KUMARAGURU
college of technology
character is life
1984

B.E. DEGREE EXAMINATIONS: APRIL / MAY 2023

(Regulation 2018)

Fourth Semester

ELECTRICAL AND ELECTRONICS ENGINEERING

U18EET4002**:** Generation, Transmission and Distribution

COURSE OUTCOMES

CO1: Understand the principles of power generation utilizing various conventional energy sources.

CO2: Impart the knowledge of generation of electricity based on various Non-conventional energy sources and study the PV module characteristics using modern software tools.

CO3: Analyze the essential components of transmission line modeling and its performance.

CO4: Describe and select the configurations of different line insulators and cables.

CO5: Acquire knowledge on different types of distribution systems.

Time: Three Hours   **Maximum Marks: 100**

Answer all the Questions:-
PART A (10 x 2 = 20 Marks)
(Answer not more than 40 words)

1.	List the advantages of hydro power plant.	CO1	[K_2]
2.	List the disadvantages of nuclear power plant.	CO1	[K_2]
3.	List the need for Renewable Energy System?	CO2	[K_1]
4.	Write the components of Wind Turbine.	CO2	[K_1]
5.	What is the proximity effect?	CO3	[K_2]
6.	Define transmission line regulation.	CO3	[K_2]
7.	Differentiate under-ground cable and over-head transmission line.	CO4	[K_2]
8.	Mention any four insulating materials used in cables.	CO4	[K_1]
9.	State the features of Interconnected System.	CO5	[K_2]
10.	Mention the need for Distribution Substation.	CO5	[K_2]

Answer any FIVE Questions:-
PART B (5 x 16 = 80 Marks)
(Answer not more than 400 words)

11.		Explain the construction and working principle of Nuclear power plant with neat schematic diagram. Also, state the challenges faced in setting up of this power plant.	16	CO1	[K$_2$]
12.	a)	How electric power is generated from Hydrogen fuel cell? Explain with suitable block diagram.	8	CO2	[K$_2$]
	b)	Explain the residential solar based power generation with neat blocks. Also mention how the excess power can be pumped to grid.	8	CO2	[K$_2$]
13.	a)	Derive an expression for the Capacitance of a 3 Phase Transmission Line with conductors unsymmetrically spaced, but transposed.	12	CO3	[K$_3$]
	b)	A three phase over head transmission line has symmetrically spaced conductors having diameter of 200mm each. The spacing between conductors is 1m. determine the capacitance per phase per kilometer.	4	CO3	[K$_3$]
14.	a)	Each line of a three-phase system is suspended by a string of three similar insulators. If the voltage across the line unit is 20kV, calculate the line to neutral voltage and the string efficiency. Assume that the shunt capacitance between each insulator and earthed metal work of tower to be 1/10th of the capacitance of the insulator.	8	CO4	[K$_2$]
	b)	Explain constructional details of underground cable with neat diagram.	8	CO4	[K$_2$]
15.	a)	Explain the ring and radial distribution system with neat diagram.	8	CO5	[K$_2$]
	b)	Explain the significance of the following AC Distribution System with neat illustrations:		CO5	[K$_2$]
		(i) 3 Phase, 3 Wire Distribution	4		
		(ii) 3 Phase, 4 Wire Distribution	4		
16.	a)	Explain the constructional details of any three insulator with neat diagram.	8	CO4	[K$_2$]
	b)	What is Corona Effect ? Describe the various factors affecting corona loss.	8	CO3	[K$_2$]

****