Name. _____ **Student Admn. No.: _____**				**Printed Pages:01**
School of Computing Science & Engineering **Backlog Examination, June 2023** **[Programme: MCA] [Semester: II] [Batch:]**				
Course Title: Probability for Data Science **Course Code:** MCAE1112				**Max Marks: 100** **Time: 3 Hrs.**
Instructions:	*1. All questions are compulsory.* *2. Assume missing data suitably, if any.*			
SECTION-A (15 Marks)			**5 Marks each**	
1.	What is the probability, that a leap year selected at random will contain 53 Sundays?	K1	CO1	5
2.	Three bags contain 3 red, 7 black; 8 red, 2 black, and 4 red & 6 black balls respectively. 1 of the bags is selected at random and a ball is drawn from it. If the ball drawn is red, find the probability that it is drawn from the third bag.	K2	CO2	5
3.	Determine the binomial distribution whose mean is 9 and variance 9/4.	K2	CO3	5
SECTION-B (40 Marks)			10 Marks each	
4.	What is Regression Analysis? Explain with the help of suitable example.	K3	CO3	10
5.	Differentiate b/w Null and Alternate hypothesis.	K4	CO4	10
6.	Explain One-way ANOVA with the help of suitable examples.	K4	CO4	10
7.	A brand of Bulbs is sold in boxes, on which it is claimed that, the average contents are 40 bulbs. A check on a pack of 5 boxes gives the result as: 41, 39, 37, 40, 38.Test the manufacture's claim. OR What is sampling? Explain all types of sampling in brief with example	K5	CO5	10
SECTION-C (45 Marks)			15 Marks each	
8.	Differentiate between Probability Density Function (PDF) and Probability Mass Function (PMF). Give one example for each.	K5	CO3	15
9.	What is meant by correlation? Explain positive, negative and zero correlation with suitable examples	K4	CO4	15
10	In a distribution exactly normal, 7% of the items are under 35 and 89% are under 63. Find the mean and standard deviation of the distribution. OR In multiple regression, write the normal equations to predict the value of dependent variable 'x' by using two independent variables 'y' and 'z'.	K5	CO5	15