B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

September / October 2024 Supplementary Examinations

Programme: B.E.   **Semester: IV**
Branch: Electrical and Electronics Engineering   **Duration: 3 hrs.**
Course Code: 22EE4PCGTD   **Max Marks: 100**
Course: Generation, Transmission and Distribution

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
             2. Missing data, if any, may be suitably assumed.

			UNIT - I	CO	PO	Marks
1	a)		Draw the typical block diagram for hydroelectric power plant and explain its parts in brief.	CO1	PO1	07
	b)		Explain the following terms: a) Demand Factor b) Load Factor c) Diversity Factor.	CO1	PO1	06
	c)		Derive & analyze the equation for sag when the conductor is supported between two poles at the same level.	CO2	PO2	07
			OR			
2	a)		Explain the different methods to improve the power factor?	CO1	PO2	05
	b)		Derive & analyse the equation for sag when the conductor is supported between two poles at unequal levels.	CO1	PO2	07
	c)		A transmission line has a span of 275 m between level supports. The conductor has an effective diameter of 1.96 cm and weighs 0.865 kg/m. Its overall strength is 8060 kg. If the conductor has ice coating of radial thickness 1.27 cm and is exposed to a wind pressure of 3.9 gm/cm^2 of projected surface, compute sag for a safety factor of 2. Weight of 1 c.c. of ice is 0.91 gm.	CO1	PO2	08
			UNIT - II			
3	a)		Discuss on enhancing string efficiency by grading the insulators.	CO2	PO1	04
	b)		Develop an expression for inductance (internal flux & external flux) of a single phase two wire system.	CO2	PO1	08
	c)		Develop an expression for capacitance of three phase overhead line with unsymmetrical spacing.	CO2	PO1	08

			UNIT - III			
4	a)		Analyse and develop an expression for ABCD constants of medium transmission line using Nominal- Pai (π) method. Also draw the phasor diagram.	CO4	PO2	**10**
	b)		A three phase ,50 Hz overhead transmission line,100KM long delivers 20MW at 0.9 power factor lagging & at 110KV. The resistance & reactance of the line per phase per KM are 0.2 Ω & 0.4Ω respectively, while capacitive admittance $=2.5\times10^{-6}$ $\mho$/KM (mho/KM). Evaluate (i) voltage, & current at sending end, and (ii) Efficiency of transmission for this load using nominal T-method.	CO4	PO2	**10**
			UNIT - IV			
5	a)		Discuss about the Factors Influencing Corona.	CO2	PO1	**06**
	b)		Explain the general construction - cross-section of a single core cable with the help of neat sketch.	CO2	PO1	**06**
	c)		Develop an expression for potential gradient in a single core cable.	CO2	PO2	**08**
			UNIT - V			
6	a)		With a neat diagram explain the elements of DC distribution systems.	CO3	PO1	**08**
	b)		Derive on expression for concentrated load fed at one end for DC distribution system.	CO3	PO1	**06**
	c)		Derive on expression for A.C distributors with concentrated loads of: Power Factors referred to respective load voltages.	CO3	PO1	**06**
			OR			
7	a)		Derive an expression for DC distributor fed at both the ends with unequal voltages and concentrated loading.	CO3	PO2	**08**
	b)		What are the factors considered for site selection of sub-station and also compare outdoor sub-station with indoor sub-station.	CO3	PO1	**06**
	c)		Discuss on methods of neutral earthing and importance of neutral grounding	CO3	PO1	**06**

******