Daily Tutorial Sheet-7	Level-2

86.(B) $(\Delta S)_{sys} = nC_{V,m}\ell n\frac{T_2}{T_1} + nR\,\ell n\frac{V_2}{V_1} = nR\,\ell n\frac{V_2}{V_1}(T_2 = T_1) = 2\times 8.314\times \ell n\frac{10}{1} = 38.29\,J\,K^{-1}mol^{-1}$

87.(B) Expansion from state A to state B occurs at constant pressure (isobaric expansion) = 2P

88.(C) Expansion from state D state A occurs at constant volume (isochoric process) = V

89.(A) Work done in cyclic process = area of PV curve

$|\,w\,| = PV$

Work = –PV (clockwise)

90.(D) In conversion from B to C, volume does not change or $\Delta V = 0$, therefore w = 0.

91.(D) $q = -w \quad \therefore \quad q = PV$

92.(A) $T = \frac{PV}{nR}$

93.(D) In cyclic process, $\Delta H = 0$

94.(B) In expansion from state 1 to state 2.

$P = 1$ atm

$V_1 = 22.44L$

$V_2 = 44.88L$

$C_V = \frac{3}{2}R$

$\Delta T = T_2 - T_1 = 546 - 273 = 273K$

$\therefore \quad \Delta U = nC_v\Delta T = 1\times\frac{3}{2}\times 8.314\times 273 = 3.40\times 10^3 J$

95.(C) In conversion from state 2 to state 3

$\Delta T = T_2 - T_1 = 273 - 546 = -273K$

$C_V = \frac{3}{2}R$