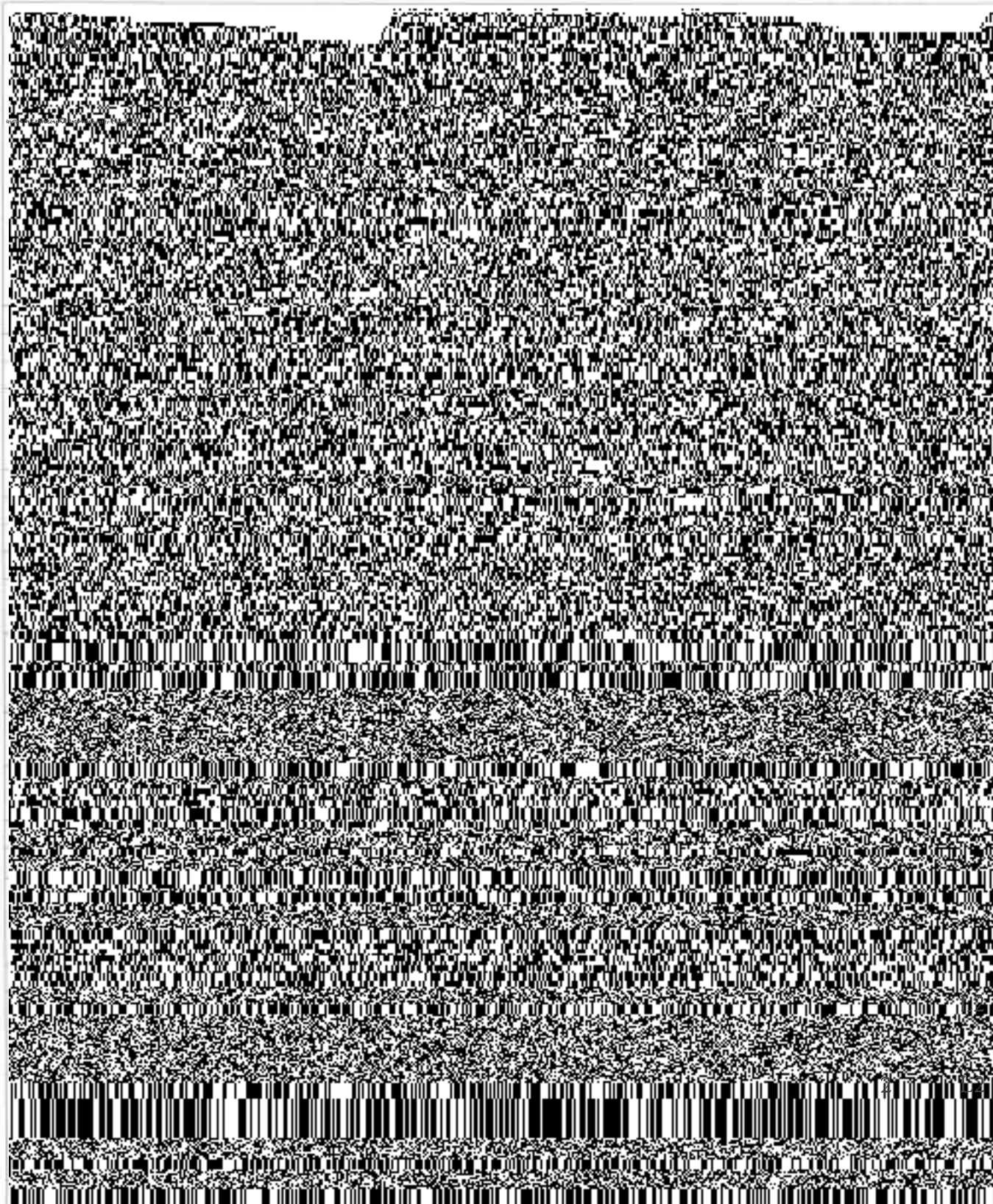




14	Show that the following set of premises are inconsistent $P \rightarrow Q, P \rightarrow R, Q \rightarrow \sim R, P$	10M	2	L2
15	State and Prove Division algorithm theorem using well ordering principle OR	10M	3	L2
16	a) Use Mathematical Induction to show that $1+2+2^2+2^3+\dots+\dots\dots+2^n=2^{n+1}-1$ b) Write the Procedure for Euclidean algorithm to find gcd of two numbers.	5M 5M	3	L2
17	Let A be any finite set and P(A) be the power set of A. $\subseteq$ be the inclusion relation on the elements of P(A). Draw the Hasse diagrams of (P(A), $\subseteq$) for i) A = {a} ii) A = {a,b} iii) A = {a,b,c} iv) A = {a,b,c,d}	10M	4	L2
	OR			
18	a) Prove that the relation R defined by “a is congruent to b modulo m” on the set of integers is an equivalence relation. b) Draw the Hassediagram representing the positive divisors of 45.	5M 5M	4	L2
19	a) Prove that set of non-singular matrices of order 2 x 2 is a group but not an abelian group under multiplication. b) If ‘G’ is a group then prove that $(a^{-1})^{-1}=a$	5M 5M	5	L2
	OR			
20	a) Prove that $G=\{0,1,2,3,4,5,6\}$ is an abelian group of order 7 with respect to addition modulo 7. b) Define subgroup, normal subgroup, Quotient group, left and right cosets with an example for each.	5M 5M	5	L2