N.B.
1) All questions are **COMPULSORY**.
2) Figures to the **RIGHT** indicate **FULL** marks.
3) Assume suitable data **WHEREVER** necessary.

Q.1	**a)**	Explain with diagram Superposition Theorem.	**(05)**
	b)	Explain with diagram Maximum Power Transfer Theorem.	**(05)**

OR

Q.1	**a)**	Explain the concept of an electric network.	**(05)**
	b)	Explain active and passive elements in D.C. circuit analysis.	**(05)**

Q.2	**a)**	Explain Faraday's law of electromagnetic induction. State the concept of statically and dynamically induced EMF.	**(05)**
	b)	Explain coefficient of Mutual Inductance. State sign and dot convention.	**(05)**

OR

Q.2	**a)**	Explain the following terms : Flux, Flux Density, Field Strength.	**(05)**
	b)	Compare between electric and magnetic circuits.	**(05)**

Q.3	**a)**	State the causes of low power factor.	**(05)**
	b)	Elaborate the methods of power factor improvement.	**(05)**

OR

Q.3	**a)**	Explain with reference to AC fundamentals following : Sinusoidal, square and triangular waveforms.	**(05)**
	b)	Describe with diagram concept of phasors.	**(05)**

Q.4	**a)**	Explain the concept of balanced supply and balanced load in transformer connections.	**(05)**
	b)	Explain line and voltage / current relations in star delta connections.	**(05)**

OR

Q.4	**a)**	State the necessity and advantages of three phase systems.	**(05)**
	b)	Explain the meaning of phase sequence.	**(05)**

Q.5	**a)**	Explain losses in transformer. Describe the concept of ideal transformer.	**(05)**
	b)	Explain the working of three phase transformer and its connections.	**(05)**

OR

Q.5	**a)**	Explain with diagram the construction of single phase transformer.	**(05)**
	b)	Explain with diagram principle of operation of single phase transformer.	**(05)**

Q.6	**a)**	Write short note on parallel operation of single phase transformer.	**(05)**
	b)	Write short note on open circuit or no-load test of transformer.	**(05)**

OR

Q.6	**a)**	Explain the working of single phase transformer on no-load.	**(05)**
	b)	Write short note on efficiency of single transformer.	**(05)**

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