FIRST SEMESTER M.B.A. DEGREE EXAMINATION, DECEMBER 2016

(CUCSS)

BUS IC 07—QUANTITATIVE TECHNIQUES

(2016 Admissions)

Time : Three Hours   Maximum : 36 Weightage

Part A

Answer all the questions.
Each question carries 1 weightage.

1. What is meant by Conditional probability ?

2. What is a Probability distribution ?

3. List any five data analysis tools in SPSS.

4. What is Non-parametric tests ?

5. What is Multiple correlation ?

6. What is Standard error ?

(6 × 1 = 6 weightage)

Part B

Answer any four questions.
Each question carries 3 weightage.

7. Explain the relative frequency definition of probability. What are its limitations ?

8. What are the Salient features of a Bernoulli process ?

9. How is the Arithmetic mean calculated using SPSS ?

10. On the average a certain intersection results in 3 traffic accidents per month. What is the probability that in any given month at this intersection ?

    (a) Exactly 5 accidents will occur.

    (b) Less than 3 accidents will occur.

    (c) At least 2 accidents will occur.

11. In an examination the average grade was 74 and the standard deviation was 7. If 12 % of the class are given A's and the grades are curved to follow a normal distribution, what is the lowest possible A and the highest possible B ?

12. How is the equality of several means tested ?

(4 × 3 = 12 weight

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Part C

*Answer any **three** questions.*
Each question carries 4 weightage.

13. Explain with a suitable example Chi-square goodness-of-fit test.

14. Discuss the business applications of correlation and regression.

15. Distinguish between Probability sampling and Non-probability sampling. Explain the major probability sampling methods.

16. A large hotel chain is trying to decide whether to convert more of its rooms to nonsmoking rooms. In a random sample of 400 guests last year, 166 had requested nonsmoking rooms. This year, 205 guests in a sample of 380 preferred the nonsmoking rooms. Would you recommend that the hotel chain convert more rooms to nonsmoking ? Support your recommendation by testing the appropriate hypotheses at the 0.01 level of significance.

17. A Cigarette manufacturer claims that the tar content of brand B Cigarettes is lower than that of brand A. To test this claim, the following determinations of the content, in milligrams, were recorded :

Brand A	12	9	13	11	14
Brand B	8	10	7		

Use the Wilcoxon Rank-sum test with alpha = 0.05 test whether the claim is valid.

(3 × 4 = 12 weightage)

Part D

Compulsory question.
The question carries 6 weightage.

18. A Taxi company is trying to decide whether the use of radial tyres instead of regular belted tyres improves fuel economy. Twelve cars were equipped with radial tyres and driven over a prescribed test course. Without changing drivers, the same cars were then equipped with regular belted tyres and driven once again over the test course. The fuel consumption, in kilometers per litre, was recorded as follows :

Car	1	2	3	4	5	6	7	8	9	10	11	12
Radial tyres	4.2	4.7	6.6	7.0	6.7	4.5	5.7	6.0	7.4	4.9	6.1	5.2
Belted tyres	4.1	4.9	6.2	6.9	6.8	4.4	5.7	5.8	6.9	4.7	6.0	4.9

At the 0.025 level of significance, can we conclude that cars equipped with radial tyres give better fuel economy than those equipped with belted tyres.

(1 × 6 = 6 weightage)