Q.P. Code: 19EE0211 **R19**

Reg. No: | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year I Semester Regular Examinations December-2021

ELECTRICAL POWER GENERATION & TRANSMISSION SYSTEMS

(Electrical and Electronics Engineering)

Time: 3 hours Max. Marks: 60

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

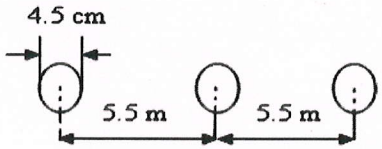
1		Explain the important components of a steam power station.	L2	12M
		OR		
2		Draw a neat schematic diagram of a hydro-electric plant and explain the functions of various components.	L1	12M

UNIT-II

3		Draw the schematic diagram of a nuclear power station and discuss its operation.	L1	12M
		OR		
4	a	Explain about the fast breeder reactor.	L2	6M
	b	What are the factors considered while selecting the site for nuclear power plant?	L1	6M

UNIT-III

5		Deduce an expression for line neutral capacitance for a three phase overhead transmission line when the conductors are (i) symmetrically placed (ii) Asymmetrically placed but transposed.	L3	12M
		OR		
6	a	Derive the expression for flux linkages of one conductor in a group of n-conductors.	L3	6M
	b	Determine the inductance per km per phase of a single circuit 20kVline of given configuration as shown in fig. The conductors are transposed and have a diameter of 4.5cm.	L2	6M



UNIT-IV

7		A 100km long,3-phase,50Hz transmission line has following line constants: Resistance/ph/km=0.1ohm,Reactance/ph/km=0.5ohm,Susceptance/ph/km=10*10-6 siemen. If the line supplies load of 20MW at 0.9 p.f lagging at 66KV at the receiving end, calculate (i) Sending end power factor (ii) % regulation (iii)Transmission efficiency. By using nominal Π method.	L3	12M
		OR		
8	a	Prove the relation AD-BC=1 by considering a two terminal pair network for nominal T-method.	L5	6M
	b	What is a surge impedance loading?	L1	6M

UNIT-V

9	a	What are the factors affecting corona? And derive the expressions for critical disruptive and visual critical voltage.	L1	6M
	b	Determine the corona characteristics of a 3-phase line 160km long, conductor diameter 1.036cm, 2.44m delta spacing, air temperature 26.67oC, altitude 2440m, corresponding to an approximate barometric pressure of 73.15cm of Mercury, operating voltage 110kv at 50Hz. Assume data if required.(irregularity factor etc.)	L3	6M

OR

10	a	Explain the concept and phenomenon of corona.	L2	6M
	b	Explain the advantages and disadvantages of corona.	L2	6M

*** END ***