CLASS: BTECH

SEMESTER : VI
SESSION :
SP/2023

BRANCH: CSE/IT/ECE/EEE/CIVIL/MECH/CHE/C&P

SUBJECT: MA428 NUMERICAL AND STATISTICAL METHODS

TIME: 02 Hours

FULL MARKS: 25

INSTRUCTIONS:
1. The total marks of the questions are 25.
2. Candidates attempt for all 25 marks.
3. Before attempting the question paper, be sure that you have got the correct question paper.
4. The missing data, if any, may be assumed suitably.
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

				CO	BL
Q1	(a)	If two events A and B are mutually exclusive, when will their compliments be also mutually exclusive?	[2]	4	1.23
Q1	(b)	You are given a coin and you don't know whether it is biased or unbiased. How will you determine the probability of Heads? State the relevant definition of probability to justify your answer.	[3]	4	1.20
Q2	(a)	If n cars are randomly parked in a car parking zone, find the probability that two particular cars are never together.	[2]	4	1.12
Q2	(b)	Define independent events. How can two independent events be represented in a Venn diagram?	[3]	4	1.20
Q3	(a)	A, B and C are three mutually exclusive and exhaustive events associated with a random experiment. Find P(A) given that P(B)=1.5P(A) and P(C)=0.5P(B).	[2]	4	1.25
Q3	(b)	A problem is given to four students A, B, C and D whose respective chances of solving it are p, q, r and s. They attempt to solve it independently and the problem is solved. What is the chance that only D has solved it?	[3]	4	1.31
Q4	(a)	Two fair dice are rolled. Find the probability of getting a prime number on the first dice or a total of 9.	[2]	4	1.25
Q4	(b)	Bag A contains 3 green balls and 7 black balls. Bag B contains 5 green balls and 2 black balls. A bag is randomly selected and from the selected bag, one ball is randomly drawn. Given that a black ball is drawn, what is the chance that Bag B was selected?	[3]	4	1.32
Q5	(a)	What do you mean by the probability distribution of a random variable?	[2]	4	1.12
Q5	(b)	A random variable has the following probability distribution:	[3]	4	1.25

Q5 (b)

X: 1   2   2   4   5   6   7
P(X=x): k   2k   2k   3k k^2 $2k^2$ $7k^2+k$
Find the value of k.

::::::27/02/2023::::::M