LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Com. DEGREE EXAMINATION – **ACCOUNTING AND FINANCE**

FIRST SEMESTER – **NOVEMBER 2022**

UAF 1301 – BUSINESS STATISTICS

Date: 28-11-2022   Dept. No.   Max. : 100 Marks
Time: 01:00 PM - 04:00 PM

SECTION A			
1. Answer the following questions			**(5x1= 5Marks)**
a)	Define statistics.	K1	CO1
b)	List the common measures of central tendency and dispersion.	K1	CO1
c)	Define LPP.	K1	CO1
d)	Recall the meaning on Saddle point.	K1	CO1
e)	Examine the main objectives in LPP – Graphical model.	K1	CO1
2. Choose the correct answer			**(5x1= 5 Marks)**
a)	Find the mean deviation according to median of the given data sets 7,47,8,42,47,95,42,96,3 a. 99 b. 100 c. 101 d. 102	K1	CO1
b)	Find the standard deviation of the given data sets 7,47,8,42,47,95,42,96,3: a. 29.09 b. 30.09 c. 31.09 d. 32.09	K1	CO1
c)	Find the mode of the given data set: 5,8,12,17,12,12,6,8,12, and 12 a. 5 b. 8 c. 12 d. 17	K1	CO1
d)	Find the range of the following data sets 61,22,34,17,81,99,42,94 a. 81 b. 82 c. 83 d. 84	K1	CO1
e)	The positive square root of the mean of the squares of the deviations of observations from their mean is called: a. Variance b. Range c. Standard deviation d. Coefficient of variation	K1	CO1

	3. State True or False		**(5x1= 5Marks)**
a)	Regression analysis is used for prediction, while correlation analysis is used to measure the strengths of the association between two numerical variables. **(True/False)**	K2	CO1
b)	Student grades (A to D) are an example of continuous numerical data. **(True/False)**	K2	CO1
c)	A statistic is usually used to provide an estimate for a usually unobserved parameter. **(True/False)**	K2	CO1
d)	The use of various statistical software like MS Excel, Minitab, SPSS, and SAS has reduced the burden of computing.**(True/False)**	K2	CO1
e)	If a set of data is perfectly symmetrical, the arithmetic mean must be identical to the median. **(True/False)**	K2	CO1
	4. Fill in the blanks		**(5x1= 5Marks)**

a)	If the third moment about mean is zero, then the distribution is_____
	    a. Positively skewed
	    b. Negatively skewed
	    c. Symmetrical
	    d. Mesokurtic
		K2	CO1

b)	If the value of the game is zero, then the game is known as_____
	    a. Fair strategy
	    b. Pure strategy
	    c. Mixed strategy
	    d. Pure game
		K2	CO1

c)	When the game is played on a predetermined course of action, which does not change throughout game, then the game is said to be _____
	    a. Pure strategy game
	    b. Fair strategy game
	    c. Mixed strategy game
	    d. Unsteady game
		K2	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)	Identify the wrong statement_____
	    a. Game without saddle point is probabilistic
	    b. Game with saddle point cannot be solved by dominance rule
	    c. Game with saddle point will have pure strategies
	    d. Game without saddle point uses mixed strategies
		K2	CO1

SECTION B

Answer TWO out of FOUR   **(2 x 10 = 20 Marks)**

5)	A panel of judges A and B graded seven debaters and independently awarded the following marks	K3	CO2

Debaters	1	2	3	4	5	6	7
Marks by A	40	34	28	30	44	38	31
Marks by B	32	39	26	30	38	34	28

An eight debater was awarded 36 marks by judge A while judge B was not present. If judge B was also present, how many marks would you expect him to award to the eight debater's assuming that the same degree of relationship exists in their judgment.

6)	Using three year moving averages determine the trend and short-term fluctuations.											K3	CO2

Year	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
Production	21	22	23	25	24	22	25	26	27	26

7)	Fit a second degree curve of regression of y on x to the following data:	K3	CO2

X	1	2	3	4
Y	6	11	18	27

8)	Calculate the quartile deviation and its coefficient for the following frequency distribution.	K3	CO2

Marks above	0	10	20	30	40	50	60	70
No. of students	150	142	130	120	72	30	12	4

SECTION C

Answer TWO out of FOUR   **(2 x 10 = 20 Marks)**

9)	Find the first four central moments for the following frequency	K4	CO3

X	0	1	2	3	4	5	6	7	8
F	1	8	28	56	70	56	28	8	1

Assume it is a symmetrical distribution.

10)	Deseasonalise the following data with the help of seasonal data given below:	K4	CO3

Month	Jan	Feb	Mar	April	May	June
Cash Balance ('000 Rs.)	360	400	550	360	350	550
Seasonal Index	120	80	110	90	70	120

11)	A cement factory manager is considering the best way to transport cement from three manufacturing centres, P, W, R to deposits A, B, C, D and E. the weekly production and demands along transportation cost pre tonne are given below:	K4	CO3

	A	B	C	D	E	Tonnes
P	4	1	3	4	4	60
Q	2	3	2	2	3	35
R	3	5	2	4	4	40
	22	45	20	18	30	135

What should be the distribution programme while applying u-v method?

12)	Critically analyse the strategies of game theory with suitable examples.	K4	CO3

SECTION D

Answer ONE out of TWO   **(1 x 20 = 20 Marks)**

13)	From 10 observations on price (X) and supply (Y) of a commodity, the following figures were obtained. $\sum X = 130$, $\sum Y = 220$, $\sum X^2 = 2288$, $\sum Y^2 = 5506$ and $\sum XY = 3467$. Compute a line of regression of Y on X and estimate the supply when the price is 16.	K5	CO4

14).	The following data shows the sales (in million dollars) of a company.	K5	CO4

X	2015	2016	2017	2018	2019
Y	12	19	29	37	45

Estimate the sales in the year 2020 using the regression line?

SECTION E

Answer ONE out of TWO   **(1 x 20 = 20 Marks)**

15)	Develop a feasible region on a graph paper satisfying the following restraints.	K6	CO5

$x \geq 0, y \geq 0$

12x + 12y	≤ 840
3x + 6y	≤ 300
8x + 4y	≤ 480

Under the above condition maximize the function $5x + 7y$.

16)	a). Pure Strategy in Game Theory **(10 marks)**	K6	CO5

Player B

		I	II	III	IV	V
	I	-2	0	0	5	3
Player A	**II**	4	2	1	3	2
	III	-4	-3	0	-2	6
	IV	5	3	-4	2	-6

Create the optimal plan for both the players.

b). Write the concepts to the following transportation techniques in the Operation Research:**(10 marks)**
   a) Northwest Corner Rule
   b) Least Cost Entry Method
   c) Vogel's Approximation Method
   d) MODI Method.

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