LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Com. DEGREE EXAMINATION – **COMMERCE**

FIRST SEMESTER – **APRIL 2014**

CO 1812 - ADVANCED BUSINESS STATISTICS

Date : 29/03/2014   Dept. No. [   ]   Max. : 100 Marks
Time : 09:00-12:00

Section: A

Answer All Questions: **10 x 2 = 20**

1) Calculate Mean when C.V of the distribution is 50, Standard Deviation is 20.

2) Fill in the blanks: a) Median is better suited for ------------- interval series.
   b) In a symmetrical distribution mean ------ median ------ mode.

3) Distinguish between Positive and Negative Correlation.
4) What is Time Series?
5) One card is drawn from a standard pack of 52. What is the probability that it is either a king or a queen?
6) What is meant by the theoretical frequency distribution?
7) What are non-parametric tests?
8) What is analysis of variance and where is it used?
9) State the advantages of non parametric tests.
10) What are control charts?

Section – B

Answer Any Four Questions Only: **4 x 10 = 40**

11) Discuss the uses of statistical quality control and control charts.

12) The annual salaries of a group of employees are given in the following table: Calculate the standard deviation of the salaries.

Salaries in thousands	45	50	55	60	65	70	75	80
No. of persons	3	5	8	7	9	7	4	7

13) What is chi-square test? Under what conditions is it applicable?

14) Explain the procedure followed in testing a hypothesis.

15) The customer accounts of a certain departmental store have an average balance of Rs.120 and a standard deviation of Rs.40. Assuming that the account balances are normally distributed, Calculate the proportion of the accounts is over Rs.150 and the proportion of the accounts is between Rs.100 and Rs.150.

16) The mean life time of sample of 100 bulbs produce by the company is computed to be 1570 hours with a standard deviation of 120 hours. The company claims that the average life of bulbs produced by the company is 1600 hours. Using the level of significance of 0.05, is the claim acceptable?

17) The three samples below have been obtained from normal distribution with equal variances. Test the hypothesis that the sample means are equal:

8	7	12
10	5	9
7	10	13
14	9	12
11	9	14

The table value of F at 5% level of significance for $v_1 = 2$ and $v_2 = 12$ is 3.88.

Section – C

Answer Any Two Questions Only: **2 X 20 = 40**

18) From the following data find out whether there is any relationship between gender and preference of colour:

Colour	Males	Females	Total
Red	10	40	50
Blue	70	30	100
White	30	20	50
Green	30	20	50
Total	110	90	200

Chi - square table value for v = 2, at 5 % level of significance is 5.99

19) Calculate the trend values by the method of least squares. Also calculate the sales for the years 2015 and 2016.

Year	2008	2009	2010	2011	2012	2013	2014
Sales in Lakhs(`)	18	20	23	25	24	28	30

20) A company's trainees are randomly assigned to groups which are taught a certain industrial inspection procedure by three different methods: at the end of the instructing period they are tested for inspection performance quality. The following are their scores.
Method A: 60, 63, 59, 65, 70, 48
Method B: 62, 64, 40, 52, 66, 47, 71
Method C: 73, 45, 57, 58, 68
Use the H test to determine at the 0.05 level of significance whether the three methods are equally effective. Chi - square table value for v = 2, at 5 % level of significance is 5.99

21) The following mistakes per page were observed in a book:

No of mistakes per page	0	1	2	3	4
No of times the mistakes occurred	211	90	19	5	0

Fit a Poisson distribution to the data.

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