

ELEC 3225 ELECTRONICS II (4)
Fall 2021

For circuit shown use (ignore r_o) $|V_{BE}|=0.7\text{ V}$, $\beta=100$, and $V_i=20 + 2 \sin(20t)$.

Hand calculations:

- A)** Solve for the DC currents: I_B , I_E , I_C
- B)** Solve for the DC voltages: V_B , V_E , V_o
Show mode of Operation assumed to solve A) and B)?
- C)** Sketch the **TOTAL instantaneous** waveform observed for $i_c(t)$
- D)** Calculate R_{out}

ORCAD Simulations:

- E)** Examine results (A) and (B) on Schematics with BJT (2N2222)
- F)** Examine results (D) using pi model
- G)** Examine part (C) – show probe
- H)** Examine results in (D) using ORCAD with BJT (2N2222)
- I)** Examine result in part (D) using ORCAD with Pi model of BJT
- J)** Tabulate instantaneous I_c , Voltage gain, R_{out} for hand calculation, Pi model, and BJT model

	I_c	Voltage gain	R_{out}
Hand calculations			
Simulations- pi model			
Simulations- 2N2222			

Grading (A through J):

- Submit like a lab report typed with figures embedded in text with captions.
- Accuracy of hand calculations.
- Clarity of figures and values shown in simulations
- Show your work

