

Q.No	Question	Marks
Q.1(a)	Explain V-I Characteristics of PN Junction Diode.	[07]
(b)	Explain the working Principle of Zener Diode with neat Schematic.	[07]
Q.2(a)	Define Ripple Factor and show that $\gamma = 0.482$ for Full wave Rectifier.	[08]
(b)	Explain about Positive & Negative Clampers with neat sketches.	[06]
Q.3(a)	Derive the expression for Collector Current I_C of a Transistor in CE Configuration.	[07]
(b)	Analyze the H-Parameter Exact model for Transistor Amplifier.	[07]
Q.4(a)	In a single stage CB amplifier circuit, $R_E = 15K\Omega$, $R_C = 7.5K\Omega$, $V_{EE} = -15V$, $V_{CC} = 18V$, $R_L = 5K\Omega$. Find out R_i , R_o , A_i and A_v .	[07]
(b)	Define Stability Factor (S). Derive the necessary equation for Stability Factor in Voltage Divider Bias Configuration.	[07]
Q.5(a)	Draw and explain the relation between I_D vs V_{DS} in depletion type MOSFET.	[07]
(b)	For the Common Source amplifier, calculate I_D , if $I_{DSS} = 8.4 \text{ mA}$, $V_p = -3V$, $V_{GS} = -1.5V$.	[07]
Q.6(a)	Explain the Common Drain configuration of MOSFET and derive for A_v , R_o .	[07]
(b)	Define Transconductance (g_m) of MOSFET and derive the expressions for g_m .	[07]
Q.7(a)	What is Conversion Efficiency? Derive the Conversion efficiency of Series fed Class A Power Amplifiers.	[07]
(b)	With neat Sketches Describe the Op-amp PIN Configuration and explain ideal characteristics of Op-amp.	[07]
Q.8(a)	Explain Op-amp as a Square Wave Generator with Neat circuit and relevant Wave forms.	[07]
(b)	How Op-amp function as Differential Amplifier with neat Sketches.	[07]