Lista VII EN2719 Prof Marcelo Perotoni

Boylestead

33. Determine V_o for the network of Fig. 9.62 if $y_{os} = 20\ \mu S$.

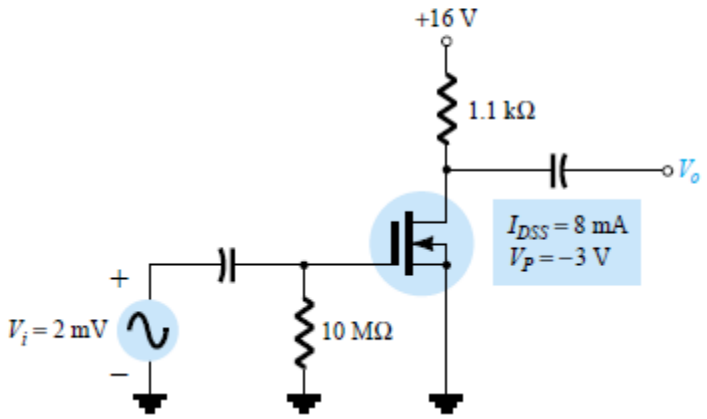


Figure 9.62 Problem 33

R: v_o=11.73 mV

34. Determine Z_i, Z_o, and A_v for the network of Fig. 9.63 if $r_d = 60\ k\Omega$.

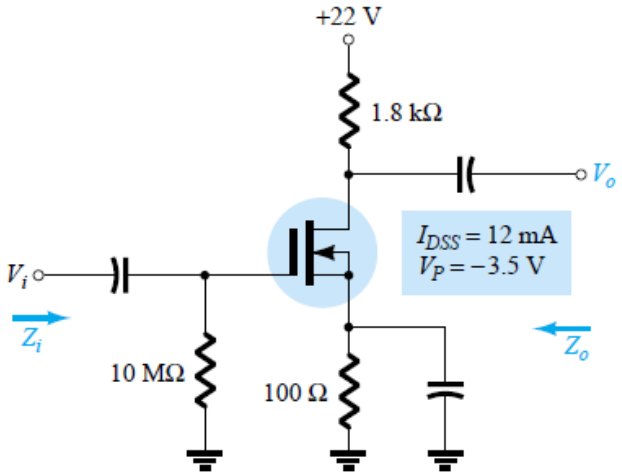


Figure 9.63 Problems 34, 35, and 50

R: Z_i= 10 M, Z_0=1K8 Av= -9.72

35. Repeat Problem 34 if $r_d = 25\ k\Omega$.

R: Z_i= 10 M, Z_0=1K68 Av= -9.07

36. Determine V_o for the network of Fig. 9.64 if $V_i = 4$ mV.

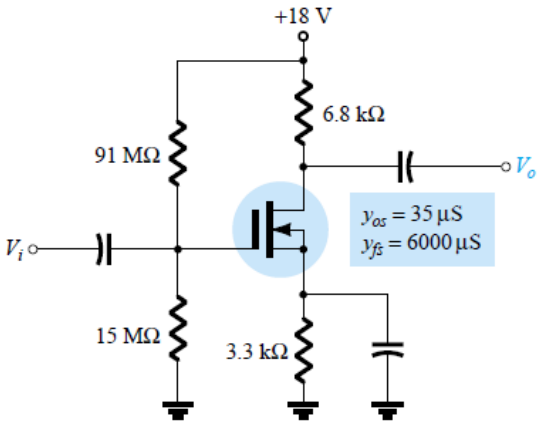


Figure 9.64 Problem 36

R: V_0= -131.76 mV

37. Determine Z_i, Z_o, and A_v for the network of Fig. 9.65.

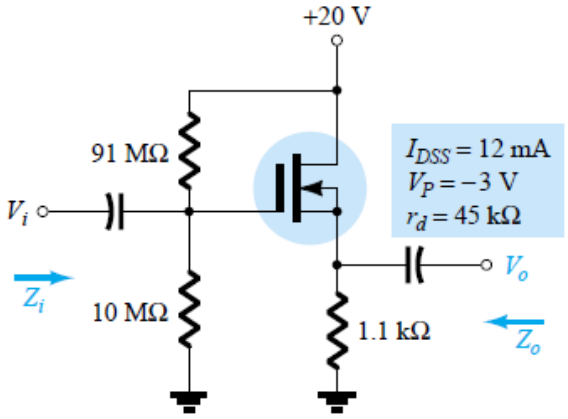


Figure 9.65 Problem 37

R: A_V= 0.816

§ 9.10 E-MOSFET Drain-Feedback Configuration

38. Determine g_m for a MOSFET if $V_{GS(Th)} = 3$ V and it is biased at $V_{GS_Q} = 8$ V. Assume $k = 0.3 \times 10^{-3}$.

R: g_m= 3 mS

39. Determine Z_i, Z_o, and A_v for the amplifier of Fig. 9.66 if $k = 0.3 \times 10^{-3}$.

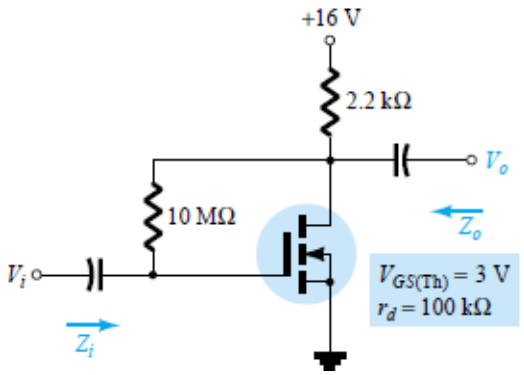


Figure 9.66 Problems 39, 40, and 51

R: Z_i= 1.73 M, Z_0=2K15 Av= -4.77

40. Repeat Problem 39 if k drops to 0.2×10^{-3}. Compare results.

R: Z_i= 2.2 M, Z_0=2K15 Av= -3.54

41. Determine V_o for the network of Fig. 9.67 if $V_i = 20$ mV.

42. Determine V_o for the network of Fig. 9.67 if $V_i = 4$ mV, $V_{GS(Th)} = 4$ V, and $I_{D(on)} = 4$ mA, with $V_{GS(on)} = 7$ V and $y_{os} = 20\ \mu$S.

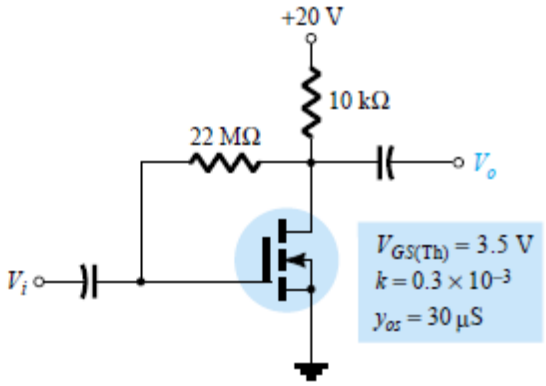


Figure 9.67 Problems 41 and 42

R: V_0= -203 mV

V_0= -52.7 mV

43. Determine the output voltage for the network of Fig. 9.68 if $V_i = 0.8$ mV and $r_d = 40$ kΩ.

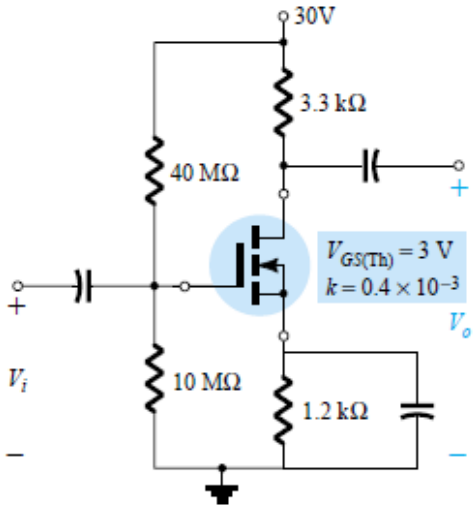


Figure 9.68 Problem 43

V_0= -3.51 mV

Sedra Smith

4.42 Para os circuitos V_{th}=2 e k=0.5 mA/V^2. Calcule as tensões nos pontos apresentados. P e N-enhacement MOSFET.

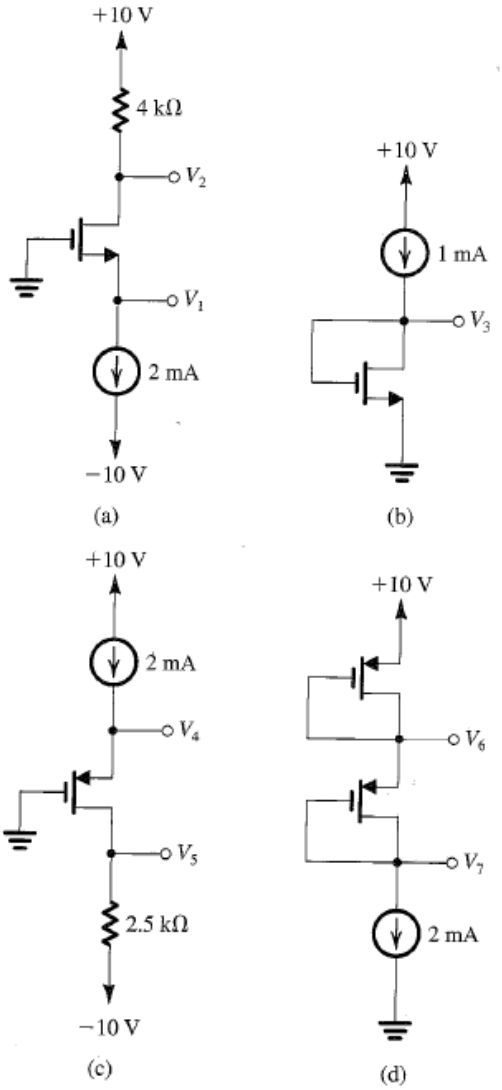
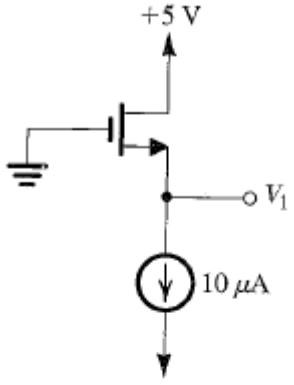


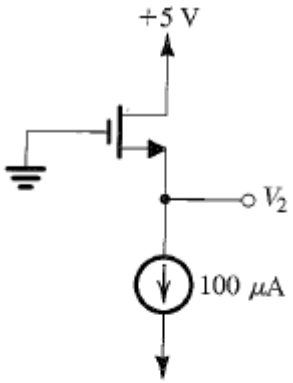
FIGURE P4.42

R: (a) V_1= -4 V V_2=2 V (b) V_3=3.41 V (c) V_4= 4 V V_5= - 5 V DICA!! aqui formula enhancement PMOS, id=k(V_{sg}-V_t)^2 (d) V_6= 6 V V_7= 2 V

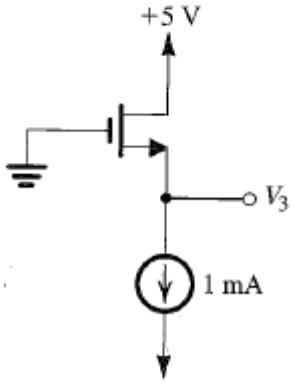
4.43 Para os circuitos V_{th}=1 e k=0.2 mA/V^2. Calcule as tensões nos pontos apresentados. P e N-enhacement MOSFET.



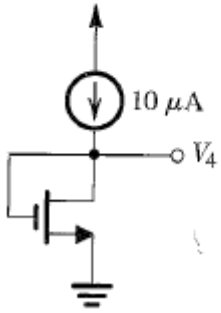
(a)



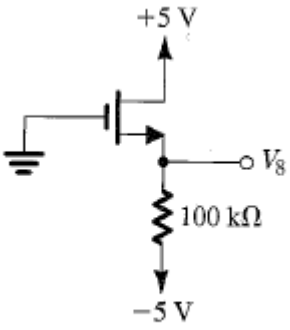
(b)



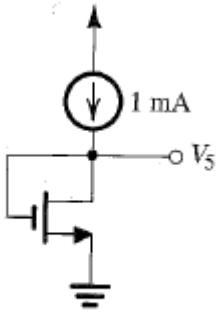
(c)



(d)



(h)



(e)

R: (a) V_1= -1.22 V (b) V_2= -1.71 V (c) V_3= -3.23 V (d) V_4= 1.22 V (e) V_5= 3.23 V (g) V_7= 3.62 V (h) V_8= -1.4 V

4.44 Para os circuitos V_{th}=1 e k=1 mA/V^2. Calcule as tensões nos pontos apresentados. P e N-enhacement MOSFET.

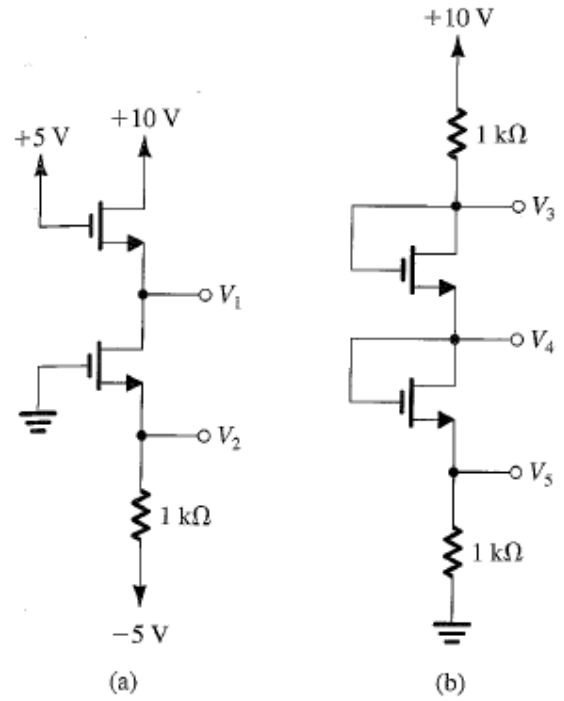
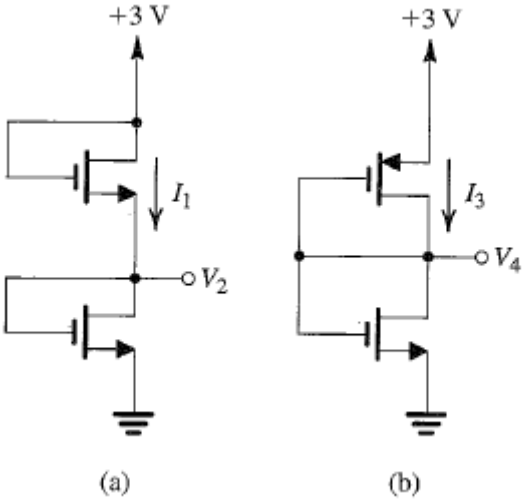


FIGURE P4.44

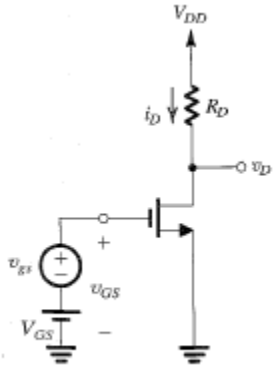
R: (a) V_1= 2.44 V V_2= -2.56 V (b) V_3= 7.57 V V_4= 5 V V_5= 2.43 V

4.46 Para os circuitos V_{th}=1 e k = 30 uA/V^2 (NMOS) e k = (2/5)*30 uA/V^2 (PMOS). Calcule as tensões nos pontos apresentados. P e N-enhacement MOSFET.



R: (a) I_1= 7.5 uA V_2= 1.5 V (b) I_3= 4.8 uA V_4= 1.4 V

4.69 Para o circuito V_t=2, k = 0.5 mA/V^2, V_{GS}=4, V_{DD}=10 R_D= 3K6 e r_o=50K, compute V_D, g_m, A_v.



R: V_D= 2.8 V g_m= 2 mA/V A_V= -6.7