line trend to the following time series</div> <table><tr><td>Year</td><td>1990</td><td>1991</td><td>1992</td><td>1993</td><td>1994</td><td>1995</td></tr><tr><td>Production</td><td>72</td><td>75</td><td>74</td><td>78</td><td>83</td><td>82</td></tr></table>										Year	1990	1991	1992	1993	1994	1995	Production	72	75	74	78	83	82																																																																												
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CO4	K5	19a.	Compute price index by simple average price relative methods base on																																																																																																			
			a) Arithmetic mean																																																																																																			

			<table><tr><th>Commodities</th><th>Price in (Rs) 1999</th><th>Price in Rs. 2000</th></tr><tr><td>Butter (kg)</td><td>110.00</td><td>120.00</td></tr><tr><td>Cheese(kg)</td><td>75.00</td><td>80.00</td></tr><tr><td>Milk (it)</td><td>13.00</td><td>13.00</td></tr><tr><td>Bread(1)</td><td>9.00</td><td>9.00</td></tr><tr><td>Egs(doz)</td><td>18.00</td><td>20.00</td></tr><tr><td>Ghee (1 tin)</td><td>850.001</td><td>860.00</td></tr></table>	Commodities	Price in (Rs) 1999	Price in Rs. 2000	Butter (kg)	110.00	120.00	Cheese(kg)	75.00	80.00	Milk (it)	13.00	13.00	Bread(1)	9.00	9.00	Egs(doz)	18.00	20.00	Ghee (1 tin)	850.001	860.00									
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CO4	K5	19b.	<p>(OR)</p> <p>Show with the help of the following data that time and Factor Reversal Tests are satisfied by Fisher’s Ideal Formula for index number construction.</p> <table><tr><th>Commodity</th><th>Base year price (Rs)</th><th>Base year quantity (kg)</th><th>Current year price (Rs)</th><th>Current year quantity (kg)</th></tr><tr><td>A</td><td>6</td><td>50</td><td>10</td><td>56</td></tr><tr><td>B</td><td>2</td><td>100</td><td>2</td><td>120</td></tr><tr><td>C</td><td>4</td><td>60</td><td>6</td><td>60</td></tr><tr><td>D</td><td>10</td><td>30</td><td>12</td><td>24</td></tr><tr><td>E</td><td>8</td><td>40</td><td>12</td><td>36</td></tr></table>	Commodity	Base year price (Rs)	Base year quantity (kg)	Current year price (Rs)	Current year quantity (kg)	A	6	50	10	56	B	2	100	2	120	C	4	60	6	60	D	10	30	12	24	E	8	40	12	36
Commodity	Base year price (Rs)	Base year quantity (kg)	Current year price (Rs)	Current year quantity (kg)																													
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CO5	K5	20a.	<p>Discuss the F-Test for testing the equality of two sample variances</p> <p>(OR)</p>																														
CO5	K5	20b.	<p>A sample of 200 person with a particular disease was selected. out of theses , 100 were given a drug the others were not given any drug. The results are as follows.</p> <table><tr><td></td><td colspan="3">No of persons</td></tr><tr><td></td><td>drug</td><td>No drug</td><td>Total</td></tr><tr><td>Cure</td><td>65</td><td>55</td><td>120</td></tr><tr><td>Not cured</td><td>35</td><td>45</td><td>80</td></tr><tr><td>Total</td><td>100</td><td>100</td><td>200</td></tr></table> <p>Evaluate The Test whether the drug is effectives or not.</p>		No of persons				drug	No drug	Total	Cure	65	55	120	Not cured	35	45	80	Total	100	100	200										
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	drug	No drug	Total																														
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