Name:

Enrolment No:



Instructions: Students will be allowed to use non-programmable scientific calculator

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S. No.	Section A	Marks	COs
	Short answer questions/ MCQ/T&F		
	(20Qx1.5M= 30 Marks)		
Q 1	SPSS commands for multiple regression analysis is	1.5	CO5
	(a) Analyze -> Linear -> Regression		
	(b) Analyze -> Regression -> Linear		
	(c) Analyze -> Linear Regression		
	(d) Analyze -> Regression Linear		
Q 2	Which of the following is a one-dimensional diagram:	1.5	CO1
	a) Bar Diagram		
	b) Pie Chart		
	c) Cylinder		
	d) A Graph		
Q 3	Pie Chart represents the components of a factor by	1.5	CO1
	a) Percentages		
	b) Angles		
	c) Sectors		
	d) Circles		
Q 4	The correct relation between Arithmetic Mean (A.M.), Geometric Mean	1.5	CO2
	(G.M.) and Harmonic Mean (H.M.) is		
	a) $A.M. = G.M. = H.M.$		
	b) G.M. \geq A.M. \geq H.M.		
	c) H.M. \geq G.M. \geq A.M.		
	d) A.M. \geq G.M. \geq H.M.		
Q 5	Geometric mean of two numbers 1/16 and 4/25 is	1.5	CO2

b) 1/100 c) 10 d) 100I.5CO3Q 6The value of coefficient of correlation lies between -1 to 1. [True/False]1.5CO3Q 7Spearman's formulae for rank correlation coefficient is a) $r = 1 - \frac{6\sum_{i=1}^{n} d_i^2}{n(n^2-1)}$ b) $= 1 + \frac{6\sum_{i=1}^{n} d_i^2}{n(n^2-1)}$ c) $= 1 - \frac{\sum_{i=1}^{n} d_i^2}{n(n^2-1)}$ d) $= 1 - \frac{6\sum_{i=1}^{n} d_i^2}{n(n^2-1)}$ d) $= 1 - \frac{6\sum_{i=1}^{n} d_i^2}{n(n^2-1)}$ d) $= 1 - \frac{6\sum_{i=1}^{n} d_i^2}{n(n^2+1)}$ 1.5CO3Q 8Two numbers within the bracket denote the ranks of 10 students of a class in two subjects (1, 10), (2, 9), (3, 8), (4, 7), (5, 6), (6, 5), (7, 4), (8, 3), (9, 2), (10, 1). The rank correlation coefficient is (a) 0 (b) -1 (c) 1 (d) 0.51.5CO3Q 9The t-test is applicable only when: a) The variate values are independent b) The variable is distrusted normally c) The sample is not large d) All of the above1.5CO4Q 10Paired t-test is applicable when the observations in two samples are: a) paired b) correlated c) equal in number d) All of the above1.5CO4Q 11Which is not a measure of central tendency (a) Arithmetic mean (b) Geometric mean (c) Harmonic mean (c) Harmonic mean (d) Variance1.5CO1		a) 1/10										
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Algebraic sum of the deviations of a set of values from their artificitie thear 1.5 CO2 is zero.	Q 12	Argeorate sum of the deviations of a set of values from them arthinette mean is zero	1.5	02								
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	(5, 2), (6, 1) is										
	(a) 1 (b) -1 (c) 0 (d) None of these										
Q 17	Choose the most appropriate statement about the null hypothesis in chi-	1.5	CO4								
	square.										
	(a) There is an association between gender and response.										
	(b) There is no association between gender and response.										
	(c) There are 50-50% chances of significant and insignificant association.										
0.19	(d) None of the above is correct.	15	COS								
Q 18	For testing the significance of association between Gender and IQ level, the	1.5	05								
	(a) A polyze $>$ Nonparametric Tests $>$ Chi square										
	(a) Analyze -> Nonparametric Tests -> Crosstabs										
	(c) Analyze -> Chi-square -> Nonparametric Tests										
	(d) Analyze -> Crosstabs -> Chi-square										
0 19	The probability of not committing a type-II error is called	1.5	CO4								
	(a) Probability (b) Statistical Inference										
	(c) Power of the test (d) Null Hypothesis										
Q 20	Confidence interval is a measure of reliability of an estimate. [True/False]	1.5	CO4								
Section B											
	(4Qx5M=20 Marks)										
Q 21	Define probability of Type-I error, Type-II error and power of the test.	5	CO4								
Q 22	Define arithmetic mean and geometric mean and discuss its merits and	5	CO2								
	demerits in details.										
Q 23	Fit the linear regression line $y = a + bx$ using following data:	5	CO3								
	x 8 4 5 -1										
	y -2 0 2 6										
Q 24	Write down the t-test statistics for testing of single mean. A population of	5	CO4								
	cats is known to have 160 heart beats per minute. When cats were each fed										
	on fixed quantity of a drug and data taken on their beats, the mean $\bar{x} = 147$										
	and standard deviation $s = 27.5$. Find if there is a change in heart beat due										
	to drug (that is test the hypothesis $H_0: \mu = 160$ Vs $H_0: \mu \neq 160$.										
	Given that: tabulate value of t-test statistics $t_{12} = 2.179$ at 5% level of										
	significance.										
Section C											
(2QX15IVI=30 IVIARKS)											
0.26	A sample of broad bean was examined. For each bean, the length and the	15	CO4								
Q 20	weight were measured and recorded Find the coefficient of correlation	15	04								
	between weight and length of broad beans										
	content in the foregain of crower courts										
1											

	Bean no.	1	2	3	4	5	6	7	8	9	10		
	Weight (g) 0.7 1.2 0.9 1.4 0.2 1.1 1 0.9 1 0.8												
	Length (cm) 1.7 2.2 2 2.3 2.4 2.2 2 1.9 2.1 1.6												
Section D													
(2Qx10M=20 Marks)													
Q 27	Q 27 A beverages company produces cold drink with three different colors. One 10											CO4	
	hundred and twenty college students were asked about their preferences. The												
	responses are shown in Table. Do these data show that all the flavors were												
	equally liked	by tl	he st	udent	s? Te	st yo	ur hy	pothes	is at	.05 le	vel of		
	significance. (G	liven	that ₂	$\chi^2_{0.05}($	(2) =	5. 99)							
	Table: Preferen	ces of	f the c	olleg	e stude	ents al	oout di	fferent	t bran	ds of co	ld		
	drinks.												
	Color		I	White	;		Orang	ge		Brown	1		
	Frequencies504030												
Q 28 The yield of three varieties of wheat (A, B, C) in four separated fields is 10										CO4			
	shown in the following table. Test the significance of difference in the yields												
	of three varieties of wheat. (Given that $F_{0.05}(2,9) = 4.26$)												
	Wheat VarietyField 1Field 2Field 3Field 4												
	А				12		18	14		16			
	В				19		17	15	;	13	1		
	С				14		16	18	;	20	1		