

M.Com. DEGREE (C.S.S.) EXAMINATION, MARCH 2015

First Semester

Faculty of Commerce

QT 01 C05—QUANTITATIVE TECHNIQUES

(2012 Admissions)

Time : Three Hours

Maximum Weight : 30

Section A

*Answer any five questions.
Each answer not to exceed a page.
Each question carries 1 weight.*

1. Write down the probability density function of normal distribution.
2. Distinguish between sampling and non sampling errors.
3. Define Type I and Type II errors.
4. Explain Latin square design.
5. What is R chart ?
6. What are the important non parametric tests ?
7. Give three applications of Student's *t* statistic.
8. What are the limitations of Quantitative Techniques ?

(5 × 1 = 5)

Section B

*Answer any five questions.
Each answer not to exceed two pages.
Each question carries 2 weight.*

9. Define standard normal distribution and explain how will you calculate the probability based on area under normal curve.
10. Briefly explain the different steps involved in testing of hypothesis. Also define the term power of the test.

Turn over

11. In an experiment of breeding pea plants Mendel obtained the following results. :—
 RY = 315, WY = 101, RG = 108, WG = 32. Theory predicts that the frequencies should be in the ratio 9 : 3 : 3 : 1. Examine the agreement between theory and observation.
12. During the examination of equal length of cloth the following are the number of defects observed. 3, 5, 4, 1, 6, 5, 6, 4, 2, 1. Draw a control chart for the number of defects and comment whether the process is under control or not.
13. Explain the use of quantitative Techniques in business and management.
14. In a Normal distribution 31 % of the items are under 45 and 8 % are over 64. Find the mean and standard deviation of the distribution.
15. The following data relate to additional hours of sleep gained by five patients with a certain drug 0.8, -1, -0.1, 1.3, 2.1. Test the claim that the drug produces additional sleep.
16. Explain Kruskal Wallis H test and state its importance.

(5 × 2 = 10)

Section C

*Answer any three questions.
 Each answer not to exceed five pages.
 Each question carries 5 weight.*

17. Apply suitable test to examine whether the following figures provide the evidence of the effectiveness of inoculation :

	<i>Attacked</i>	<i>Not attacked</i>
Inoculated	20	300
Not inoculated	80	360

18. Three varieties of crops was grown on four plots of land and the following yield was obtained. Prepare an analysis of variance table and find out whether there is significant difference between the three crops.

<i>Crops</i>	<i>Yield</i>			
A	15	10	16	11
B	16	14	12	14
C	12	18	20	10

19. Explain the techniques of statistical quality control.
20. An IQ test was administered to 5 persons before and after they were trained. The results were as follows.

21. For a sample of 100 labourers from Kerala, the average daily wages is Rs. 200 with a standard deviation of 15. For a sample of 150 laborers from Tamil Nadu the corresponding figures are Rs. 8 and Rs. 10 respectively. Can you conclude that the average wages of workers in Kerala are more than that of workers in Tamil Nadu.
22. The probability of survival in case of a particular disease is found to be 0.8. One hundred people are attacked by the disease in a particular area. If X denotes the number of survivals and also assuming that X follows Binomial distribution with $n = 100$ and $p = 0.8$. Find the upper bound for the probability that the survivals will be either less than 68 or greater than 92.

(5 × 3 = 15)