Errata for J. G. Webster (ed.), *Medical instrumentation: Application and design*, 4th ed., Hoboken NJ: John Wiley & Sons, 2009, November 21, 2009. Send all errata to Webster@engr.wisc.edu
On December 11, 2009 added changes on pages 76, 86, 178, 446.
On December 22, 2009 added change on page 194.
On February 8, 2010 added changes on page 306, 307, 360, 621

Chapter 1

A) Page 21

50 μV·V^{-1} mm Hg^{-1}.

Add second raised dot before mm

50 μV·V^{-1}·mm Hg^{-1}.

B) Eq (1.25) pg 31

$$a_2\frac{d^2y(t)}{dt^2}+a_1\frac{dy(t)}{dt}+a_0y(t)-b_0x(t) \qquad (1.25)$$

Replace – with = :

$$a_2\frac{d^2y(t)}{dt^2}+a_1\frac{dy(t)}{dt}+a_0y(t)=b_0x(t)$$

C) Pg 31

$$\zeta=\frac{a_1}{2\sqrt{a_0a_1}}$$

In the denominator, replace a_1 with a_2 :

$$\varsigma=\frac{a_1}{2\sqrt{a_0a_2}}$$

D) Eq (1.32) pg. 33

$$\zeta=\frac{B}{2\sqrt{K_mM}} \qquad (1.32)$$

In the denominator, replace K_m with K_s :

$$\varsigma=\frac{B}{2\sqrt{K_sM}}$$

E) Eq (1.39) pg. 35

$$y(t) = K_x(t - \tau_d), \quad t > \tau_d \qquad (1.39)$$

In the right hand side term, *x* is NOT a subscript :

$$y(t) = Kx(t - \tau_d), \quad t > \tau_d$$

Chapter 2

A) Page 49 Figure 2.2 legend

R_3 = D, and R_4 = C

Change to

R_3 = C, and R_4 = D

B) Page 53

A nonlinearity in $\Delta R/R_0$ is present even when $R_0/R_1 = 0$

Delete entire sentence

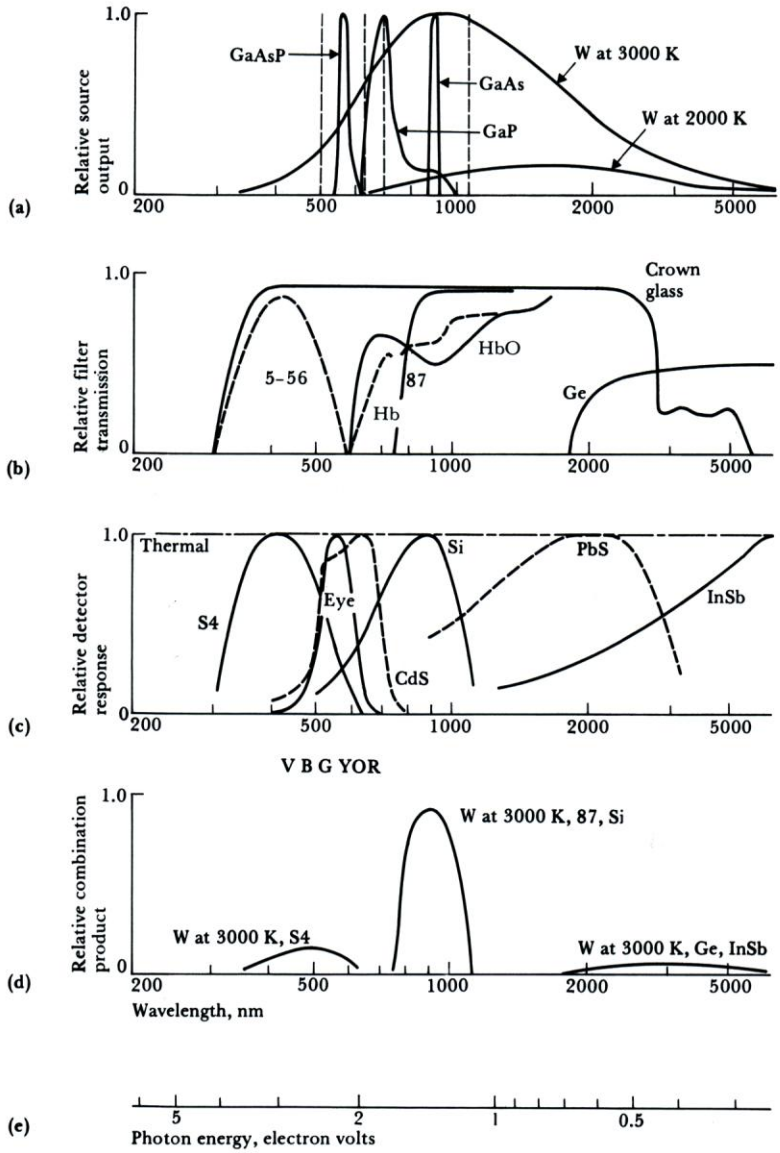
C) Page 61 line 2

R_i = 11.1 kΩ

Change to

R_i = 1.11 kΩ

D) Page 76 Fig 2.21 replace figure with figure below, which contains the missing (e)



E) Page 86, line 13 replace “factor of 104” with factor of 10^4”

Chapter 3

A) Pg 115, line 8 replace “T = temperature, K” with “*T* = temperature, K” where T is italic

B) Pg 123, Problem 3.1 replace “gain of 10” with “gain of –10”

C) Pg 123, Problem 3.2 replace “100 mV to 50 mV” with “–100 mV to +50 mV”

D) Pg 123, Problem 3.7 replace “0 to 2 V” with “0 to +2 V”

E) Pg 124 Problem 3.10 replace “0 to 10 V” with “0 to –10 V”

F) Pg 124 Problem 3.15 replace “10 (not –10)” with “+10 (not –10”

G) Pg. 124, Problem 3.17 replace “ is 110 to 10kHz” with “ is 1 to 10 kHz”.

H) Pg 124, Problem 3.22: replace “For Problem 3.21” with “For Problem 3.20”.

Chapter 4

A) Page 178, line 11 from bottom change “Chapter of his book” to “Chapter 5 of his book”

Chapter 5

A) Pg 194 Eq (5.8)

$$E = E^0 = \frac{RT}{nF} \ln \frac{a_C^{\gamma} a_D^{\delta}}{a_A^{\alpha} a_B^{\beta}} \qquad (5.8)$$

should be replaced by

$$E = E^0 + \frac{RT}{nF} \ln \frac{a_C^{\gamma} a_D^{\delta}}{a_A^{\alpha} a_B^{\beta}} \qquad (5.8)$$

B) Pg 199, Eq. (E5.3) replace “6.25×10^8 atoms” with “6.25×10^{18} atoms”

Chapter 6

A) Eq (E6.1) pg 248

$$i_1 = \frac{v_b - v_c}{2R}$$
$$v'_w = i_1 R + v_c = \frac{v_b - v_c}{2R} R + v_c = \frac{v_b - v_c}{2} \qquad (E6.1)$$

In the second equation, right hand side term, replace – with + :

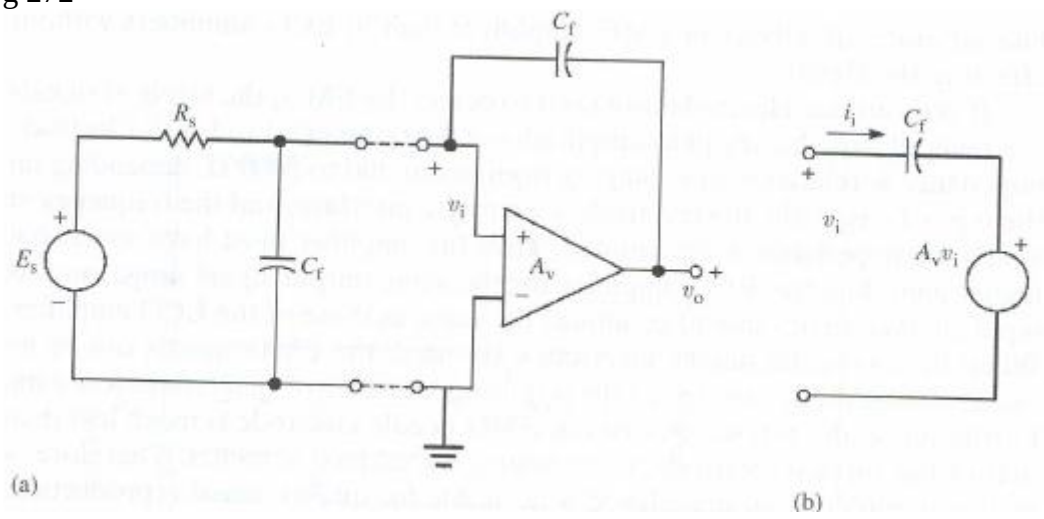
$$v'_w = i_1 R + v_c = \frac{v_b - v_c}{2R} R + v_c = \frac{v_b + v_c}{2}$$

B) Eq (6.10) pg 261

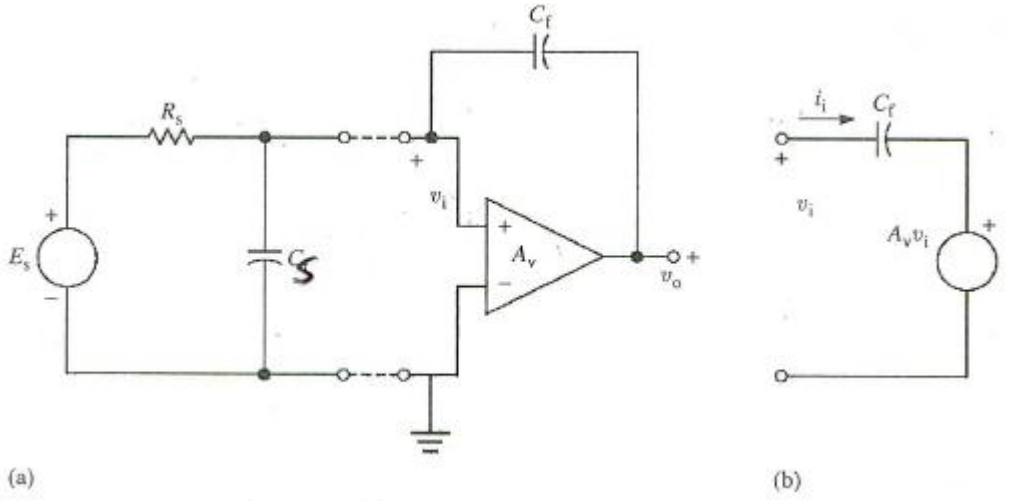
$$v_A - v_B = (10\,\text{mV})(20\,\text{k}\Omega/5\,\text{M}\Omega) = 40\,\mu\text{V} \qquad \text{E6.10}$$

It is Eq 6.10 and not Eq E6.10.

C) Fig 6.17 pg 272



In (a), left hand side capacitor is C_s and not C_f, see below:



Chapter 7

A) Pg 306: Consequently, C_t = 3.38 X 10^{-14} m^5/N should be Consequently, C_t = 3.58 X 10^{-14} m^5/N
B) Pg 307: Top equation $f_{n,bubble}$ = 92( ) should be $f_{n,bubble}$ = 91( )

Chapter 8

A) Pg 343: in formula (8.7) variable C_b should be in lower case:

$$F = \frac{Q}{\rho_b \, c_b \int_0^{t_1} \Delta T_b(t)\, dt} \quad (m^3/s)$$

B) Pg 360: in formula (8.19) variable R_{max} should be R_m:

$$u_m (\cos\theta)\, R_m < \frac{c^2}{8 f_0}$$

C) Pg 374 Figure 8.21 legend

Replace "A" with "A noninverting amplifier can drive low impedance loads, and it provides a gain of 100."

Chapter 9

A) Pg 408: formula (9.29a) should be modified as:

$$-\frac{V_L}{P_{A\ DRY}} dP_{A\ DRY} + \frac{dN_{L\ DRY}}{\rho_{L\ DRY}} = \frac{V_B}{\alpha_B P_B} dP_B - \frac{dN_B}{\rho_B}$$

B) Pg 424: in the last line the equation referenced should be (9.20) and not (9.21).

C) Pg 425: in line 11 the equation referenced should be (9.22) and not (9.23).

D) Pg 427: in line 12 from bottom the text

"In particular, O_2 and CO_2 cannot be measured in the presence of N_20"

should be modified as
"In particular, CO_2 cannot be measured in the presence of N_20"

E) Pg 446 problem 9.28 change "Derive (9.47 and" to "Derive (9.47) and"

Chapter 12

A) Pg 544: in the expression
" … $3 \times 10^8\ \phi_x > \text{mm}^2$, where $\phi_x > \text{mm}^2$ is …"
change > to / in two places
… $3 \times 10^8\ \phi_x/\text{mm}^2$, where ϕ_x/mm^2 is …

B) Pg 553: in the expression
$\ln I/I_0 = -\Delta x e - \Delta x(\mu_1 + \mu_2 + \mu_3 + \mu_4 + \ldots)$
the first term in the right hand side should be deleted:
$\ln I/I_0 = -\Delta x(\mu_1 + \mu_2 + \mu_3 + \mu_4 + \ldots)$

C) Pg 562: in the expression
$N_n/N_e = e^{hf/kT}$
the term kT in the exponential should go to denominator:
$N_n/N_e = e^{hf/kT}$

Chapter 13

A) Pg 621, Figure 13.16 change Exhausted to Exhaust

END