(Affiliated to University of Mumbai)	***End Semester Examination (R-24/R-25) SH 2026 Answer Key with marking scheme***	
Branch: EXTC	Course: Electronics Devices and Circuits	
Year/ Semester: SE/III	Course code: ETC302	
Time: 03 hours	Marks: 80	
		Marks
Q. 1	All questions are compulsory.	
A.	Diode current equation Solution ID=0.657mA	2 2 1
B.	different types of coupling used in multistage amplifiers. one advantage and one disadvantage of each of them.	2 3
C.	Differentiation between small signal amplifiers and large signal amplifiers.	5
D.	the frequency response effect of internal and external capacitances	1 4
E.	advantage disadvantage of multistage amplifier.	3 2
F.	the limitation of Class-B Push-Pull power amplifier. the reason. How it is overcome?	2 2 1
Q.2A	construction Diagram and explanation 2 cases of operation of BJT Graphs- input and output characteristics	2 4 4
	OR	
Q.2B.	construction diagram and explanation 2 cases of operation of JFET Graphs- transfer and output characteristics Current equation	1 4 4 1
Q.3A	Vth=2V, Rth=3.545 $k\Omega$, IB=8.385μA I_{CQ} = 0.839mA g_m = 33.6mS, $r\pi$=2.98$k\Omega$ MF AC equivalent circuit A_V = -336 R_i = 1.62 $k\Omega$ R_o = 10 $k\Omega$	2 1 2 1 2 1 1
	OR	
Q.3B	MF AC equivalent circuit Rib, Ri Av	3 3 4
Q.4A	VG=Vth=3.63V $VGS=VG-VS$=3.63V ID= $Kn(VGS-VTN)^2$ = 0.669mA VDS= $VDD-IDRD$=3.31V DC Load line equation, points Graph	1 1 2 1 3 2

	OR	
Q.4B	*VG*=2.91V, *ID*=0.994 mA *gm*=1.41 mS, rd=100.6 *k*Ω *Ri*=20.63 *k*Ω AV=-5.63 Ro = 4.76 *k*Ω	1 2 3 1 2 1
Q.5A	circuit diagram of MOSFET CS amplifier HF AC equivalent circuit Miller capacitances, Ci, Co Higher cut off frequency due to Ci Co Final higher cut off frequency	2 2 3 1 1 1
	OR	
Q.5B	circuit diagram of BJT CE amplifier LF AC equivalent circuit lower cut off frequency due to CC1 CC2 CE Final lower cut off frequency.	2 2 2 1 2 1
Q.6A	circuit diagram of MOSFET bypassed CS amplifier MF AC equivalent circuit with RE1 Rib, Ri Ro Av	2 2 2 2 2
	OR	
Q.6B	Kn=0.55ma/V2 ID=8.27mA VGS=7.86V VDS=7.86V DC load line points graph	1 2 2 1 2 2
	*********** All the Best***********	