Benha University
Faculty of Engineering at Shoubra
Electrical Engineering Dep.

Electronic Circuits (A)
3rd year Comm.
Fall 2015

Mid Term Exam (Open Book)
Time Allowed: 75 min
[Sample **A**]

(1) For the voltage-divider biasing circuit, discuss the condition required to perform the approximate analysis.

(2) Design a BJT Audio Amplifier with following specifications:

- **The amplifier consists of two direct coupled stages with total gain of 57 dB.**
- **It uses a capacitor to couple a microphone signal with internal resistance of 1kΩ and frequency band between 300 Hz and 3.5 KHz.**
- **It drives an 8 Ω speaker through a coupling transformer of 1:3 turns ratio.**
- **The speaker signal should be in-phase with the microphone one.**

Plot the low frequency response of the first stage of that amplifier.

Good Luck,
Dr. Ahmad El-Banna

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[Sample **B**]

(1) Discuss the condition required to use a bjt transistor in a switching circuit.

(2) Design a BJT Audio Amplifier with following specifications:

- **The amplifier consists of two direct coupled stages with total gain of 50 dB.**
- **It uses a capacitor to couple a microphone signal with internal resistance of 1kΩ and frequency band between 400 Hz and 4 KHz.**
- **It drives a 4 Ω speaker through a coupling transformer of 1:2 turns ratio.**
- **The speaker signal should be out of phase with the microphone one.**

Plot the low frequency response of the first stage of that amplifier.

Good Luck,
Dr. Ahmad El-Banna