**Equilibrium**

**Answer Section**

1) ANS: B PTS: 1 DIF: 1 REF: Sec. 15.1

2) ANS: A PTS: 1 DIF: 2 REF: Sec. 15.2

3) ANS: E PTS: 1 DIF: 2 REF: Sec. 15.2

4) ANS: D PTS: 1 DIF: 4 REF: Sec. 15.2

5) ANS: E PTS: 1 DIF: 3 REF: Sec. 15.2

6) ANS: D PTS: 1 DIF: 3 REF: Sec. 15.2

7) ANS: E PTS: 1 DIF: 3 REF: Sec. 15.2| Sec. 15.4

8) ANS: A PTS: 1 DIF: 1 REF: Sec. 15.3

9) ANS: B PTS: 1 DIF: 3 REF: Sec. 15.3

10) ANS: D PTS: 1 DIF: 3 REF: Sec. 15.6

11) ANS: E PTS: 1 DIF: 3 REF: Sec. 15.6

12) ANS: B PTS: 1 DIF: 3 REF: Sec. 15.7

13) ANS: A PTS: 1 DIF: 3 REF: Sec. 15.7

14) ANS: A PTS: 1 DIF: 3 REF: Sec. 15.7

15) ANS: C PTS: 1 DIF: 3 REF: Sec. 15.7

16) ANS: D PTS: 1 DIF: 5 REF: Sec. 15.7

17) ANS: D PTS: 1 DIF: 3 REF: Sec. 15.7

18) ANS: D PTS: 1 DIF: 3 REF: Sec. 15.5

19) ANS: C PTS: 1 DIF: 4 REF: Sec. 15.6

1995 Answer:

(a) CO = f(0.55 mol, 1.6 mol) = 0.34

(b) *Kc* = ([H2O][CO])/([H2][CO2]) = (0.550.55)/(0.200.30) = 5.04

(c) since Δn = 0, *Kc* = *Kp*

(d) [CO] = 0.55 - 30.0% = 0.55 - 0.165 = 0.385 M

[H2O] = 0.55 - 0.165 = 0.385 M

[H2] = 0.20 + 0.165 = 0.365 M

[CO2] = 0.30 + 0.165 = 0.465 M

K = (0.385)2/(0.3650.465) = 0.87

(e) let *X* = Δ[H2] to reach equilibrium

[H2] = 0.50 mol/3.0L - X = 0.167 - *X*

[CO2] = 0.50 mol/3.0L - X = 0.167 - *X*

[CO] = +*X* ; [H2O] = +*X*

K = *X*2/(0.167 - *X*)2 = 5.04 ; *X* = [CO] = 0.12 M