	SRM INSTITUTE OF SCIENCE AND TECHNOLOGY
	DEPARTMENT OF MATHEMATICS
	18MAB302T-DISCRETE MATHEMATICS FOR ENGINEERS
	UNIT 1-SET THEORY & RELATIONS
Sl.No.	**TUTORIAL SHEET 1-QUESTIONS-PART(A)**
1	Simplify the following using set theoretical laws: (A∩B)U(A∩B∩Č∩D)U(Â∩B)
2	Write the dual of (A∩B)U(A∩Č)U(Â∩B)
3	a)Give an example of arelation which is neither reflexive nor irreflexive? b)Can any relation which is irreflexive and symmetric be transitive?Justify?
4	Let X={1,2,3,4} and R={(x,y)/x>y}Draw the graph of R and also find its matrix.
5	Give a relation which is both partial order relation and equivalence relation on a set.
	Part – B
6	If A and B are any two sets prove analytically,a)A∩(B-C)=(A∩B)-(A∩C) b)A×(B∩C)=(A×B) ∩(A×C)
7	If R is a relation on Z defined by aRb iff a)3a+b is a multiple of 4 b)2a+3b=5n,n is an integer. Prove the above relations are equivalence relations.
8	Let R={(1,2), (3,4), (2,2)},and S={(4,2), (2,5), (3,1),(1,3)}be relations on{1,2,3,4}. Find R◦S,S◦R, (R◦S)◦R, R◦(S◦R), R◦R,S◦S ,R◦R◦R.
9	If the relation R on the set X={1,2,3……7}defined by aRb iff a≡b(mod 3).Find the pairs in R,find the partition induced by the equivalence relation R on X.
10	For the poset {3,5,9,15,24,45} a)find the maximal and minimal elements. b)the greatest and the least elements. c)the upper bounds and LUB of {3,5} d)the lower bounds and GLB of {15,45}.
11	For the relation R={(1,1),(1,2),(1,3),(2,1),(2,2),(2,3),(3,1),(3,3),(4,4)} defined on X={1,2,3,4},find the transitive closure of R using Warshall's algorithm.
12	For the relation R={(1,3),(1,4),(2,1),(2,3),(2,4),(3,4)} defined on X={1,2,3,4}find the properties of the relation R.