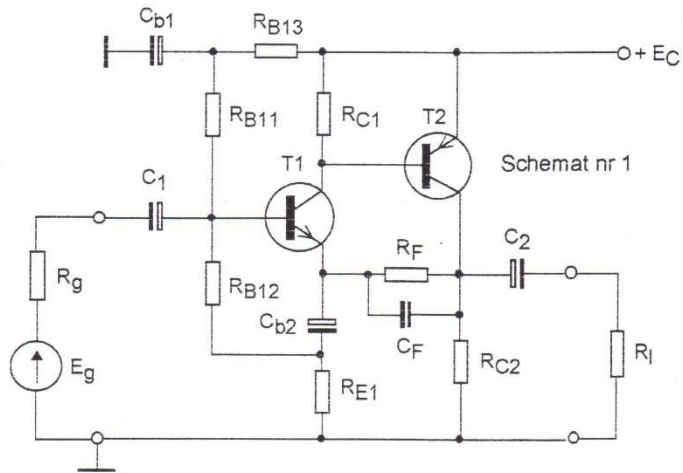


12 dual-transistor amplifiers

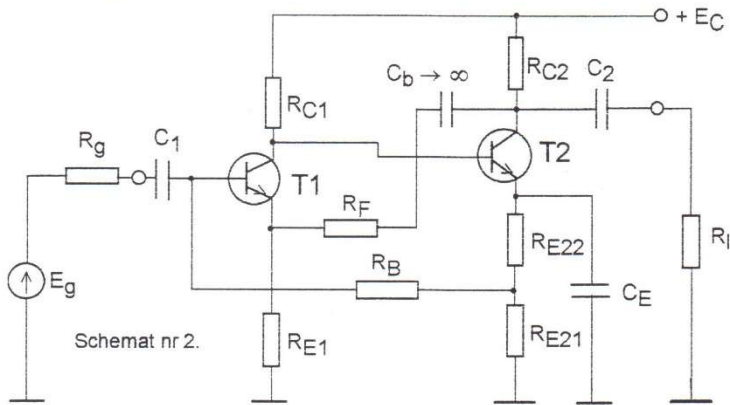
For the following schemes carry out:

1. DC analysis, so that at full overdrive, the output voltage truncation levels are set and at a remote resistance R_L . (3Vpp $R_L=1k$)
2. select the elements so as to obtain the set k_{uef} gain, (e.g. 20, 30, 40 dB)
3. Do an approximate AC analysis with open-loop feedback,
4. do an approximate closed-loop AC analysis and manually count k_{uef} , r_{in} , r_{out} and compare the results with the nodal potential method and with LTSpicea,
5. Determine capacitances manually, so as to obtain the set lower frequency,
6. determine manually and LTSpic the upper frequency (with open and closed loop)
7. Do Monte Carlo and sensitivity analysis (in LTSpice),
8. Determine the effect of temperature on operating points and gain (in LTSpice)

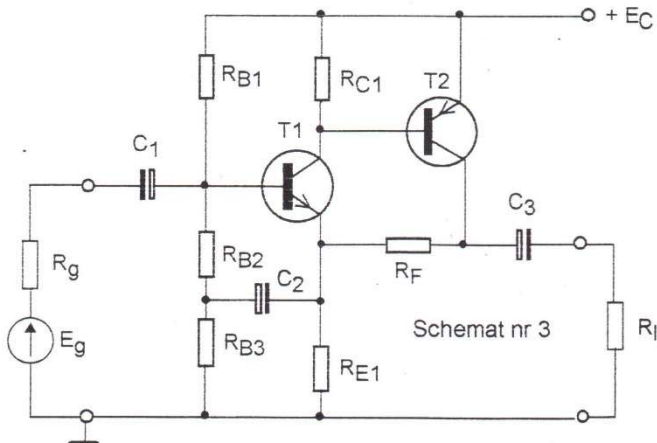
①

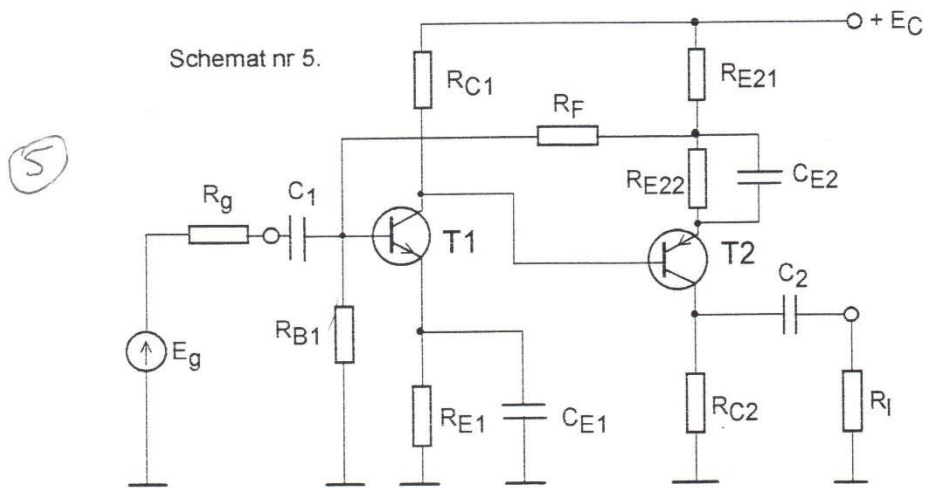
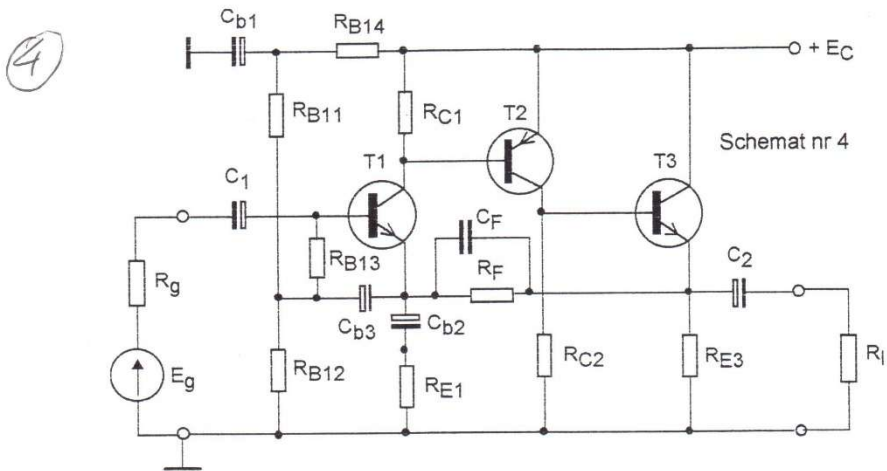


②



③





$E_C = 6, 9, 12, 15, 18, 24 \text{ V}$

List of possible
transistors:

3C 107, 108, 109, BC 147, 148, 149, BC 167, 168, 169
 BC 157, 158, 159, BC 177, 178, 179, BC 257, 258, 259
 BC 237, 238, 239, BC 307, 308, 309, BC 327, 328
 BC 413, 414, BC 415, 416