MMS/M07
Business Statistics
Paper Cp -102

Time : 3 Hours MM:70

Note:- Attempt Five questions in all, Question No. 1 is compulsory. All questions carry equal marks.

1 Answer all the parts in 5 lines each:
(i) Which is the best average for qualitative data?
(ii) What percentage of items are covered between Arithmetic mean +, - mean deviation.
(iii) Write short note on Scatter diagram.
(iv) Law of Large number
(v) Bayes' theorem
(vi) Describe the important properties of good estimator
(vii) Difference between Dispersion and Skewness.

2 Write short notes on the following:
(a) Binomial distribution
(b) Non-sampling errors

3 A soft drink vending machine is set to dispense 8 ounces per cup. If the machine is tested times yielding a mean cupfill of 8.2 ounces with a standard deviation of 0.3 ounces, what can we conclude about the null hypothesis of m=8 ounces against that alternate hypothesis of m>8 ounces at a=0.01?

4 Explain briefly the various types of non-parametric test known to you and the specific situations in which they are applicable.

5 Sample observations obtained to study the relation between the measure of the waist and the length of the trousers are shown as under:

6

Measures of the waist (in cm)	70	72.5	75	77.5	80	82.5	85	87.5	90	92.5
Length of Trousers (in cm)	100	102	100	95	105	110	95	98	100	105

Obtain the line of best fit (regression) of length of trousers on measurement of the waist. Calculate the coefficients of determine also.

6 Construct the consumer price index number for 2000 on the basis of 1999 from the following data using:
(i) Family Budget method
(ii) Aggregative Expenditure method

Commodity	Rice	Wheat	Pulses	Ghee	Oil
Weights	40	20	15	20	5
Price (per unit 1999(Rs.)	16.00	40.00	0.50	5.12	2.00
Price (per unit 2000(Rs.)	20.00	60.00	0.50	6.25	1.50

7 Explain the meaning of Time series. What are its main components? How would you study seasonal variations in a time series?

6 The following are the mean lengths and ranges of lengths of a finished product from 10samples each of size 5. The specification limits for length are 200+- 5 cm. Construct X and R charts and examine whether the process is under control and state your recommendations.

Smaple No.	1	2	3	4	5	6	7	8	9	10
Mean X	201	198	202	200	203	204	199	196	199	201
Range R	5	0	7	3	4	7	2	8	5	6

Assume for n=5, $A_2 = 0.577, D_3=0$ and $D_4 =2115$.