PART-A

[5x2= 10]

Q.No	Question	Marks	Bloom's Level
Q.1	a) Mention the applications of PN-junction diode.	[2]	L3
	b) What is the need of biasing?	[2]	L1
	c) How FET acts as Voltage Variable Resistor?	[2]	L2
	d) Compare class A and class B amplifier.	[2]	L2
	e) Define input offset voltage.	[2]	L1

END OF PART A

PART-B

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

Q.2(a)	Draw and Explain the V-I characteristics of a PN junction diode both in forward and reverse biased conditions.	[06]	L2
(b)	Calculate silicon diode current (I) if $I_0 = 10\mu A$ at 300°k and the forward voltage is 0.7V.	[06]	L5
	OR		
Q.3(a)	Explain the operation of Half Wave Rectifier and derive ripple factor and efficiency of Half Wave Rectifier.	[06]	L3
(b)	Draw the circuit diagram of a DC restorer circuit with and without reference voltage and explain its operation for a sinusoidal input signal.	[06]	L3
Q.4(a)	Explain input and output characteristics of transistor in CB configuration with	[06]	L2

(b)	Draw the circuit of two stage Direct coupled transistor amplifier and explain the working of it.	[06]	L2
	OR		
Q.5(a)	Explain about the operating point using AC and DC load lines.	[05]	L2
(b)	In a single stage CB amplifier circuit, $R_E = 20K\Omega$, $Rc = 10K\Omega$, $V_{EE} = -20V$, $Vcc = 20V$, $R_L = 10K\Omega$. Find out Ri, Ro , Ai and Av .	[07]	L5
Q.6(a)	Describe the construction and working principle of Enhancement mode and Depletion mode MOSFET and draw its characteristics.	[07]	L2
(b)	Differentiate between BJT and FET.	[05]	L2
	OR		
Q.7(a)	Explain the common drain configuration of MOSFET and derive for A_V, R_I and	[06]	L4
(b)	Derive expressions for self biasing in MOSFET.	[06]	L4
Q.8(a)	Define conversion efficiency. Determine the maximum value of conversion efficiency for a series - fed class A power amplifier.	[06]	L4
(b)	Explain ideal characteristics of an Op-amp.	[06]	L2
	OR		
Q.9(a)	Draw the circuit diagram of class B push pull amplifier and explain its operation. Also prove that its conversion efficiency is 78.5%.	[06]	L4
(b)	Describe internal structure of an op-amp.	[06]	L1
Q.10(a)	What are the differences between the inverting and non inverting terminals? What do you mean by the term "virtual ground"?	[06]	L2
(b)	Draw the internal architecture of IC 723 Voltage Regulator and explain.	[06]	L1
	OR		
Q.11 (a)	How to generate a Square waveform? Explain its working with neat circuit diagram.	[06]	L2
(b)	Describe the operation of monostable multivibrator with neat circuit and relevant waveforms.	[06]	L2