PART-A

*(Answer 05 questions. Each question carries **2 marks**)*

[5x2– 10]

Q.No	Question	Marks	Bloom's Level
Q.1	a) Draw the Diode Equivalent Circuits.	[2]	L2
	b) Explain how transistor work as an amplifier.	[2]	L3
	c) Differentiate between BJT and FET.	[2]	L1
	d) Give the Classification of power Amplifiers.	[2]	L1
	e) List features of 741 op-amp.	[2]	L2

END OF PART A

PART-B

*(Answer **05** full questions. Each question carries **12 marks**)* **Marks**

Q.2(a)	Derive the total current equation for a diode with neat diagrams.	[06]	L4
(b)	Explain about Zener diode and its V-I characteristics.	[06]	L2
	OR		
Q.3(a)	Describe the series positive and series negative clipper with their transfer characteristics.	[06]	L3
(b)	Explain the operation of Full Wave Rectifier and derive ripple factor and efficiency of Full Wave Rectifier.	[06]	L3
Q.4(a)	Explain the operation of CC Configuration of BJT and its input and output characteristics briefly.	[06]	L1

(b)	The h-parameters of CE-amplifier are $h_{ie} = 1100\Omega$, $h_{re} = 2.5 \times 10^{-4}$, $h_{fe} = 50$, $h_{oe}=24\mu A/V$ and $R_S = 1K\Omega$, $R_L = 10K\Omega$. Find out current and voltage gains with and without source resistance, input and output impedances.	[06]	L5
	OR		
Q.5(a)	Draw the circuit diagram of a voltage divider bias and derive expression for Stability factor.	[06]	L4
(b)	The reverse leakage current of the transistor when in CB configuration is 0.3μA while it is 16μA when the same transistor is connected in CE configuration. Determine α, β and γ.	[06]	L5
Q.6(a)	With the help of a neat diagram explain the operation of an n-channel enhancement type MOSFET.	[06]	L2
(b)	What are the values of I_D and g_m for $V_{GS} = -0.8V$ if I_{DSS} and V_P are given as 12.4mA and -6V respectively?	[06]	L5
	OR		
Q.7(a)	Explain the different biasing techniques of JFET.	[06]	L1
(b)	Explain the common gate configuration of MOSFET and derive for A_V, R_I and R_O.	[06]	L4
Q.8(a)	Derive the equation for maximum efficiency of a class A transformer coupled amplifier.	[06]	L4
(b)	Discuss the factors input offset voltage, input bias and input offset currents of op-amp.	[06]	L1
	OR		
Q.9(a)	Compare Class A and Class B power amplifiers.	[05]	L2
(b)	Calculate the power dissipated in individual transistors of a class B push-pull power amplifier, if V_{CC} =20 V and R_L =4Ω.	[07]	L5
Q.10(a)	Explain the working of Non-Inverting Amplifier and Derive its Closed loop gain.	[06]	L2
(b)	Draw the circuit diagram of RC-Phase shift oscillator using BJT and derive the expressions for frequency of oscillations.	[06]	L4
	OR		
Q.11 (a)	With neat circuit diagram, explain the operation of Schmitt trigger.	[06]	L2
(b)	Explain about triangular wave generator with neat circuit diagram.	[06]	L2