Reg. No.															

Question Paper Code	12891

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2024

Third Semester

Computer Science and Engineering (IoT)

20ESCI301 - BASIC ELECTRONICS AND COMMUNICATION ENGINEERING

Regulations - 2020

Duration: 3 Hours | Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	State Kirchoff's Voltage law.	2	K1	CO1
2.	State Thevinen's theorem.	2	K1	CO1
3.	Distinguish Avalanche breakdown and Zener breakdown.	2	K2	CO2
4.	Explain the ideal characteristics of op-amp.	2	K2	CO2
5.	Define source coding. State the significance of source coding.	2	K1	CO3
6.	Identify the properties of entropy.	2	K2	CO3
7.	Compare AM and FM.	2	K2	CO4
8.	List the advantages of PPM.	2	K1	CO4
9.	Define Nyquist rate.	2	K1	CO5
10.	Explain the Sampling theorem.	2	K2	CO5

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

			Marks	K – Level	CO
11.	a)	Determine the currents I_1, I_2, I_3, and the voltages V_a and V_b of the network shown below (Fig.11.a.) by using the appropriate method.	13	K2	CO1

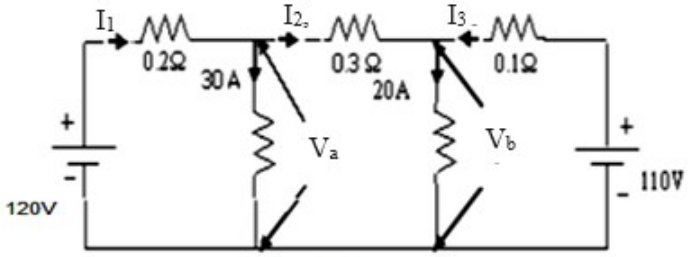

Fig.11.a

OR

			Marks	K – Level	CO
	b)	Using Norton's theorem, determine current through 6-ohm resistance shown in Figure 11. b.	13	K2	CO1

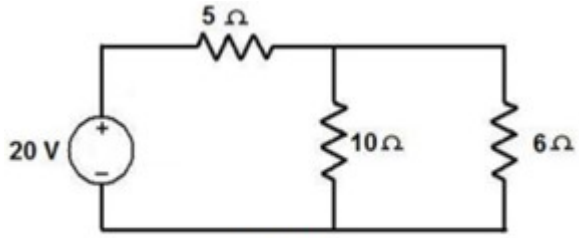

Fig.11.b

12.	a)	Explain the characteristics of a PN diode with necessary waveforms and equations.	*13*	*K2*	*CO2*
		OR			
	b)	Explain the internal block diagram of the operational amplifier with a neat sketch.	*13*	*K2*	*CO2*
13.	a)	Summarize: (i). Mutual information and its properties. (ii). Channel capacity and its equation.	*13*	*K2*	*CO3*
		OR			
	b)	Illustrate the following with equations (i).Average Information (ii). Properties of Entropy (iii). Calculate entropy when P_k= 0 and when P_k=1.	*13*	*K2*	*CO3*
14.	a)	Illustrate the concept of amplitude modulation with necessary equations.	*13*	*K2*	*CO4*
		OR			
	b)	Explain Armstrong method of FM generation in Detail.	*13*	*K2*	*CO4*
15.	a)	Explain the transmitter and receiver block diagram of PCM.	*13*	*K2*	*CO5*
		OR			
	b) i)	What is Sampling? Give its types along with the necessary waveforms.	*10*	*K2*	*CO5*
	ii)	Define Aliasing.	*3*	*K2*	*CO5*

PART - C (1 × 15 = 15 Marks)

16.	a)	With neat diagram, explain in detail about multiple access techniques.	*15*	*K2*	*CO6*
		OR			
	b)	Discuss the working of Cellular wireless networks with a neat block diagram.	*15*	*K2*	*CO6*