



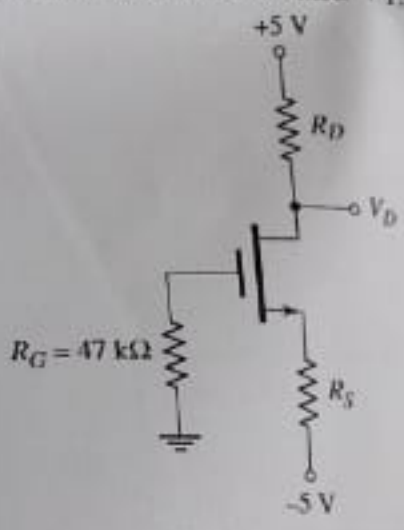
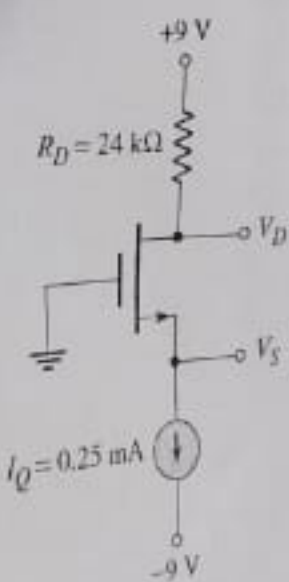
SLOT: A2

Programme Name & Branch : B.Tech & EEE and EIE
Course Name : Electronic Devices and Circuits
Faculty Members : Dr. Venkataraman M.N
Class Number(s) : 1253
Date of the Examination : 13-10-2024, FN
Duration : 90 minutes

Course Code: BEEE205L

General instruction(s): Answer ALL Questions

Max. Marks : 50

Q. No.	Question	Max. Marks	CO	BL
1.	Design the circuit in Fig.(1) such that drain current is 0.5mA and $V_D=1V$. The transistor parameters are $K_n=0.25mA/V^2$ and $V_{TN}=1.4V$.  Fig.(1)	10	2	L3
2.	For the circuit shown in Fig.(2), $V_{TN}=0.6V$, and $K_n = 200\mu A/V^2$. Determine V_S and V_D.  Fig.(2)	10	2	L3
3.	Draw the circuit of common collector amplifier and derive its voltage gain, input impedance and output impedance.	10	2	L4

4.

Identify the type of amplifier shown in Fig.(3), provided the current source along with the parallel $5k\Omega$ resistor jointly make up the signal source and $10k\Omega$ resistor is the load. Determine the input R_i and output impedance R_o , given $r_\pi = 2k\Omega$ & $\beta = 199$. Capacitors are infinite.

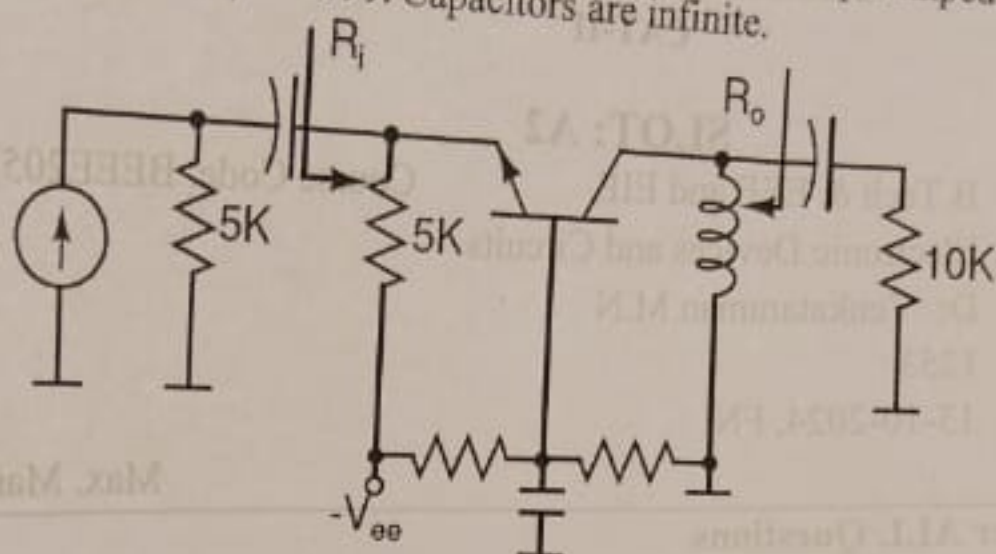


Fig.(3)

5.

For the circuit shown in Fig.(4) the transistor $\alpha = 0.995$, $V_{BE(on)} = 0.7V$, and thermal voltage $V_T = 25mV$. The quiescent $V_{CE} = 5V$ and, the resistance presented by the circuit to the signal source must be $R_i = 1.5k\Omega$. Calculate V_{CC} , R_1 and R_2 so that the small signal voltage gain is -200 . Capacitors are infinite.

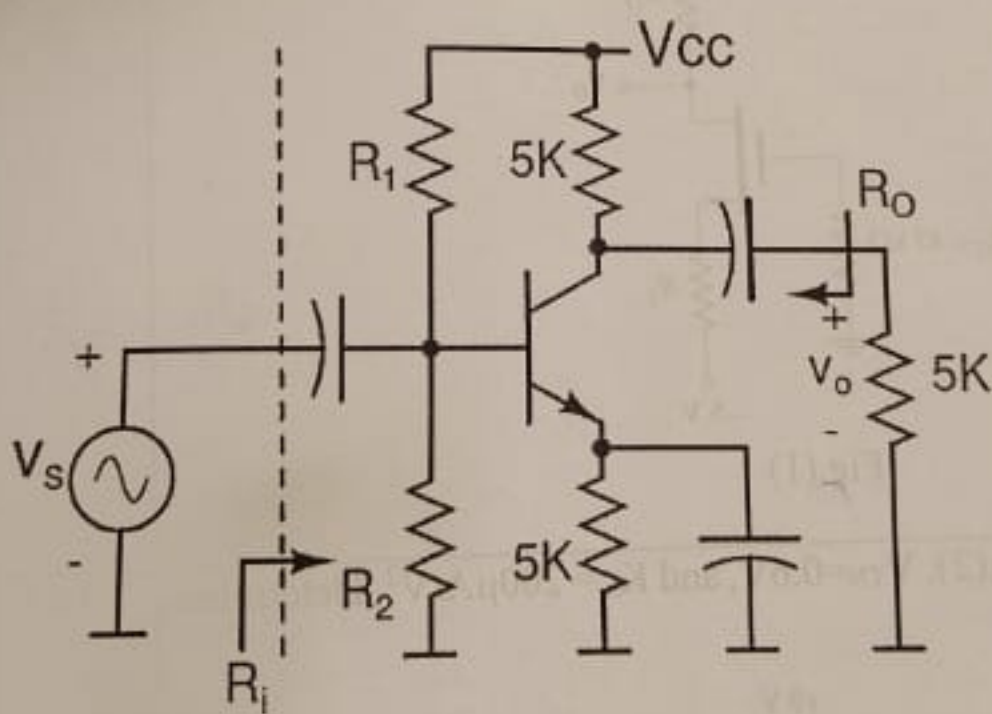


Fig.(4)

10

2

10

2

