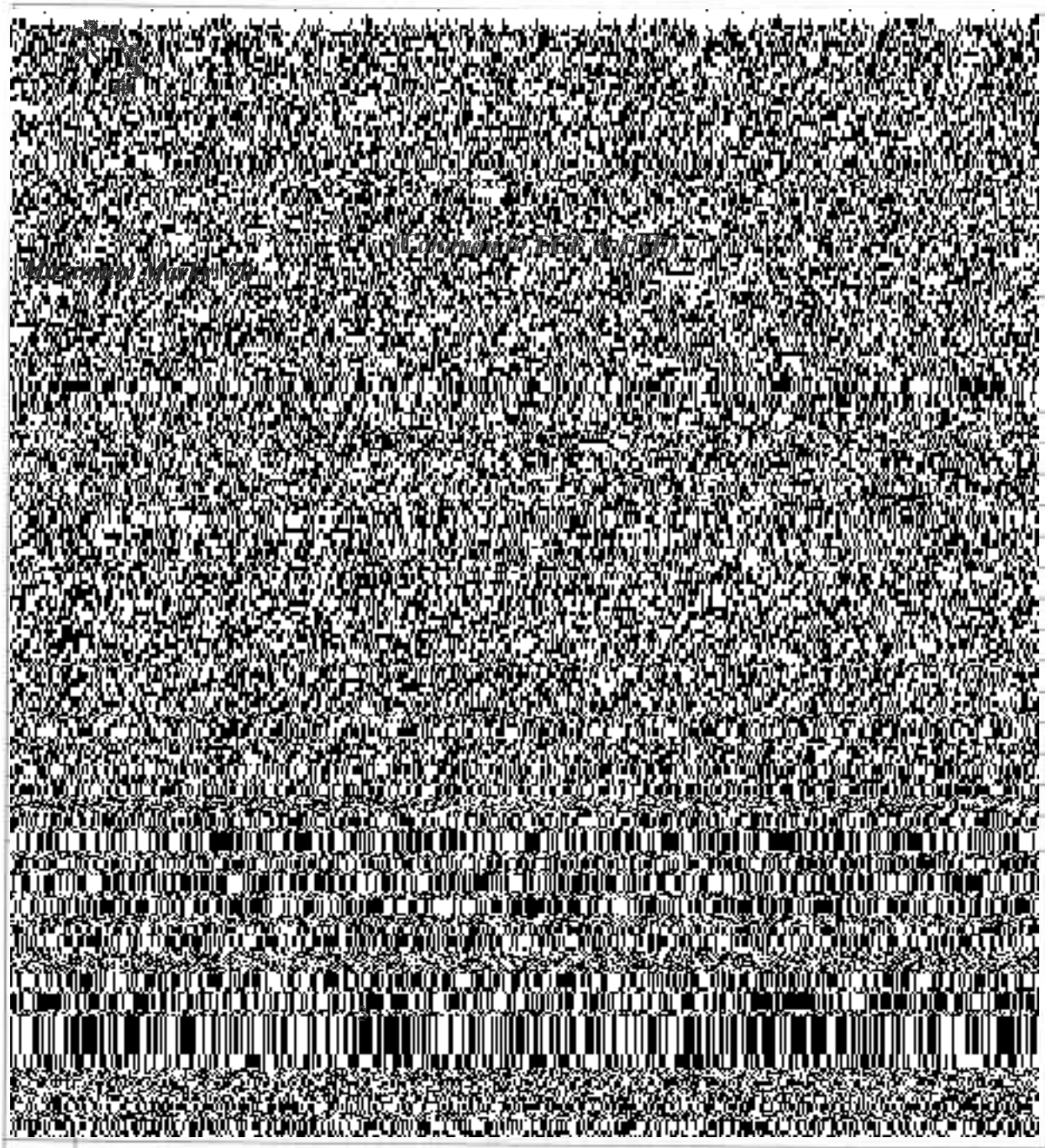
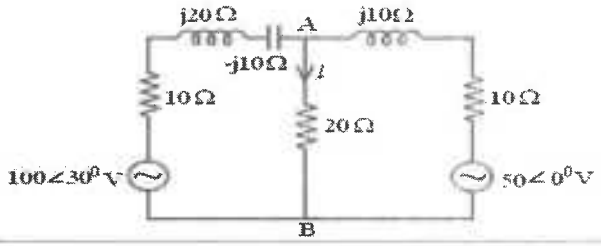
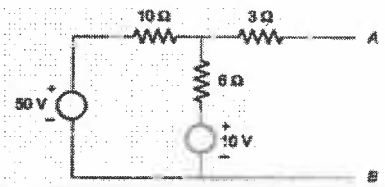


	OR
12	Derive the expression for self inductance, mutual inductance and coefficient of coupling of magnetic circuit. [10M]
13	Define average value of an alternating quantity. Obtain the relation between average value and the maximum value of an alternating quantity. [10M]
	OR

14	A voltage V=141 sin{314t+π/3} is applied to i) resistor of 20 Ω ii) Inductance of 0.1 henry iii) capacitance of 100μF. calculate in each case rms value of current and power dissipated .	[10M]
15	i) Examine Tellegan's theorem for DC excitation with an example. ii) Determine the current I in the branch AB of circuit shown in figure-4 by using Norton's Theorem. 	[5M] [5M]
	OR	
16	i)Analyze Reciprocity Theorem for AC excitation with an example. ii)Illustrate Thevenin's equivalent circuit for the circuit shown in below Figure-5. 	[5M] [5M]
17	Explain the constructional parts of dc machine with a neat diagram.	[10M]
	OR	
18	Design the equivalent circuit of single-phase transformer referred to the primary side.	[10M]
19	Summarize the concept of wiring system and Earthing.	[10M]
	OR	
20	Examine the importance of power factor improvement and the important characteristics of batteries.	[10M]