Roll No. _____

END SEMESTER EXAMINATION
SEMESTER- V

COURSE CODE: EE-410/EEE408 | **DURATION: 3 (THREE)HRS**
COURSE TITLE: ELECTRICAL POWER SYSTEM-II | **MAXIMUM MARKS: 75**
SESSION: JULY-DEC' 2021 | **PASS MARKS: 35 %**

NOTE:
1. *All the questions are compulsory*
2. *Attempt any 5 (five) questions.*
3. *Mark for each question is shown against it.*
4. *Assume suitable logical data wherever necessary.*

1.	**(a)**	Derive an expression for Line to Neutral Capacitance for 3-phase overhead transmission line when conductor are Symmetrically placed	**(8)**
	(b)	What is Skin Effect? On what factor its depends.	**(4)**
	(c)	A single phase transmission line has two parallel conductors 3m apart. The radius of each conductor being 1cm. Calculate the Loop Inductance per Km length of the line.	**(3)**
2.	**(a)**	What is Corona. What are the factors affecting Corona. What are the method to reduce Corona.	**(8)**
	(b)	What are the main components of Overhead line.	**(2)**
	(c)	An overhead transmission line has a span of 200m between the supports. The supports are at same level. The area of the cross-section of the conductor is1.9cm^2 while ultimate strength is 5000kg/cm^2. The specific gravity of the conductor material is 8.9gm/cm^3. If the conductor is subjected to the wind pressure of 1.5kg/m length. Calculate Sag if the safety factor is 5. Also calculate Vertical Sag.	**(5)**
3.	**(a)**	Explain the types of Pole used in Overhead Transmission Line.	**(7)**
	(b)	What are the method of improving String Efficiency.	**(3)**
	(c)	In a 33KV overhead line, there are three units in the string of insulators. If the capacitance between each insulator pin and earth is 11% of self-capacitance of each insulator. Find (i) the distribution of Voltage over 3 insulator (ii) The string efficiency.	**(5)**
4.	**(a)**	What is Transmission System. How Transmission System is classified.	**(5)**
	(b)	A 3-phase, 50Hz Overhead transmission line of 100Km long has the following constants: Resistance/Km/Phase= 0.1Ω; Inductive reactance/Km/Phase= 0.2Ω Capacitive Susceptance/Km/Phase= 0.04x10^{-4} Determine – (i) The Sending End Current (ii) The Sending End Voltage (iii) Sending End Power factor (iv) Voltage Regulation (v) The Efficiency When supplying a balance load of 10000KW at 66KV, p.f at 0.8 lagging. (Use Nominal T method)	**(10)**
5.	**(a)**	What is Underground Cable. What are the necessary requirements of Underground Cable.	**(6)**
	(b)	Draw a Single Line diagram of a typical a.c power supply scheme and explain it.	**(8)**
	(c)	What is Electric Power System.	**(2)**
6.	**(a)**	What are the Elements of transmission Line, briefly explain them.	**(5)**
	(b)	Explain the following system of distribution with neat diagram- (i) Radial System (ii) Ring System	**(6)**

	(c)	A single phase transmission line has two parallel conductors 3m apart, radius of each conductor being 1cm. Calculate the capacitance of the line per Km. Given that $\varepsilon_0=8.854\times10^{-12}$ F/m.	**(4)**
7.	**(a)**	Compare the Underground System and Overhead System in any seven aspect.	**(7)**
	(b)	With neat diagram explain- (i) Primary Distribution System (ii) Secondary Distribution System	**(8)**
8.	**(a)**	Compare HVDC Transmission System and HVAC Transmission System.	**(6)**
	(b)	Draw a neat sketch of the Cross-section of the following and explain the briefly- (i) Belted cable (ii) H-type Cable (iii) S.L type Cable	**(9)**

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