

JK LAKSHMIPAT UNIVERSITY, JAIPUR

INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination (Backlog), May 2019

B. Tech ECE Engineering, Semester IV

Roll No.....

COURSE CODE: ECE 401
Analog Electronic Circuits

Time: 2 hours

Max. Marks: 40

Instructions to students:

1. Do not write anything other than your roll number on question paper.
2. Assume suitable data wherever required and mention it clearly.
3. Writing appropriate units, nomenclature, and drawing neat sketches/schematics/ flow chart wherever, required are an integral part of the answer.

Q.1A	Draw the hybrid pi model of BJT. Apply this model for CE BJT amplifier and derive the expression for voltage gain.	5
B.	A BJT having $\beta = 100$ is biased at a dc collector current of 1 mA. Find the value of g_m , r_e , and r_{π} at the bias point.	5
Q.2(A)	List the advantages of using negative feedback in amplifiers.	5
(B)	The gain of an amplifier changes from 1000(open loop) to 100(closed loop) by using feedback with feedback transfer function β as 0.01. Draw the transfer characteristic and the output waveform for sinusoidal input.	5
Q.3A	What is the condition for oscillations in Wein bridge oscillator?	05
Q.3B	In a Wein Bridge oscillator, $R=20\text{ K}\Omega$. We want to change the frequency of sinewave output from 1 KHz to 50 KHz. What should be the values or range of variable capacitor so as to get the desired frequency range	05
Q.4A	Explain the working of class B pushpull stage using schematic diagram. Derive the condition for maximum power dissipation in BJTs in Class B pushpull stage. What is the efficiency in this condition?	05
Q 4B	A class B push-pull amplifier is supplied with $V_{cc}=50\text{ V}$. The signal brings the collector voltage down to $V_{min}=5\text{ V}$. The total dissipation from both transistors is 40 W. Find the total power and conversion efficiency	05