1) IC 555 freq calculation

$$f = \frac{1.44}{(2R_B + R_A)C}$$ {known}

$R_A = R_B = 10k\Omega$ $C = 1nF$

$$f = \frac{1.44}{30 \times 10^3 \times 10^{-9}}$$

$\approx$ 48 kHz

2) Op-Amp-1 gain calc

$$G = 1 + \frac{R_f}{R_{in}} = \frac{10k}{1k} = 11$$

3) Op-Amp-2

It basically acts as comparator and required for PWM signal.

4) LC filter calc

$$f_c = \frac{1}{2\pi\sqrt{LC}}$$

$L = 100\mu H$

$C = 1\mu F$

$$f_c = \frac{1}{2\pi\sqrt{100 \times 1 \times 10^{-12}}}$$

$$\approx 15.9k$$

5) Speaker load

took from internet

$= 8\ \Omega$