III- SEM/ELECTRICAL/E&EE/E(IC)2019(W)/(OLD)
ETT 321-ANALOG ELECTRONICS & OP-AMP

Full Marks. 80   Time : 3 Hours

Answer any Five Questions including Qns. No. 1 & 2

Figures in the right hand margin indicates marks

1.	**Answer ALL the Questions:**	[2 x 10]
(a)	Define Ripple and Ripple Factor.	
(b)	Define CMRR and Slew Rate.	
(c)	What are the essentials of Transistor Oscillator?	
(d)	Define stabilization and stability factor.	
(e)	What is Barkhausen condition for sustained oscillation?	
(f)	Draw the equivalent circuit of an Op-Amp.	
(g)	Write applications of Zener Diode. What will happen if it is connected in forward biased condition?	
(h)	Name different H-parameters of Transistor.	
(i)	Define Peak Inverse Voltage and Knee Voltage?	
(j)	What is load line and Q-Point of Transistor? Draw it for CE connection of Transistor.	
2	**Answer Any SIX Questions:**	
(a)	Explain briefly shunt capacitor filter and choke input filter	
(b)	Explain construction & working of PN junction diode in forward & reverse bias condition.	
(c)	Derive relationship between α, β and γ.	
(d)	Explain working of Tunnel diode with its characteristics curve.	
(e)	Discuss the Essential of Transistor Oscillator	
(f)	Write down the advantages of FET over BJT	[5 x 6]
(g)	Derive the expression for voltage gain of negative feedback transistor amplifier with diagram.	
3.	With neat circuit diagram explain the working of Class-B Push Pull amplifier.	[10]
4.	Describe the operating of different types of Clipping and Clamping circuit with diagram.	[10]
5.	Describe working of Integrator & differentiator with proper circuit diagram by OP – AMP.	[10]
6.	Derive expression for rectification efficiency of a full-wave bridge rectifier with neat sketch.	[10]
7.	Define transistor biasing. Explain voltage divider biasing method with neat diagram.	[10]