

King Fahd University of Petroleum & Minerals

Electrical Engineering Department

EE303: Electronics II

Project (Part I)

Instructor: Dr. Saad Mohammad Al-Shahrani

(Due 13th of January)

Design the second-order KHN filter shown in Fig. 12.24(a) of the textbook to realize a bandpass filter with center frequency of 100 kHz and a 3-dB bandwidth of 5 kHz.

- (a) Derive the transfer functions of the Bandpass filters.
- (b) Find filter parameters ω_o , ω_o/Q , and Q .
- (c) Calculate center frequency gain?
- (d) Use SPICE to confirm your results. Use the simple opamp model shown below. In the report include your hand calculations, circuit schematic and AC analysis results.

