

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Com. DEGREE EXAMINATION – COMMERCE

FIRST SEMESTER – NOVEMBER 2009

CO 1810 - ADVANCED BUSINESS STATISTICS-I

Date & Time: 11/11/2009 / 1:00 - 4:00 Dept. No.

Max. : 100 Marks

SECTION: A

Answer All Questions:

10 x 2 = 20

- 1) What is meant by measure of central tendency?
- 2) Mention situation in which Harmonic mean would be appropriate.
- 3) Distinguish between Schedule and Questionnaire.
- 4) The mean mark of 120 students of a class is 50. Later on it was found that the marks of two students were wrongly entered as 68 and 46 instead of 86 and 64. Calculate the correct arithmetic mean.
- 5) For moderately skewed data, the arithmetic mean is 200, the coefficient of variation is 8 and Karl Pearson's coefficient of skewness is 0.3, Find the mode and the median.
- 6) What is Coefficient of Variation?
- 7) Write short note on Type II error?
- 8) A student obtained the following answer in a certain problem given to him, Mean = 2.4; Variance = 3.2 for a binomial distribution. Comment on the result.
- 9) Calculate Index Number on the basis of Family Budget Method from the following data.

Commodity	weight	Price per unit 1995 (Rs)	Price per unit 2005 (Rs)
Food	30	27	35
Fuel	20	15	30
Clothing	10	13	28
Rent	15	11	52
Education	25	22	60
Others	10	30	70

- 10) What is ANOVA?

SECTION – B

Answer any Five Only:

5 x 8 = 40

- 11) Give a brief note of the measures of central tendency together with their merits and demerits. Which is the best measure of central tendency and why?
- 12) What is time series analysis? Explain the various components of time series.
- 13) Explain the term statistical Quality Control. Discuss its aspects and advantages
- 14) The scores of two batsman A and B in ten innings during a certain season are:
A: 32 28 47 63 71 39 10 60 96 14
B: 19 31 48 53 67 90 10 62 40 60
Find by using coefficient of variation which of the two batsmen, A or B is more consistent in scoring.
- 15) The sales of company for the last eight years are given below.

Year	2001	2002	2003	2004	2005	2006	2007	2008
Sales(Rs.000)	52	45	98	92	110	185	175	220

Fit a straight line trend by the method of least squares and estimate the sales for 2010

- 16) The customer accounts at a certain department store have an average balance of Rs.480 and a standard deviation of Rs.160. Assuming that the account balances are normally distributed.
- What proportion of the accounts is over Rs.600?
 - What proportion of the accounts is between Rs.400 and Rs.600?

- 17) Two Sales men A and B are working in a certain district. From a sample survey conducted by the Head Office, the following results were obtained. Test at 1 % level of significance, whether there is any significant difference in the average Sales between the two Salesmen. (Table value of t for 36 df at 1 % level = 2.58)

	A	B
No. of Sales	20	18
Average Sales (in Rs.)	170	205
Standard Deviation (in Rs.)	20	25

- 18) The following table gives the yields of 15 samples of plot under three varieties of seed.

A	B	C
20	18	25
21	20	28
23	17	22
16	15	28
20	25	32

Test using ANOVA whether there is a significant difference in the average yield of seeds.

SECTION – C

Answer any two only:

2 x 20 = 40

- 19) Calculate seasonal indices by the ratio to moving average method. From the following data:

Year	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
2001	68	62	61	63
2002	65	58	66	61
2003	68	63	63	67

- 20) A survey of 320 families with 5 children each revealed the following data:

No. of Boys:	5	4	3	2	1	0
No. of Girls:	0	1	2	3	4	5
No. of Families:	14	56	110	88	40	12

Is this result consistent with the hypothesis that the male and female births are equally probable?

- 21) The following are the weight gains in pounds of two random samples of young Indians fed on two different diets but otherwise kept under identical conditions.

Diet I	16.3	10.1	10.7	13.5	14.9	11.8	14.3	10.2
	12.0	14.7	23.6	15.1	14.5	18.4	13.2	14.0
Diet II	21.3	23.8	15.4	19.6	12.0	13.9	18.8	19.2
	15.3	20.1	14.8	18.9	20.7	21.1	15.8	16.2

Use U test at 0.01 level of significance to test the null hypothesis that the two population samples are identical against the alternative hypothesis that on the average the second diet produces a greater gain in weight.
