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N – 5770

M. B. A. (Full Time) (First Semester) EXAMINATION, Nov./Dec., 2013

Paper – 105

BUSINESS STATISTICS

Time : Three Hours

Maximum Marks : 70

Minimum Pass Marks : 28

Note- Attempt *all* questions. Question no. 1 is compulsory.

1. Attempt any *five* questions. (Not more than 50 words each)–

(i) Write four properties of Normal distribution ? 2

(ii) Define rank correlation. 2

(iii) Why are samples taken ? 2

(iv) Briefly explain Spearman's Rank correlation. 2

(v) What is a Hypothesis ? 2

P.T.O.

(vi) What are the preconditions for regression analysis? 2

(vii) What is conditional probability? 2

(viii) Define a random variable. 2

(ix) Explain scatter diagram. 2

(x) Explain Type I and Type II errors. 2

2. An experimental diet to induce weight loss was followed for one week by a randomly selected group of 12 people with the following resullts. 12

Person	Loss in weight
1	2.2
2	2.6
3	0.4
4	2.0
5	0.0
6	1.8
7	5.2
8	3.8
9	4.2
10	3.8
11	1.4
12	2.6

(i) Find a point estimate for the average amount lost after one week on this diet. Is this an unbiased estimate of the population mean ? Explain.

(ii) Find a point estimate for the variance of the amount lost after one week on this diet. Is this an unbiased estimate of the population variance ? Explain.

(iii) Find a point estimate for the standard deviation of the amount lost on this diet.

Or

What are the various applications of inferential statistics in managerial decision-making ? 12

3. Find the two regression lines for the following data : 12

x :	45	48	50	55	65	70	75	72	80	85
y :	25	30	35	30	40	50	45	55	60	65

Or

(i) What is a Trend Analysis ? What are the methods of estimating trend ?

(ii) What is meant by Correlation ? What are its limits ?

P.T.O.

4. (i) Explain Baye's theorem with an example.

(ii) Distinguish between Binomial and Poisson distribution. 12

Or

The daily dinner bills in a local restaurant are normally distributed with a mean of INR 2800 and a standard deviation of INR 600 :

(i) What is the probability that a randomly selected bill will be at least INR 3910 ?

(ii) What percentage of the bills will be less than INR 1690 ?

(iii) What are minimum and maximum of the middle 95% of the bills ?

5. An automobile manufacturer stated that it will be willing to mass produce electric-powered cars of more than 30% of the potential buyers indicate that they will purchase the newly designed cars. In a sample of 500 potential buyers, 160 indicated that they would buy such a product " 12

(i) State the hypothesis for this problem

(ii) Compute the standard error of ?

(iii) Compute the test statistic

(iv) At the 95% confidence, what is your conclusion ? Should the manufacturer produce the new electric powered car ?

Or

Differentiate between probability and non-probability sampling. Discuss various probability sampling methods with suitable examples.

A random sample of 100 articles taken from a batch of 2696 articles contains 5 defective articles. Find 95 per cent confidence interval for the proportion of defective articles in the whole batch. 12

Or

(i) Explain the process of hypothesis testing

(ii) Explain characteristics of *t*-distribution.