LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Com. DEGREE EXAMINATION – **COMPUTER APPLICATIONS**

THIRD SEMESTER – **NOVEMBER 2022**

UCC 3301 – BUSINESS STATISTICS

Date: 24-11-2022 Dept. No. Time: 09:00 AM - 12:00 NOON

	SECTION A		
1	Answer the following questions(5x1= 5Marks)		
a)	Define coefficient of variation.	K1	CO1
b)	List the merits and demerits of correlation.	K1	CO1
c)	Examine the uses of regression lines.	K1	CO1
d)	Recall the meaning of Game Theory in Statistics.	K1	CO1
e)	State the main two objectives of Transportation Problem	K1	CO1
2.	Choose the correct answer (5x1= 5 Marks)		
a)	The number of observations in a particular class is called: a. Width of the class b. Class mark c. Frequency d. Tendency	K1	CO1
b)	If the mid points of the classes are 16,24,32,40, and so on, then the magnitude of the class interval is: a. 8 b. 9 c. 7 d. 6	K1	CO1
c)	The run scored by a batsman in 5 ODIs are 31, 97, 112, 63, and 12. The standard deviation is : a. 26.79 b. 25.79 c. 24.79 d. 23.76	К1	CO1
d)	Find the mean of tossing 4 coins a. 1 b. 2 c. 3 d. 4	K1	CO1
e)	Find the arithmetic mean of the set of data: 6,1,5,8, and 10 a. 4 b. 5 c. 6 d. 7	K1	CO1
3.	State True or False(5x1= 5Marks)		
a)	Individual differences can be expected for psychological variables such as intelligence, anxiety, and athletic ability. (True/False)	K2	CO1

Max. : 100 Marks

c) d) e)	All statistics are numerical statement of facts. (True/False)	17.0	
d) e)		K 2	CO1
e)	Mean, median and mode may be the same for some data (True/False)	K2	CO1
	A nonlinear relationship is best indexed with a product-moment correlation. (True/False)	K2	CO1
4	Fill in the blanks (5x1= 5Marks)		
a)	 Specialised processes such as graphical and numerical methods are utilised in which of the following? a. Education statistics b. Descriptive statistics c. Business statistics d. Social statistics 	К2	CO1
b)	In the regression equation Y=a+bX, the Y is called: a. Dependent variable b. Independent variable c. Continuous variable d. Binominal variable	К2	CO1
c)	The transportation problem is basically a a. Maximization model b. Minimization model c. Transhipment problem d. Iconic model 	К2	CO1
d)	 When the total allocations in a transportation model of m×n size do not equal to m+n-1 the situation is. a. Unbalanced situation b. Tie situation c. Degeneracy d. Non-degeneracy 	K2	CO1
e)	 The method of finding an initial solution based upon opportunity costs is called. a. The northwest corner rule b. Vogel's approximation c. Johanson'sthorem d. Flood's technique 	K2	CO1
	SECTION B		
Ansv	wer TWO out of FOUR (2 x 10 = 20 Mark	s)	
5)	a). Calculate the G.M. of the following quantities: 2,18,32,36,6 b). Compute the harmonic mean for the following data: x 10 12 14 16 18 20 f 5 18 20 10 6 1	К3	CO2
6)	The sales in tonnes of a commodity varied from 1990 to 2001 as under: 280,300,280,280,270,240,230,230,220,200,210,200 Fit a trend line by the method of semi-averages. Estimate the sales in 2002.	К3	CO2

	Fit a straight trend line by the method of least squares and estimate the sales for the year 2014.										
	Vear	2002	2003	2004	2005	2006	2007	2008	2009	I IZO	CON
	Droduction	2002	2003	120	2003	120	12007	174	100	K3	002
	Production	70	80	150	144	138	120	1/4	190]	
8)	In a frequenc	v distrib	ution the	coefficier	nt of skar	unass has	ed on au	artilas is () 6 If the		
0)	sum of the u	oper and	the lowe	r quartile	s is 100	and the m	edian is	38. Find	the value		
	of the upper	juartile.		quartito				001 I III u	ine varae	К3	CO2
		1								III.	002
		4 F.O.V.I		3	ECHO	NC		(0.40)			
Ansv	wer TWO out	of FOUI	ξ					$(2 \times 10 =$	20 Mark	KS)	
9)	a) For a	distribut	ion Bowl	ey's coef	ficient of	skewnes	s is -0.36	, lower q	uartile is		
	8.6 ar	nd media	n is 12.3.	What is i	ts quarti	le co-effic	cient of d	ispersion	?		
	b) In a d	istributic	on, mean	= 65, mec	dian = 70	, and coe	fficient o	f skewne	ss is -0.6,	K4	CO3
	find (1) Mode,	(11) co-ef	ficient of	variatioi	1.					
10)	The followin	g table gi	ives the a	ptitude te	st scores	and prod	luctivity i	indices of	10		
	workers selec	cted at ra	ndom.					1	1	T	
	Aptitude 6	60 6	2 65	5 70	72	48	53	73	65		
	Scores										
	(X)	0	0 60		05	10	50	()	(0)	-	
	Uroduoti 6		0 6	/ X()		////	52	61	60		
	ritu	00 0	0 02	. 00	03	40	52	02	00	V/	CO_2
	vity	00 0	0 02		05	40	52	02	00	K4	CO3
	vity index (Y)	08 0	0 02		00	40	52	02	00	K4	CO3
	vity index (Y) Find the two	regressio	on equation	ons and es	stimate:	40	52	02		K4	CO3
	vity index (Y) Find the two i)	regression he produce	on equation	ons and es	stimate:	hose test	score is 9	02		K4	CO3
	Find the twoi)ii)Ti	regression he production he test sc	on equation ctivity incore of a v	ons and es dex of a v worker wl	stimate: vorker winose proc	hose test luctivity i	score is 9	02 02. 75.		K4	CO3
11)	rioducti c vity index (Y) Find the two i) T ii) T Use the meth	regression he production he test score	on equation ctivity indone of a v	ons and es dex of a v worker wl	stimate: vorker winose proc	hose test luctivity i	score is 9 index is 7	02 02. 75. the folloy	wing data	K4	CO3
11)	Vity index (Y) Find the two i) Ti ii) Ti Use the meth of productior	regressic he produc he test sc od of mo n of a com	on equation ctivity indo ore of a v nthly ave	ons and es dex of a v worker wl grages to f for the ye	stimate: vorker winose proc	hose test luctivity i nonthly in , 1980 an	score is 9 index is 7 dices for d 1981.	02 02. 75. the follow	wing data	K4	CO3
11)	Vity index (Y) Find the two i) T ii) T Use the meth of production	regression he product he test sc od of mo	on equation ctivity indone ore of a v nthly ave	ons and es dex of a v worker wl erages to f for the ye Provide the the the the the the the the the th	stimate: vorker withose proceeding of the mars 1979.	hose test luctivity i nonthly in , 1980 and	score is 9 index is 7 indices for d 1981.	02 02. 75. the follow	wing data	K4	CO3
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11)	Flotdethvityindex(Y)Find the twoi)The twoi)The twoii)The twoii)The twoii)The twoii)The twoii)The twoiii)The twoIii)The twoiii)The twoJanuarFebruarMarchAprilMayJuneJulyAugusSeptemiOctober	regression he product he test sc od of mo n of a con n y ry n ry n	on equation ctivity ind ore of a v nthly ave nmodity 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	points and est dex of a v worker with the rages to f for the yee Property = 0 2 1 0 4 5 5 6 3 1 0	stimate: vorker withose proceed ind the mars 1979 oduction	hose test luctivity i nonthly in , 1980 and in lakhs 1980 15 14 13 16 16 15 17 12 13 12	score is 9 index is 7 indices for d 1981. s of tons	02 02. 75. the follow 1981 16 15 14 16 15 17 16 13 10 10	wing data	K4	CO3
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11)	Flotdichvityindex(Y)Find the twoi)The twoi)The twoii)The twoiii)The twoJanuarFebruarMarchAprilMayJuneJulyAugusSeptemOctobeNovemDecember	regression he product he test sc od of mo n of a com n y ry n t t per er per	on equation ctivity indo ore of a vertice nmodity in 19 19 11 11 11 11 11 11 11 11 11 11 11	$\begin{array}{c c} & & & \\ \hline \\$	stimate: vorker winose proc	hose test luctivity i nonthly in , 1980 and in lakhs 1980 15 14 13 16 16 15 17 12 13 12 13 12 13 14	score is 9 index is 7 indices for d 1981. s of tons	02 02. 75. the follow 1981 16 15 14 16 15 17 16 13 10 10 10 11 15	wing data	K4	CO3
11)	rioutent c vity index (Y) Find the two i) T ii) T iii) T iii) T iii) T Januar Februar March April May June July Augus Septemt Octobe Novemt December	regressic he produc he test sc od of mo n of a com n y ry n y ry n ct per per	on equation ctivity indo ore of a weight o	$ \begin{array}{c} \text{ons and es} \\ \text{dex of a v} \\ \text{worker wl} \\ \text{erages to f} \\ \text{for the ye} \\ \hline \mathbf{Pre} \\ \hline 79 \\ 2 \\ 1 \\ 0 \\ 4 \\ 5 \\ 5 \\ 6 \\ 3 \\ 1 \\ 0 \\ 2 \\ 5 \\ 5 \\ 5 \\ $	stimate: vorker winose proceed ind the mars 1979 oduction	hose test ductivity in nonthly in 1980 and 1980 15 14 13 16 16 15 17 12 13 12 13 12 13 14	score is 9 index is 7 indices for d 1981. s of tons	02 02. 02. 05. 1981 16 15 14 16 15 17 16 13 10 10 10 11 15	wing data	K4	CO3
11)	Flotdichcvityindex(Y)Find the twoi)Tii)Tiii)Tiii)TUse the methof productionMonthJanuarFebruarMarchAprilMayJuneJulyAugusSeptemlOctobeNovembDecember	vo-perso	on equation ore of a vertice ore of a vertice nthly avert nthly avert nthly avert 19 11 11 11 11 11 11 11 11 11 11 11 11	ons and esdex of a v worker wl rages to f for the ye Pro 79 2 1 0 4 5 5 6 3 1 0 2 5 5 6 3 1 0 2 5 5 6 3 1 0 2 5 5 6 3 1 0 2 5 5 6 3 1 0 2 5 5 6 3 1 0 2 5 5 6 3 1 0 2 5 5 6 3 1 0 2 5 5 6 3 1 0 2 5 5 6 3 1 0 2 5 5 6 3 1 0 2 5 5 6 3 1 0 2 5 5 6 3 1 0 2 5 5 6 3 1 0 2 5 5 6 3 1 0 2 5 5 6 3 1 0 2 5 5 6 3 1 0 2 5 5 6 3 1 0 2 5 5 5 6 3 1 0 2 5 5 5 5 5 6 3 1 0 2 5 5 5 5 5 6 3 1 0 2 5 5 5 5 5 5 5 5 5 5	stimate: vorker with suit	hose test luctivity i nonthly in , 1980 and in lakhs 1980 15 14 13 16 16 15 17 12 13 12 13 12 13 14 14	score is 9 index is 7 index is 7 indices for d 1981. s of tons	02 02. 75. the follow 1981 16 15 14 16 15 17 16 13 10 10 10 11 15	wing data	K4	CO3 CO3

					SECT	TION E)					
Answ	er ONE out o	of TWO			(1	x 20 =	20 Marl	xs)				
13)	The coeffici	ent of r	ank con	relation	of the	marks	obtained	d by 10	stude	ents in two	K5	CO4
	particular su	bjects wa	as found	l to be 0.	5. It was	s then d	etected th	hat the d	ifferer	nce in ranks		
	in the two su	biects ol	btained	by one o	of the stu	dents w	as wron	glv take	n as 3	in the place		
	of 7. What should be the correct rank correlation coefficient?											
	 of 7. What should be the correct rank correlation coefficient? For the following table fit a straight-line trend by the method of least square and estimate the sales for the year 2017 											
14).												CO4
	Year		2009	2017.	2011	2012	12 2013	2014	201	5 2016		
	Sales (in la	khs of	38	40	65	72	60	60	87	05		
	Rupees)		58	40	05	12	09	00	07	95		
					SECT	FION H						
Answ	er ONE out o	of TWO			(1	x 20 =	20 Marl	KS)				
15)	Deseasonalis	se the fo	llowing	data wi	th the he	elp of s	easonal d	lata give	en belo	ow:	K6	CO5
	Month	Jan	Fe	b	Mar	A	pril	May		June		
	Cash	360	40	0	550	3	50	350		550		
	('000 Rs.)											
	Seasonal	120	80		110	9	C	70		120		
	Index											
16)	Develop a fe	asible re	egion or	a graph	n paper s	satisfvii	ng the fo	llowing	restrai	ints.	K6	CO5
- /	Minimum value function $z = 20 v \pm 10 v$, subject to									_		
	Willing we		0	- 2041+1	JOA ₂ Su							
	X1-	$+2X_2 \ge 4$	·0									
	3x	$_{1}+x_{2} \geq 3$	0									
	4x	$_1+3x_2 \ge$	60									
	X1,2	$\mathbf{x}_2 \ge 0$										
					####	######	#					