

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**B.Com. DEGREE EXAMINATION – HONOURS****FOURTH SEMESTER – APRIL 2022****UBH 4504 – BUSINESS STATISTICS**

Date: 16-06-2022

Dept. No.

Max. : 100 Marks

Time: 09:00 AM - 12:00 NOON

PART – A**Q. No****Answer ALL questions****(10 x 2 = 20 Marks)**

- 1 Define quartiles of a distribution.
- 2 State the empirical relationship connecting mean, median and mode.
- 3 Explain the merits of quartile deviation.
- 4 Explain the term “ Correlation”
- 5 Explain moving aveage method.
- 6 Describe transportation
- 7 Write a note on sum games.
- 8 Write the formula for moments.
- 9 Explain Bowley’s coefficient of skewness with formula.
- 10 Write the formula for combined mean and Standard deviation.

PART – B**Answer any FOUR questions****(4 x 10 = 40 Marks)**

- 11 The following table gives the distribution of income of 100 families in a large village. Calculate Standard deviation:

Income (Rs)	Below 1000	1000-2000	2000-3000	3000-4000	4000-5000	5000-6000
No. of Familiess	18	26	30	12	10	4

- 12 Calculate Karl Pearson’s coefficient of Skewness.

Income (Rs. Per day)	0 & Above	10 & Above	20 & Above	30 & Above	40 & Above	50 & Above	60 & Above	70 & Above	80 & Above
No. Of Employees	150	140	100	80	80	70	30	14	0

- 13 From the following table find the correlation between age and playing habits:

Age(years)	15-16	16-17	17-18	18-19	19-20	20-21
No.of Students	200	270	340	360	400	200
Regular Players	150	162	170	180	180	120

14 Find the regression coefficient of X on Y and Y on X for the following data:

X	3	2	-1	6	4	-2	5
Y	5	13	12	-1	2	20	0

15 Solve the game :

	B		
A	5	20	-10
	10	6	2
	20	15	18

What strategy will the 2 players adopt? Also determine the value of the game.

16 Indicate on a graph paper the region satisfying the following constraints:

$$X \geq 0; Y \leq 0$$

$$12X + 12Y \leq 840$$

$$3X + 6Y \leq 300$$

$$8X + 4Y \leq 480$$

Under the above conditions maximize the functions $5X + 7Y$

17 Write the steps for Least cost entry method and Vogel's Approximation method.

PART – C

Answer any TWO questions

(2 x 20 = 40 Marks)

18 The line regression of Y on X and X on Y are $Y = X + 5$ and $16X - 9Y = 94$. Find the variance of X if

(a) the variance of Y is 16. Also find the covariance of X and Y.

(b) The heights (in cms) and in weights (in kgms) of a random sample of 8 adult males are shown in the following data:

Height X	177	163	173	182	171	168	174	184
Weight Y	71	67	77	85	69	62	73	80

19 For the following series of observations, verify that the 4 year centred moving average is equivalent to a 5 year weighted moving average with weights 1,2,2,2,1 respectively.

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Sales ('000 Rs.)	2	6	1	5	3	7	2	6	4	8	3

20 Solve the transportation problem by North- West Corner Rule, Least Cost Method and VAM

Destinations	Origins			Requirements
	A	B	C	
A	6	4	1	50
B	3	8	7	40
C	4	4	2	60
Availability	20	95	35	150
