CODE No.: 19BT10201 SVEC-19

SREE VIDYANIKETHAN ENGINEERING COLLEGE

(An Autonomous Institution, Affiliated to JNTUA, Ananthapuramu)

I B.Tech I Semester (SVEC-19) Regular Examinations December - 2019

BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

[Electrical and Electronics Engineering, Electronics and Communication Engineering, Electronics and Instrumentation Engineering]

Time: 3 hours **Max. Marks: 60**

Answer One Question from each Unit
All questions carry equal marks

UNIT-I

1.	a)	Classify different types of network elements.	6 Marks	L4	CO1	PO2
	b)	Define RMS value and obtain the RMS value for a sine wave.	6 Marks	L1	CO1	PO1
		(OR)				
2.	a)	State Ohm's law and mention the limitations of it.	6 Marks	L1	CO1	PO2
	b)	Define the following: i) Real power ii) Reactive power iii) Apparent power	6 Marks	L1	CO1	PO1

UNIT-II

3.	a)	Classify the circuit breakers and write the list of parts of a MCB.	6 Marks	L4	CO2	PO2
	b)	Discuss the various causes of low power factor. Explain briefly any one of the method to improve the power factor.	6 Marks	L3	CO2	PO1
		(OR)				
4.	a)	Draw the layout of typical thermal power plant and explain features.	6 Marks	L2	CO2	PO1
	b)	Distinguish between Inverter and UPS with neat diagrams.	6 Marks	L2	CO2	PO2

UNIT-III

5.	a)	Describe slip of induction motor. Why induction motor cannot run at synchronous speed?	6 Marks	L2	CO3	PO1
	b)	Develop torque–slip characteristics of a 3-phase induction motor and explain.	6 Marks	L3	CO3	PO3
		(OR)				
6.	a)	Explain the construction and working principle of a single-phase transformer.	6 Marks	L2	CO3	PO3
	b)	Categorize single-phase induction motors and list out their applications.	6 Marks	L4	CO3	PO1

UNIT-IV

7.	a)	Elucidate, how can be a Zener diode used as a voltage regulator.	6 Marks	L3	CO4	PO2
	b)	Illustrate the input and output characteristics of BJT in three configurations.	6 Marks	L3	CO4	PO2
		(OR)				
8.	a)	Explain the operation of a half-wave rectifier with relevant waveforms. What is its output current when **rms** input voltage is 220V AC and R_L = 50 ohm?	6 Marks	L3	CO4	PO3
	b)	List the various rectifier circuits for full wave rectification. Describe their advantages and disadvantages.	6 Marks	L1	CO4	PO1

UNIT-V

9.	a)	Draw the ***op-amp*** circuit which acts as differentiator and explain its operation.	6 Marks	L2	CO5	PO1
	b)	Deduce how an ***op-amp*** can be used as an inverting amplifier.	6 Marks	L2	CO5	PO1
		(OR)				
10.	a)	Compare the ideal and practical characteristics of ***op-amp***.	6 Marks	L3	CO5	PO1
	b)	Explain how an ***op-amp*** can be used as an adder.	6 Marks	L2	CO5	PO2

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