

3B1 2012 – Numerical answers

- 1 (b) $8.95 \times 10^{-10} \text{ W m}^{-2}$
(c) $1.27 \times 10^{-4} \text{ V rms}$
(d) 96 %
(e) $5 \times 10^{-4} \text{ V rms}$
- 2 (c) 510 kHz, high pass, $R_f = 1 \text{ k}\Omega$
 $R_1 = 523 \Omega$, $(A-1)R_f = 582 \Omega$
 $R_2 = 303 \Omega$, $(A-1)R_f = 1.66 \text{ k}\Omega$
- 490 kHz, low pass, $R_f = 1 \text{ k}\Omega$
 $R_3 = 194 \Omega$, $(A-1)R_f = 582 \Omega$
 $R_4 = 335 \Omega$, $(A-1)R_f = 1.66 \text{ k}\Omega$
- 3 (a) $R_1 = 100 \Omega$, $R_2 = 560 \Omega$, $R_3 = 12 \Omega$, $R_4 = 75 \Omega$
(b) 2.72 GHz
(c) 57 nH, 16 pF
- 4 (a) $Q = 25.7$, $B/w = 6.69 \text{ MHz}$
(c) 0.029λ , 2.21 pF, $\rho = 0.22$
(d) $w = 0.24 \text{ mm}$, $l = 4.7 \text{ mm}$