R20

Code No.: 20ECC35

CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY (Autonomous)

B.E. III Sem (Main) Examination February/March 2022

Basic Electronics

(Common to CSE, CSE-AI&ML, CSE-IoT&CS)

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

Note: Answer **ALL** questions from **Part-A & Part –B (Internal Choice)** at one place in the same order

Part - A
(5Q X 3M = 15 Marks)

			M	CO	BT
1		Differentiate diffusion and drift currents in PN-Junction semiconductor	(3)	1	2
2		Illustrate h-parameter equivalent circuit for CE-Configuration.	(3)	2	2
3		List out the advantages of Negative Feedback Amplifier.	(3)	3	1
4		What are the ideal characteristics of an OPAMP?	(3)	4	1
5		Define the principle of photo diode.	(3)	5	1

Part – B
(5Q X 9M = 45 Marks)

			M	CO	BT
6	(a)	Illustrate the energy levels and band gap of Intrinsic and Extrinsic Semiconductor.	(5)	1	2
	(b)	Analyze the characteristics of P-N Junction diode.	(4)	1	4
		(OR)			
7	(a)	Determine the Full wave Bridge Rectifier's Ripple factor and efficiency.	(5)	1	4
	(b)	Analyze the role of filters in rectifiers.	(4)	1	4
8	(a)	Explain how Zener diode acts as a voltage regulator.	(5)	2	4
	(b)	Interpret the Avalanche and Zener Breakdown mechanisms.	(4)	2	4
		(OR)			
9	(a)	Derive the Common Source JFET parameters.	(5)	2	2
	(b)	Distinguish BJT and FET in various parameters.	(4)	2	4
10	(a)	Derive the expression for frequency of Colpitts oscillator with necessary illustrations.	(5)	3	4
	(b)	Distinguish positive and negative feedback amplifiers.	(4)	3	4
		(OR)			
11	(a)	Evaluate the frequency of RC-phase shift oscillator with necessary illustrations.	(5)	3	2
	(b)	What are the necessary conditions to get the sustained oscillations?	(4)	3	1
12	(a)	Determine the efficiency of Class B amplifier.	(5)	4	3
	(b)	Compare Class A, Class AB and Class C power amplifiers.	(4)	4	4
		(OR)			

13	(a)	Derive the expression for integrator and differentiator using operational amplifier.	(5)	4	4
	(b)	Write down the ideal characteristics of OP-AMP.	(4)	4	4
14	(a)	Explain about the characteristics of SCR.	(5)	5	4
	(b)	Analyze the working of Strain gauge and specify its applications.	(4)	5	4
		(OR)			
15	(a)	Explain the working of LCD and specify its construction details.	(5)	5	4
	(b)	Give the constructional details of CRO.	(4)	5	1

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