AR18

CODE: 18EET313 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech I Semester Regular Examinations, March,2021

POWER SYSTEMS – II

(Electrical and Electronics Engineering)

Time: 3 Hours **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. a) Show that the inductance per loop meter of two wire transmission line using solid round conductors is given by $L=4\times10^{-7}$ ln D/r_1 henrys where D is the distance between the conductors and r_1 is the GMR of the conductors 6M
   b) Discuss the concept of GMR and GMD in the calculation of transmission line inductance 6M

(OR)

2. a) A 3-phase, 50Hz, 132kV overhead line has conductors placed in a horizontal plane 4m apart. Conductor diameter is 2cm. If the line length is 100 km, calculate the charging current per phase assuming complete transposition. 6M
   b) Derive expression for calculation of capacitance of a 1-phase, 2-wire overhead transmission lines. 6M

UNIT-II

3. a) Derive the ABCD Parameters of a medium line from nominal T method and draw the vector diagram of nominal T method 6M
   b) Determine ABCD constant for 3-phase, 50 Hz transmission line 200 km long having the following distributed parameters. L= 1.20x10-3 H/km, C= 8x10-9 F/km, R = 0.15 Ω /km, G=0? 6M

(OR)

4. a) Draw the vector diagrams of nominal-π and nominal T models of medium transmission line. Derive the expression for voltage regulation of both the models 6M
   b) An overhead single phase delivers 1.1MW at 33 kV at 0.9 power factor lagging. The total resistance of the line is 10Ω and the total inductive reactance is 15Ω. Determine (i) %voltage regulation (ii) sending end power factor (iii) transmission efficiency 6M

UNIT-III

5. a) Explain the interpretation of long line equations. 6M
   b) A=D=0.936+j 0.016; B=33.5+j138 ohms; C= (-5.18+j914) 10-6mhos. The load at the receiving end is 50 MW at 220 kV with a power factor of 0.9 lagging. Find the sending end voltage and regulation of line. 6M

(OR)

6. a) Starting from first principles show that surges behave as traveling waves find expressions for surge impedance and wave velocity. 6M
   b) A 500 kV surge travels on an overhead line of surge impedance 400 Ω towards its junction with a cable which has a surge impedance of 40Ω. Find i) transmitted voltage and current, ii) reflected voltage and current. 6M

UNIT-IV

7. a) Derive the expressions for critical disruptive voltage , visual critical voltage and power loss due to corona 6M
   b) Find the critical disruptive voltage and the visual critical voltages for local and general corona on a 3- phase overhead transmission line, consisting of 3-stranded copper conductors 2.44 m delta spacing. Air temperature and pressure are 26.60C and 73.15 cm of Hg respectively. Take conductor diameter 1.036 cm, irregularity factor 0.85, local and general surface factors 0.72 and 0.82. 6M

(OR)

8. a) Derive the expression for the power factor correction by using the shunt compensation 6M
   b) Discuss the effect of charging current in the Ferranti effect using the necessary expressions. 6M

UNIT-V

9. Discuss various insulators used in transmission line. 12M

(OR)

10. a) Derive an expression for sag and tension in power conductor when line between two supports at equal heights taking into account the wind and ice loadings also. 6M
    b) Each line of a 3-phase system is suspended by a string of 3 similar insulators. If the voltage across the line unit is 33kv, assume that the shunt capacitance between each insulator and earth is $1/9^{th}$ of the capacitance of the insulator itself. Determine the line to neutral voltage and string efficiency? 6M

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CODE:18HST302 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT - TEKKALI

(An Autonomous Institution)

III B Tech, I Semester Regular Examination, March –2021

HUMAN VALUES

(Electronics and Communication Engineering)

Time: 3.00 Hours **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a	Elucidate the steps involve in self-exploration.	8M
	b	Define and differentiate between human values and value education? How does value education helps in fulfilling a professional student's aspirations?	4M
		(OR)	
2.	a	What is the need for value education? Write a short note on the need for value education in today's scenario.	6M
	b	Describe 'happiness and prosperity' in your own words?	6M

UNIT-II

3.	a	What do you mean by self? Explain its constituents with proper details.	6M
	b	What are the programs to take care of the body? Explain.	6M
		(OR)	
4.	a	Human being is the co-existence of 'the Self and the Body'. Explain yourself as an example.	8M
	b	Illuminate in detail how the transformation takes place in a human being?	4M

UNIT-III

5.	a	What do you mean by dissimilarities in relationship? Explain with adequate examples.	6M
	b	What are the characteristics of successful family? Describe.	6M
		(OR)	
6.	a	List out the 'foundation value' and the 'complete value' in human relationship. Explain each with suitable example.	8M
	b	Define trust. Explain how the 'trust' develops the 'value of relationships'?	4M

UNIT-IV

7.	a	Elucidate harmony in nature and how will you create it. Explain with examples.	6M
	b	Explain the concept of holistic perception of harmony in existence.	6M
		(OR)	
8.	a	Explain the four orders of nature.	6M
	b	Define harmony in nature and explain its importance with examples.	6M

UNIT-V

9.	a	Explain the contemporary views lead to conflicts and dilemmas in professional life?	4M
	b	What do you mean by definitiveness of ethical human conduct? How can it be ensured?	8M
		(OR)	
10.	a	Illustrate unethical practices in society. How do the contemporary conditions lead to such unethical practices?	6M
	b	What do you understand by competency in professional ethics? Quote two examples of its implications in industry.	6M