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Total No. of Pages: 3

MMS/D09

6200

Business Statistics

Paper: CP-102

Time: Three Hours]

Maximum Marks: 70

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

1. Write brief explanation of the following:

(i) Explain inferential statistics

(ii) Discuss the utility of diagrammatic presentation

(iii) Which is the best average for the manufacturer of garments?

(iv) Distinguish between linear and curvilinear correlation.

(v) Central Limit Theorem

(vi) Level of significance

(vii) Objectives of measuring trend. 2x7

2. Suppose that samples of polythene bags from two manufactures A and B are tested by a prospective buyer for bursting pressure with the following results:

Bursting Pressure (Lbs)		5.0-9.9	10.0-14.9	15.0-19.9	20.0-24.9	25.0-29.9	30.0-34.9	Total
Number of Bags	A	2	9	29	54	11	5	110
	B	9	11	]8	32	27	13	110

Which set of bags has the highest average bursting pressure? Which has more uniform pressure? If prices are same, which manufacturer's bags would be preferred by the buyer? Why? 14

3. An investment consultant predicts that the odds against the price of a certain stock going up are 2:1 and the odds in favour of the price remaining the same are 1:3. What is the probability that price of the stock will go down? 14

4. Define Poisson distribution and state the conditions under which this distribution is used for solving business problems. 14

5. (a) Discuss briefly the importance of estimation theory in decision making in the face of uncertainty.

(b) Explain the regression coefficients. 7+7=14

6. XYZ physical fitness centre claims that completion of their weight loss programme will result in a weight loss. To test this claim, six persons were selected at random and they were put through the weight loss programme and their weights before and after the programme were recorded. Test the claim of the fitness centre at $\lambda = 0.05$. The weights in pounds of these six persons recorded before and after the programme are as follows:

Person	**Weight** (before)	**Weight** (after)
1	145	143
2	200	190
3	160	165
4	185	183
5	164	160
6	175	176

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7. The following table gives the cost of living index numbers for different groups with their respective weights for the year, 1992. (base year : 1982)

Group	Cost of living index	Weight
Food	525	40
Clothing	325	16
Light and Fuel	240	15
Rent	180	20
Others	200	9

Calculate the overall cost of living Index Number. Mr. Bose got a salary of Rs. 550 in 1982. Determine how much he should have to receive as salary in 1992 to maintain his same standard of living as in 1982. 14

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

Sample 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 $D_4 = 2.115$. 14