



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

Date & Session: 12.11.2025/AN

Time : 3 hours

Maximum: 75 Marks

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.	<p style="text-align: center;">SECTION - B (5 X 5 = 25 Marks) Answer <u>ALL</u> Questions choosing either (a) or (b)</p>																														
CO1	K3	11a.	Discover the characteristics of statistics (OR)																														
CO1	K3	11b.	Calculate harmonic mean from the following frequency distribution . <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">X</td> <td style="width: 15%;">0-10</td> <td style="width: 15%;">10-20</td> <td style="width: 15%;">20-30</td> <td style="width: 15%;">30-40</td> <td style="width: 15%;">40-50</td> </tr> <tr> <td style="text-align: center;">F</td> <td style="text-align: center;">8</td> <td style="text-align: center;">15</td> <td style="text-align: center;">20</td> <td style="text-align: center;">4</td> <td style="text-align: center;">3</td> </tr> </table>	X	0-10	10-20	20-30	30-40	40-50	F	8	15	20	4	3																		
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CO2	K3	12a.	Calculate the coefficient of correlation from the following data PG 260 <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Adv. Exp Rs Lakhs</td> <td style="width: 15%;">X</td> <td style="width: 15%;">10</td> <td style="width: 15%;">12</td> <td style="width: 15%;">15</td> <td style="width: 15%;">23</td> <td style="width: 15%;">20</td> </tr> <tr> <td style="text-align: center;">Sales Rs (crores)</td> <td style="text-align: center;">Y</td> <td style="text-align: center;">14</td> <td style="text-align: center;">17</td> <td style="text-align: center;">23</td> <td style="text-align: center;">25</td> <td style="text-align: center;">21</td> </tr> </table> (OR)	Adv. Exp Rs Lakhs	X	10	12	15	23	20	Sales Rs (crores)	Y	14	17	23	25	21																
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CO2	K3	12b.	Calculate the standard deviation of the following series <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">X</td> <td style="width: 15%;">6</td> <td style="width: 15%;">9</td> <td style="width: 15%;">12</td> <td style="width: 15%;">15</td> <td style="width: 15%;">18</td> </tr> <tr> <td style="text-align: center;">F</td> <td style="text-align: center;">7</td> <td style="text-align: center;">12</td> <td style="text-align: center;">13</td> <td style="text-align: center;">10</td> <td style="text-align: center;">8</td> </tr> </table>	X	6	9	12	15	18	F	7	12	13	10	8																		
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CO3	K4	13a.	Draw a trend line by the methods of semi averages. <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Year</td> <td style="width: 15%;">1987</td> <td style="width: 15%;">1988</td> <td style="width: 15%;">1989</td> <td style="width: 15%;">1990</td> <td style="width: 15%;">1991</td> <td style="width: 15%;">1992</td> <td style="width: 15%;">1993</td> </tr> <tr> <td style="text-align: center;">Production in tones</td> <td style="text-align: center;">90</td> <td style="text-align: center;">110</td> <td style="text-align: center;">130</td> <td style="text-align: center;">150</td> <td style="text-align: center;">100</td> <td style="text-align: center;">150</td> <td style="text-align: center;">200</td> </tr> </table> (OR)	Year	1987	1988	1989	1990	1991	1992	1993	Production in tones	90	110	130	150	100	150	200														
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CO3	K4	13b.	Assuming no trend in the series, Calculate seasonal indices for the following data. <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Year</td> <td style="width: 15%;">I</td> <td style="width: 15%;">II</td> <td style="width: 15%;">III</td> <td style="width: 15%;">IV</td> </tr> <tr> <td style="text-align: center;">1994</td> <td style="text-align: center;">78</td> <td style="text-align: center;">66</td> <td style="text-align: center;">84</td> <td style="text-align: center;">80</td> </tr> <tr> <td style="text-align: center;">1995</td> <td style="text-align: center;">76</td> <td style="text-align: center;">74</td> <td style="text-align: center;">82</td> <td style="text-align: center;">78</td> </tr> <tr> <td style="text-align: center;">1996</td> <td style="text-align: center;">72</td> <td style="text-align: center;">68</td> <td style="text-align: center;">80</td> <td style="text-align: center;">70</td> </tr> <tr> <td style="text-align: center;">1997</td> <td style="text-align: center;">74</td> <td style="text-align: center;">70</td> <td style="text-align: center;">84</td> <td style="text-align: center;">74</td> </tr> <tr> <td style="text-align: center;">1998</td> <td style="text-align: center;">76</td> <td style="text-align: center;">74</td> <td style="text-align: center;">86</td> <td style="text-align: center;">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
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CO4	K4	14a.	An enquiry into the budget of middle class families in a village near Hyderabad gave the following information. <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;"></td> <td style="width: 25%;">Food 30%</td> <td style="width: 25%;">Rent 25%</td> <td style="width: 25%;">Clothing 15%</td> <td style="width: 25%;">Education 10 %</td> <td style="width: 25%;">Misc 20 %</td> </tr> <tr> <td style="text-align: center;">Price Rs 1999</td> <td style="text-align: center;">1800</td> <td style="text-align: center;">1000</td> <td style="text-align: center;">700</td> <td style="text-align: center;">400</td> <td style="text-align: center;">700</td> </tr> <tr> <td style="text-align: center;">Price Rs 2000</td> <td style="text-align: center;">2000</td> <td style="text-align: center;">1200</td> <td style="text-align: center;">900</td> <td style="text-align: center;">500</td> <td style="text-align: center;">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 (OR)		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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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.																														

Cigarette	Male	Female	Total
A	25	30	55
B	540	15	55
C	30	10	40
D	95	55	150

Evaluate test whether the type of cigarette smoked and sex are independent.

(OR)

CO5 K5 15b. Evaluate the t-distribution and its important properties.

Commodities	Price in (Rs) 1999	Price in Rs. 2000
Butter (kg)	110.00	120.00
Cheese(kg)	75.00	80.00
Milk (lt)	13.00	13.00
Bread(1)	9.00	9.00
Eggs(doz)	18.00	20.00
Ghee (1 tin)	850.001	860.00

(OR)

CO4 K5 19b. 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.

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

CO5 K5 20a. Discuss the F-Test for testing the equality of two sample variances

(OR)

CO5 K5 20b. 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.

	No of persons		
	drug	No drug	Total
Cure	65	55	120
Not cured	35	45	80
Total	100	100	200

Evaluate The Test whether the drug is effectives or not.