

FOURTH SEMESTER B.Com. DEGREE EXAMINATION, APRIL 2022
(CBCSS - UG)
(Regular/Supplementary/Improvement)
CC19U BCM4 C04 - QUANTITATIVE TECHNIQUES FOR BUSINESS
(Commerce - Complementary Course)
(2019 Admission onwards)

Time : 2.5 Hours

Maximum : 80 Marks

Credit : 4

Part A (Short answer questions)

Answer **all** questions. Each question carries 2 marks.

1. Write four mathematical quantitative technique in QT.
2. What are the uses of correlation in a business?
3. What you mean by simple, partial and multiple correlation?
4. What are the different methods for calculating correlation?
5. Explain coefficient of determination
6. What you mean by probable error?
7. What is null set?
8. What is equally likely event?
9. What is the probability of selecting two 'M' from the letters of the word 'MANAGEMENT' ?
10. What are the properties of probability?
11. Find the probability of drawing an ace or a spade from a pack of cards.
12. State multiplication rule of probability.
13. What are pay off and regret tables?
14. Write a note on decision tree.
15. Explain the advantages of LP models.

(Ceiling: 25 Marks)

Part B (Paragraph questions)

Answer **all** questions. Each question carries 5 marks.

16. A speaks truth in 70% cases and B in 85% cases. In what percentage of cases are they likely to contradict each other in stating the same fact.
17. Explain inverse probability with example.
18. Explain the types of probability distribution.
19. The probability that a batsman scores a century in a cricket match is $\frac{1}{3}$. What is the probability that out of 5 matches, he may score century in (1) exactly 2 matches (2) no match.
20. For a Binomial distribution, with $n=6$, the third term is nine times the fifth term. Find P.
21. In a certain factory turning out optical lenses, there is a small chance of $\frac{1}{500}$ for any one lense to be defective. The lenses are supplied in packets of 10. Use poisson distribution to calculate the approximate

number of packets containing (1) no defective, (2) one defective, lenses in a consignment of 20,000 packets.

22. The Variable X follows a normal distribution with mean 45 and S.D=10. Find the probability that (1) $X \geq 60$ (2) $40 \leq X \leq 56$
23. What are the components of a decision problem?

(Ceiling: 35 Marks)

Part C (Essay questions)

Answer any **two** questions. Each question carries 10 marks.

24. Judge X and Y given the marks of 10 candidate in beauty contest. Find out the rank correlation coefficient.
Judge X : 50 60 70 65 80 85 90 92 40 96
Judge y : 60 70 75 60 80 82 86 90 50 95
25. The chance that a female worker in a chemical factory will contract an occupational disease is 0.4 and the chance for a male worker is 0.06. Out of 1000 workers in a factory 200 are females. One worker is selected at random and is found to have contacted the disease. What is the probability that the worker is female?

26. The distribution of typing mistakes committed by a typist given below. Assuming a poisson model find the expected frequencies

Mistakes per page:	0	1	2	3	4	5
No. of Pages	142	156	69	27	5	1

27. Maximize $z = 6X_1 + 4X_2$
St $-2X_1 + X_2 \leq 2$
 $X_1 - X_2 \leq 2$
 $3X_1 + 2X_2 \leq 9$
 $X_1, X_2 \geq 0$

(2 × 10 = 20 Marks)
