

Time: Three Hours

SECTION-A (10 Marks)

ALL questions carry **EQUAL** marks

Module No.	Question No.	Question	K Level	CO
1	1	The term "Data" came from the Latin word a) Datem b) Datam c) Datas d) Datum	K1	CO1
	2	The row headings in a table are termed as a) Title b) Stubs c) Footnotes d) Captions	K2	CO1
2	3	Which scale of measurement represents categories without order? a) Nominal b) Ordinal c) Interval d) Ratio	K1	CO2
	4	The algebraic sum of deviations of a set of 'n' values from their arithmetic mean is a) n b) 0 c) 1 d) ∞	K2	CO2
3	5	Variance is the minimum value of a) Mean square deviation b) Absolute deviation c) Root mean square deviation d) All the above observations	K1	CO3
	6	For a symmetric distribution a) $\mu_2 = 0$ b) $\mu_2 > 0$ c) $\mu_3 > 0$ a) $\mu_3 = 0$	K2	CO3
4	7	The standard error of correlation coefficient is a) $\frac{1-r^2}{\sqrt{n}}$ b) $\frac{1-r^2}{n}$ c) $\frac{1+r^2}{\sqrt{n}}$ d) $\frac{1+r^2}{n}$	K1	CO4
	8	Regression coefficients are independence of the a) Change of origin and scale b) Change of origin but not of scale c) Change of scale but not origin d) Neither Change of origin nor scale	K2	CO4
5	9	Which of the following represents a quadratic model? a) $Y = a + bx$ b) $Y = a + bx + cx^2$ c) $Y = ab^x$ d) $Y = \log(x)$	K1	CO5
	10	Which Excel function is used to perform linear regression? a) LINEST() b) REGRESSION() c) TREND() d) SLOPE()	K2	CO5

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SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO																		
1	11.a.	Describe nominal and ordinal scaling. Also write its advantages	K3	CO1																		
	(OR)																					
	11.b.	Draw a histogram and frequency polygon for the following data. <table><tr><td>Class Interval</td><td>500-509</td><td>510-519</td><td>520-529</td><td>530-539</td><td>540-549</td><td>550-559</td><td>560-569</td></tr><tr><td>Frequency</td><td>18</td><td>28</td><td>33</td><td>67</td><td>49</td><td>28</td><td>96</td></tr></table>			Class Interval	500-509	510-519	520-529	530-539	540-549	550-559	560-569	Frequency	18	28	33	67	49	28	96		
Class Interval	500-509	510-519	520-529	530-539	540-549	550-559	560-569															
Frequency	18	28	33	67	49	28	96															
2	12.a.	Calculate median and mode for the following data. <table><tr><td>Class Interval</td><td>40-50</td><td>50-60</td><td>60-70</td><td>70-80</td><td>80-90</td><td>90-100</td><td>100-110</td></tr><tr><td>Frequency</td><td>32</td><td>65</td><td>128</td><td>167</td><td>136</td><td>79</td><td>43</td></tr></table>	Class Interval	40-50	50-60	60-70	70-80	80-90	90-100	100-110	Frequency	32	65	128	167	136	79	43	K2	CO2		
	Class Interval	40-50	50-60	60-70	70-80	80-90	90-100	100-110														
Frequency	32	65	128	167	136	79	43															
(OR)																						
	12.b.	Weekly wages of the labourers are given below. Calculate Quartile deviation and coefficient of Quartile deviation. <table><tr><td>Weekly wages (Rs.)</td><td>100</td><td>200</td><td>400</td><td>500</td><td>600</td><td>Total</td></tr><tr><td>No. of weeks</td><td>5</td><td>8</td><td>21</td><td>12</td><td>6</td><td>52</td></tr></table>	Weekly wages (Rs.)	100	200	400	500	600	Total	No. of weeks	5	8	21	12	6	52						
Weekly wages (Rs.)	100	200	400	500	600	Total																
No. of weeks	5	8	21	12	6	52																
3	13.a.	The first four moments of a distribution about the value 5 of a variable are 2, 10, 20, 40 and 50. Find the arithmetic mean, Variance, μ_3 and μ_4 .	K1	CO3																		
	(OR)																					
	13.b.	Define skewness. Distinguish diagrammatically the different types of skewness.																				
4	14.a.	Define correlation and mention the properties of correlation.	K3	CO4																		
	(OR)																					
	14.b.	Given the following data find the two regression equations. $\bar{x} = 20$, $\bar{y} = 100$, $\sigma_x = 5$, $\sigma_y = 25$, $r = 0.8$.																				
5	15.a.	Fit a curve of the form $y = ab^t$ for the following data observed on the growth of a fruit fly population. <table><tr><td>Time 't' (in days)</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr><tr><td>No. of flies (y)</td><td>110</td><td>116</td><td>122</td><td>128</td><td>134</td><td>141</td><td>148</td><td>155</td></tr></table>	Time 't' (in days)	2	3	4	5	6	7	8	9	No. of flies (y)	110	116	122	128	134	141	148	155	K1	CO5
	Time 't' (in days)	2	3	4	5	6	7	8	9													
	No. of flies (y)	110	116	122	128	134	141	148	155													
(OR)																						
15.b.	Write the utility of the following statistical functions in Excel (i) AVERAGE () (ii) CORREL () (iii) SUM () (iv) STDEV () (v) COUNT ()																					

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SECTION -C (30 Marks)

Answer ANY THREE questions

ALL questions carry EQUAL Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO																				
1	16	a) Define primary data. Explain the sources of primary data. b) Describe the various ways of Classification of statistical data with suitable illustrations.	K5	CO1																				
2	17	a) Calculate arithmetic mean, geometric mean and harmonic mean from the following data. <table border="1"><tr><td>x</td><td>10</td><td>12</td><td>14</td><td>16</td><td>18</td><td>20</td></tr><tr><td>f</td><td>5</td><td>18</td><td>20</td><td>10</td><td>6</td><td>1</td></tr></table> b) Describe the construction of Lorenz curve.	x	10	12	14	16	18	20	f	5	18	20	10	6	1	K6	CO2						
x	10	12	14	16	18	20																		
f	5	18	20	10	6	1																		
3	18	Calculate first four moments about mean from the following data. Also calculate β_1 , β_2 and comment on the nature of the distribution. <table border="1"><tr><td>x</td><td>0</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>f</td><td>5</td><td>10</td><td>15</td><td>20</td><td>25</td><td>20</td><td>15</td><td>10</td><td>5</td></tr></table>	x	0	1	2	3	4	5	6	7	8	f	5	10	15	20	25	20	15	10	5	K6	CO3
x	0	1	2	3	4	5	6	7	8															
f	5	10	15	20	25	20	15	10	5															
4	19	Calculate Karl – Pearson's coefficient of correlation from the following data. <table border="1"><tr><td>X</td><td>1</td><td>3</td><td>5</td><td>8</td><td>9</td><td>10</td></tr><tr><td>Y</td><td>3</td><td>4</td><td>8</td><td>10</td><td>12</td><td>11</td></tr></table>	X	1	3	5	8	9	10	Y	3	4	8	10	12	11	K5	CO4						
X	1	3	5	8	9	10																		
Y	3	4	8	10	12	11																		
5	20	Fit a second degree parabola to the following data. <table border="1"><tr><td>Year</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></tr><tr><td>y</td><td>8</td><td>4</td><td>12</td><td>9</td><td>10</td><td>11</td><td>14</td><td>26</td><td>17</td></tr></table>	Year	1983	1984	1985	1986	1987	1988	1989	1990	1991	y	8	4	12	9	10	11	14	26	17	K6	CO5
Year	1983	1984	1985	1986	1987	1988	1989	1990	1991															
y	8	4	12	9	10	11	14	26	17															

Z-Z-Z

END