Analog Integrated Circuits - Partial Exam

An exam ticket consists on: one problem, one normal subject or 2 or 3 short subjects.

1.1 PROBLEMS:

1. Analysis and design of inverting and non-inverting amplifiers with ideal op-amp.
2. Voltage computing in circuits with ideal op-amps;
3. Current-voltage converters circuits with ideal op amps;
4. Effects of finite gain, input and output resistance in amplifiers with op amps;
5. Voltage offset and current offset (and bias) in circuits with op amps;

1.2 NORMAL SUBJECTS:

1. Ideal Op Amps: symbol, circuit model, ideal assumptions and implications; Inverting and non inverting amplifiers;
2. Op Amp dc Effects and Limitations: low frequency model of op amp, effects of finite gain, offset voltage and currents;
3. Op Amp ac Effects and Limitations: open loop response, transition frequency, closed loop bandwidth, gain-bandwidth product, transient response, slew rate;

1.3 SHORT SUBJECTS:

1. Complete amplifier signal model;
2. Voltage controlled current sources with ideal op amps – floating load;
3. Howland current source;
4. Current-voltage converter;
5. Linear combination circuits with ideal op amp;
6. The difference amplifier.

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