LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Com. DEGREE EXAMINATION – **COMMERCE**

FIRST SEMESTER – **APRIL 2014**

CO 1104 - FUNDAMENTALS OF STATISTICS

Date : 28/03/2014   Dept. No. [   ]   Max. : 100 Marks
Time : 01:00-04:00

SECTION - A

Answer ALL questions.   **(10 x 2 = 20 Marks)**

1. What are the limitations of statistics?
2. What are the methods of collecting primary data?
3. Identify two good features of averages.
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. Calculate range and coefficient of range for the following data:
   61, 62, 63, 64, 65, 66, 67, 68
6. Compute the Standard Deviation for the following data:
   1, 5, 4, 2, 3, 8, 6, 2, 8
7. Explain scatter diagram method.
8. What are the limitations of regression analysis?
9. What are the various measures of trend?
10. State the merits and demerits of graphic method of trend?

SECTION - B   **(4 X10 = 40 Marks)**

Answer any FOUR questions

11. Write short notes on:
    (a) Judgment sampling (b) quota sampling

12 Represent the following data by a suitable diagram showing the difference between proceeds and costs.

Year	Total Proceeds (Rs. in thousands)	Total Cost (Rs. in thousands)
1999	22	19
2000	27	21
2001	31	28
2002	35	31
2003	29	26
2004	33	34

13. Calculate harmonic mean for the following data:

Class Interval	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70
Frequency	4	6	10	7	3	5

14. Calculate Mean Deviation about the median for the following data:

X	10	11	13	14	12
F	3	12	12	3	18

15. Find the Karl Pearson's coefficient of correlation for the following data:

Cost (Rs.)	39	65	62	90	82	75	25	98	36	78
Sales (Rs.)	47	53	58	86	62	68	60	91	51	84

16 Calculate Spearman's rank correlation for the following data:

Ranks of X	1	8	3	8	10	5	4	7	7	3
Ranks of Y	6	5	9	3	6	3	4	1	9	10

17. Calculate three yearly moving average of the following data and also calculate short-term fluctuations.

Year	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
production	25	28	27	30	34	35	36	33	36	37

SECTION - C   **(2 X 20 = 40 Marks)**

Answer any TWO questions

18.(a)) Find the mean, median and mode from the following frequency distribution.

Age	20 - 25	25 - 30	30-35	35-40	40-45	45-50	50-55	55-60
No. of people	14	28	33	30	20	15	13	7

(10)

18.(b) An analysis of the weekly wages paid to workers in two firms, A and B, belonging to the same industry gives the following result :

	Firm A	Firm B
No. of wage-earners	586	648
Average weekly wage	Rs. 52.5	Rs.47.5
Variance of the distribution of wages	100	121

   i) Which firm A and B pays out larger amount as weekly wages ?
   ii) Which firm A and B has greater variability wages ?
      Find the average weekly wage and the standard deviation of the wages of all the workers in two firms, A and B taken together.   (10)

19.(a) Find the standard deviation of the following distribution:

C.I.	20 – 25	25 – 30	30 – 35	35 – 40	40 – 45	45 – 50
Frequency	170	110	80	45	40	35

(10)

19.(b) Calculate Bowley's coefficient of skewness:

Class Interval	1 – 5	6 – 10	11 – 15	16 – 20	21 – 25	26 – 30	31 – 35
Frequency	3	4	8	30	10	6	2

20 (a) Find two regression lines from the following data:

X	158	160	163	165	167	170	172	175	177	181
	163	158	167	170	160	180	170	175	172	175

   Estimate Y, when X = 164.   (20)

20(b) Using 1964 as the origin, obtain a straight line trend equation by the method of least squares:

Year	1960	1962	1963	1964	1965	1966	1969
Value	140	144	160	152	168	176	180

Find the trend value of the missing year 1961?   (10)

21. Calculate Seasonal Indices using the ratio-to-moving average method for the following data:

Year \ Quarter	I	II	III	IV
1991	49	70	53	48
1992	30	20	51	40
1993	26	35	60	50
1994	25	60	48	82
1995	100	77	47	63

(20)

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