



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Com. DEGREE EXAMINATION – COMMERCE

SECOND SEMESTER – APRIL 2014

BC 2104 - BUSINESS STATISTICS (SHIFT – II REGULAR)

Date : 07/04/2014
Time : 09:00-12:00

Dept. No.

Max. : 100 Marks

SECTION A

Answer ALL questions.

(10 x 2 = 20 marks)

1. What are the measures of central tendency
2. Define Quartile Deviation.
3. Define skewness.
4. The mean of 200 items is 60 totals on it were discovered that 182 were wrongly taken as 82, find the correct mean.
5. If sum and difference of two quartiles are 22 and 8 respectively. Find the coefficient of skewness when the median is 10.5.
6. What are the types of Correlation?
7. What are regression equations?
8. What is meant by Time Series?
9. What is meant by balanced transportation problem?
10. Explain two person zero sum game.

SECTION B

Answer any FOUR questions

(4X 10 = 40 Marks)

11. Calculate the geometric mean for the following data:

x	15	13	14	16	18	20
f	9	4	10	7	6	12

12. The A.M. calculated from the following frequency distribution is known to be 32. Find the missing frequency.

Marks	20	25	30	35	40	45
frequency	13	2	8	6	?	4

13. Calculate the Mean Deviation about the mean for the following data:

x	2	3	4	5	6	7
f	1	5	8	4	2	1

14. The first four moments of a distribution about the value 5 are 2, 20, 40 and 50. Obtain the mean, variance, β_1 and β_2 .

- 15 Find the quartile deviation for the following distribution

Marks	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
Frequency	8	20	25	30	12	5

16. Calculate the trend values by the method of moving averages assuming a four - yearly cycle, for the following data.

Year	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Rice production	42	45	44	46	47	49	54	48	50	52	56	53	49

17. Use the graphical method to solve the following LPP.

Maximize $Z = 6x + 4y$
 Subject to constraints,
 $2x + y \leq 390$
 $3x + 3y \leq 810$
 $y \leq 200$
 $x, y \geq 0$

SECTION C

(2 X 20 = 40 Marks)

Answer any TWO questions

18. a) From the following data find mean, median and mode. Verify the empirical relation.

Marks	10 -20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
No.of students	22	27	25	36	30	24	26	20	18

(10)

18. b) The mean and standard deviation of 200 items are found to be 60 and 20 respectively. If at the time of calculations two items were wrongly taken as 3 and 67 instead of 13 and 17 find the correct mean and standard deviation. What is correct coefficient of variation? (10)

19. Calculate skewness and kurtosis for the following distribution and interpret them.

Marks	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	5	20	15	45	10	5

(20)

20. a) A sample of 12 fathers and their eldest sons gave the following data about their weight in kg. Find their rank correlation coefficient.

Father	78	80	82	79	80	84	85	83	82	80	86	88
Son	70	74	80	85	82	86	88	86	71	74	83	73

(10)

20. b) Determine the Seasonal Indices for the following using the method of simple averages:

<i>Quarter</i>	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>
<i>Year</i>				
2002	30	50	70	80
2003	40	57	54	58
2004	92	80	87	82
2005	100	78	20	30

(10)

21.(a) Find the initial basic feasible solution by using Vogel's Approximation Method for the following Transportation problem: (10)

	D ₁	D ₂	D ₃	D ₄	D ₅	Availability
A ₁	40	36	26	38	30	160
A ₂	38	28	34	34	198	280
A ₃	36	38	24	28	30	240
Demand	160	160	200	120	240	

21.(b)) Solve the following game by using Graphical method:

		Player A				
		a ₁	a ₂	a ₃	a ₄	
	b ₁	-2	4	2	-4	
Player B	b ₂	3	-5	-2	6	(10)
