Mid Term Exam (Open Book)
Time Allowed: 75 min

(1) Sketch the complete hybrid, hybrid π and r_e models for a common-emitter *pnp* transistor. Given r_b= 3Ω, r_π= 1.6kΩ, r_u= 20MΩ, C_u= 1pF, C_π= 5pF, β= 100, h_{oe}= 18 μS.

(2) Design a two stages RC coupled BJT Audio Amplifier to provide a gain of 65 dB to a typical dynamic microphone signal with frequency ranges from 300 to 3500 Hz.
Plot the low frequency response and the phase response of one of the two stages assuming the other one is not loading it.

Good Luck,
Dr. Ahmad El-Banna

---------- ------------- ---------