**19U413** (Pages: 2) Name: …………………

Reg. No: …………………

**FOURTH SEMESTER B.Com. DEGREE EXAMINATION, APRIL 2021**

(CBCSS - UG)

**CC19U BCM4 C04 - QUANTITATIVE TECHNIQUES FOR BUSINESS**

(Commerce - Core Course)

(2019 Admission - Regular)

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 limitation of quantitative technique
2. What is correlation?
3. Define Binomial distribution.
4. What is probable error?
5. What are the merits of rank correlation?
6. What is the probability of selecting two 'm' from the letters of the word 'management'?
7. What is compliment of a set?
8. If odds in favor of A solving a problem are 2 to 3 and odds against B solving problem are 3 to 5. Find probability for (1) A solving the problem, (2) B solving the problem.
9. What is the probability of getting 3 white balls in a draw of 3 balls from a box containing 5 white and 4 black balls?
10. What are the axioms of probability?
11. If $P(A)=1/13$, $P(B)=1/4$ and $P(A \cup B)=4/13$. Find $P(A \cap B)$.
12. What is conditional probability?
13. What is EMV?
14. What is the probability that a leap year selected at random will contain 53 Sundays?
15. What are the characteristics of Linear Programming?

**(Ceiling: 25 Marks)**

**Part B** (Paragraph questions)

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

16. A class consists of 80 students, 25 of them are girls and 55 boys. 10 of them are rich and remaining poor. 20 of them are fair complexioned. What is the probability of selecting a fair complexioned rich girl?
17. A speaks truth in 60% cases and B in 70% cases. In what percentage of cases are they likely to contradict each other in stating the same fact.
18. Explain the types of probability distribution.

19. Explain the properties of binomial distribution.

20. In a town 10 accidents took place in a span of 50 days. Assuming that the number of accidents follows poisson, find the probability that there are 2 accidents in a day.

21. Distinguish between correlation and regression.

22. If the heights of 1000 soldiers in a regiment are distributed normally with a mean of 172 cms and a S.D of 5 cms, how many soliders have heights greater than 180cms?

23. A Manufacturer of furniture makes two products, chairs and tables. Processing of these products is done on two machines A and B. A Chair requires 2 hours on machine A and 6 hours on machine B. A table requires 5 hours on machine A and no time on machine B. There are 16 hours of time per day available on machine A and 30 hours on Machine B. Profit gained by the manufacturer from a chair is Re.1 and from a table is Rs. 5 respectively. Formulate the Problem to maximize the total profits.

**(Ceiling: 35 Marks)**

**Part C** (Essay questions.)

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

24. From the following results, estimate the yield of crops when the rainfall is 22 cms and the rainfall when the yield is 600 kg

|      | Yield(Y) | Rain fall cms (X) |
|------|----------|-------------------|
| Mean | 508.4    | 26.7              |
| S.D  | 36.8     | 4.6               |

Coefficient of correlation between yield and rainfall is .52

25. Establish correlation between the following pair of series and find out the probable error. Also interpret.

$$X:\ 17\ \ 19\ \ 20\ \ 22\ \ 24\ \ 27\ \ 29\ \ 30\ \ 33\ \ 35$$
$$Y:\ 87\ \ 85\ \ 80\ \ 78\ \ 75\ \ 72\ \ 70\ \ 65\ \ 62\ \ 60$$

26. The probability that a doctor will diagnose a particular disease correctly is 0.6. The probability that a patient will die by his treatment after correctly diagnosis is 0.4 and the probability of death by wrong diagnosis is 0.7. A patient of the doctor who had the disease died. What is the probability that his disease was not correctly diagnosed?

27. The probability that A solves the problem in statistics is 2/5 and the probability that B solves the problem is 3/8. If they try independently find the probability that
    (a) Both solve the problem.
    (b) None solve the problem.
    (c) At least one solves the problem.

**(2 × 10 = 20 Marks)**

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