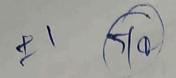
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69. H-1.016.

Ser. in	A CONTRACTOR OF THE CONTRACTOR	SESSIONAL-II June 2023	Semester: II
		Programme: BTech, Branch: CSE	Time: 1 Hour
		Course Code: BTMAT119B, Course Title: Mathematics-II	Max Marks: 20
(Q).)	The diameter,	say X , of an electric cable, is assumed to be a continuous random variable	5 Marks
	with probabilit	y density function: $f(x) = 6x(1-x), 0 \le x \le 1$	
		ck that the above is a probability density function.	
0	(ii) Det	ermine the number k such that $P(X < k) = P(X > k)$.	
Q2.	The fraction X of male runners and the fraction Y of female runners who compete in		5 Marks
	marathon races are described by the joint density function		
		$f(x,y) = \begin{cases} 8xy, & 0 \le y \le x \le 1, \\ 0, & elsewhere \end{cases}$	
	Find the covari	ance of X and Y.	
Q3.	Random samples of 400 men and 600 women were asked whether they would like to		5 Marks
	have a flyover near their residence. 200 men and 325 women were in favour of the		
	proposal. Test the hypothesis that proportions of men and women in favour of the		
	proposal, are same against that they are not, at 5% level.		
QA.	In a distribution exactly normal, 31% of the items are under 45 and 8% of the items are		5 Marks
		are the mean and standard deviation of the distribution?	THE WHAT WAS