M. COM DEGREE END SEMESTER EXAMINATION- NOVEMBER 2025
SEMESTER 1 : COMMERCE
COURSE : **24P1COMT05 : QUANTITATIVE TECHNIQUES**
(For Regular - 2025 Admission and Improvement / Supplementary 2024 Admission)

Time : Three Hours   Max. Weights: 30

PART A
Answer any 8 questions   Weight: 1

1.	What do you mean by critical region?	(U)
2.	A bag contains 6 black and 8 white balls. One ball is drawn at random. What is the probability that the ball drawn is white?	(A)
3.	What do you mean by the terms population and sample.	(U)
4.	Mention two areas where Quantitative techniques have applications.	(A)
5.	What is meant by Coefficient of Contingency ?	(U)
6.	What do you mean by business analytics?	(U)
7.	Give the classical definition of probability and point out its limitations.	(U)
8.	What does the term "Level of Significance" mean?	(A)
9.	Examine the consistency of the data given (A) = 200, (B) = 900, ($\alpha\beta$) = 180, N = 1000	(A)
10.	What are the assumptions of Sign Test?	(U)

(1 x 8 = 8)

PART B
Answer any 6 questions   Weights: 2

11.	The per acre yield of crop in a particular area is observed to follow a normal distribution with mean 15 quintals and standard deviation of 5 quintals. Find: a) The proportion of area yielding atleast 25 quintals. b) What extent of the land under cultivation can yield between 10 and 20 quintals if the total land under cultivation is 782 acres.	(E)
12.	State the various mathematical quantitative Techniques	(An)
13.	The study investigating the behavior of people working in several servicing organization, they due to their very nature of the job are often dissimilar in characteristics, if such behavior is to be measured what type preparations are required to get the data from them.	(E)
14.	Following data relate to literacy and unemployment in a group of 500 persons. Calculate Yule' s co-efficient of association between literacy and unemployment and interpret it Literate unemployed = 220 Literate employed = 20 Illiterate Employed = 180 Illiterate Unemployed = 202	(A)

15. Given the following information:-

	No. of items in the sample	Coefficient of correlation
Sample 1	23	0.40
Sample 2	19	0.65

(A)

Test the significance of the difference, at 5% level, between the two given values of coefficient of correlation using Fisher's Z transformation.

16. State and prove Baye's theorem. (U)

17. In a diet survey the following results were obtained:

Particulars	Hindus	Muslims
Families taking tea	124	16
Families not taking tea	56	10

(A)

Is there any significant difference between the communities in the matter of taking tea.

18. Researchers have conducted a survey of 1600 coffee drinkers asking how much coffee they drink in order to confirm previous studies. Previous studies have indicated that 72% of Americans drink coffee. The results of previous studies (left) and the survey (right) are below. At $\alpha = 0.05$
(Significance level), is there enough evidence to conclude that the distributions are the same or fit?

Response	% of Coffee Drinkers
2 cups per week	15%
1 cup per week	13%
1 cup per day	27%
2+ cups per day	45%

(E)

Response	Frequency
2 cups per week	206
1 cup per week	193
1 cup per day	462
2+ cups per day	739

(2 x 6 = 12)

PART C
Answer any 2 questions   **Weights: 5**

19. Two groups of 50 handicaps each were taken to study the association of blindness with deafness and the observations were tabulated as under. Use the chi-square test at 5% level to verify the association of blindness with deafness.

Attributes	Blind	Not blind	Total
Deaf	12	38	50
Not deaf	35	15	50
Total	47	53	100

(A)

20. Quantitative techniques have become an indispensable tool of modern business and industry. Discuss.

(E)

21. A researcher wants to test whether the mean IQ of a group of 100 students is different from the national average of 100. The researcher administers an IQ test to the students and obtains a sample mean of 102 and a sample standard deviation of 15. What are the null and alternative hypotheses for this test? What is the test statistic? What is the conclusion of the test at a 5% level of significance? (A)

22. In a factory producing bolts, Machines A, B and C manufactures 25%, 35% and 40% of total output. of their output, 5%, 4% and 2% are defective respectively. A bolt is drawn at random from the product and is found to be defective. What is the probability that it was manufactured by machine A? (A)

(5 x 2 = 10)

OBE: Questions to Course Outcome Mapping

CO	Course Outcome Description	CL	Questions	Total Wt.

Cognitive Level (CL): Cr - CREATE; E - EVALUATE; An - ANALYZE; A - APPLY; U - UNDERSTAND; R - REMEMBER;