Reg. No.												

Question Paper Code	12444

M.B.A - DEGREE EXAMINATIONS, NOV / DEC 2023

First Semester

Master of Business Administration

20MBT104 - BUSINESS STATISTICS AND ANALYTICS FOR DECISION MAKING

(Statistical Table to be permitted)

(Regulations 2020)

Duration: 3 Hours Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks, K-Level, CO
1.	State Baye's theorem	*2,K1,CO1*
2.	Define the Probability mass function of binomial distribution.	*2,K1,CO1*
3.	Write the applications of central limit theorem.	*2,K2,CO2*
4.	Aautomobile repair shop has taken a random sample of 40 services that the average service time on an automobile is 130 minutes with a standard deviation of 26 minutes. Compute the standard error of the mean.	*2,K1,CO2*
5.	What are the uses of F test?	*2,K1,CO3*
6.	What is the aim of design of Experiment?	*2,K1,CO3*
7.	List out some advantages of non-parametric test.	*2,K1,CO4*
8.	Write the difference between U test and H test.	*2,K1,CO4*
9.	Explain the uses of time series.	*2,K2,CO5*
10.	Distinguish between correlation and Regression.	*2,K2,CO5*

PART - B (5 × 16 = 80 Marks)

Answer ALL Questions

11.	a)	The contents of urns I, II and III are as follows: 1 white, 2 black and 3 red balls 1 white, 1 black and 1 red balls 4 white, 5 black and 3 red balls. One urn is chosen at random and two balls drawn. They happen to be white and red. Compute the probability that they come from urns I, II and III.	*16,K3,CO1*
		OR	
	b)	In a certain factory manufacturing razor blades, there is a small change of 1/500 for any blade to be defective. The blades are	*16,K3,CO1*

supplied in packets of 10. Use Poisson distribution to calculate the approximate number of packets containing

(1) No defective

(2) One defective

(3) Two defective blade

Respectively in a consignment of 10,000 packets.

12. a) A random sample of size 100 is taken from a population whose mean is 60 and variance 400. Using central limit theorem, compute the probability that we can assert that the mean of the sample will not differ from μ more than 4. *16,K3,CO2*

OR

b) Two independent samples are chosen from two schools A and B and a common test is given in statistics subject. The scores of the students are given below. Construct 95% confidence interval for the difference between the average scores of the schools, *16,K3,CO2*

School A	76	68	70	43	94	68	33	-
School B	40	48	92	85	70	76	68	22

13. a) Two random samples gave the following results: *16,K3,CO3*

Sample	Size	Sample Mean	Sum of squares of deviations from the mean
1	10	15	90
2	12	14	108

Determine whether the samples come from the same normal population at 5 % level of significance.

OR

b) A company appoints 4 salesman A, B,C and D and observes their sales in 3 seasons: Summer, winter and monsoon. The figures(in lakhs of Rs.) are the given in the following table: *16,K3,CO3*

Season/ Salesman	A	B	C	D
Summer	45	40	38	37
Winter	43	41	45	38
Monsoon	39	39	41	41

Carry out an analysis of variance.

14. a) Two researchers A and B adopted different techniques while rating the student's level. Determine whether the techniques adopted by the 2 researchers are independent. *16,K3,CO4*

Researchers	Below average	Average	Above Average	Genius	Total
A	40	33	25	2	100
B	86	60	44	10	200
Total	126	93	69	12	300

OR

b) Use Kruskal-Wallis test to test for differences in mean among the three samples. *16,K3,CO4*

Sample I	95	97	99	98	99	99	99	94	95	98
Sample II	104	102	102	105	99	102	111	103	100	103
Sample III	119	130	132	136	141	172	145	150	144	135

15. a) Calculate the correlation coefficient from the following data. *16,K3,CO5*

X	10	12	15	20	23
Y	14	17	23	21	25

OR

b) Compute the regression lines Y on X and X on Y for the data. *16,K3,CO5*

X	1	4	2	3	5
Y	3	1	2	5	4