

D 33425

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Name.....

Reg. No.....

**FIRST SEMESTER M.Com. DEGREE EXAMINATION, FEBRUARY 2013**

(CUCSS)

**MC IC 2—QUANTITATIVE TECHNIQUES**

(2010 Admissions)

Time : Three Hours

Maximum : 36 Weightage

**Part A**

*Answer all questions.*

*Each question carries 1 weightage.*

1. What is 'saddle point' in game theory?
2. What is meant by 'sampling distribution'?
3. Distinguish between a parameter and a statistic.
4. What is Type II error?
5. What is an 'X chart'?
6. What is a probability distribution?

(6 × 1 = 6 weightage)

**Part B**

*Answer any six questions.*

*Each question carries 3 weightage.*

7. What is Statistical Quality Control? What control charts are used for attributes?
8. What are the salient features of a binomial experiment?
9. Explain how the size of a game can be reduced using the 'principle of dominance'.
10. If a keyboard operator averages two errors per page of newsprint, and if these errors follow a Poisson process, what is the probability that exactly four errors will be found on a given page?
11. The diameters of a particular group of parts are normally distributed with a mean of 2 inches and a standard deviation of 0.2 inches. If a part is chosen at random, what is the probability that it will have a diameter less than 2.3 inches?
12. A bag contains seven red and five white balls. Four balls are drawn at random. What is the probability that (i) all of them are red, and (ii) two are red and two are white.
13. The chance that a female worker in a chemical factory will contract an occupational disease is 0.04 and the chance for a male worker is 0.06. Out of 1000 workers in the factory 200 are females. One worker is selected at random and is found to have contracted the disease. What is the probability that the worker is a female?

Turn over

14. A sample analysis of examination results of 200 MBAs was made. It was found that 46 students had failed, 68 secured a third division, 62 secured a second division, and the rest were placed in the first division. Do these figures commensurate with the general examination result which is in the ratio of 2 : 3 : 3 : 2 for various categories respectively ?

(6 × 3 = 18 weightage)

### Part C

Answer any two questions.

Each question carries 6 weightage.

15. Describe using a suitable example the procedure for testing the equality of several proportions.
16. A local newspaper has stated that only 25% of all college students read newspapers daily. A random sample of 200 college students showed that 45 of them were daily readers of newspapers. Test the accuracy of the newspapers statement using a significance level of 0.05.
17. A truth serum given to a suspect is known to be 90% reliable when the person is guilty and 99% reliable when the person is innocent. In other words, 10% of the guilty are judged innocent by the serum and 1% of the innocent are judged guilty. If the suspect was selected from a group of suspects of which only 5% have ever committed a crime, and the serum indicates that he is guilty, what is the probability that he is innocent ?

(2 × 6 = 12 weightage)