

THE HONG KONG POLYTECHNIC UNIVERSITY
HONG KONG COMMUNITY COLLEGE

Subject Title : Physical Chemistry

Subject Code : CCN2275

Session : Semester Two, 2015/16

Numerical Answers

Question B2

(c) $K_p = 4.81 \times 10^{13}$
 $K_c = 1.9995 \times 10^{15}$

Question B4

- (a) 1.71 atm
(b) $\Delta S_T = 99.26 \text{ J K}^{-1} \text{ mol}^{-1}$

Question C1

(a)

Point	Pressure (in atm)	Temperature (in K)	Volume (in L)
1	10	298	3.67
2	7.1	260.3	4.5
3	7.1	298	5.17

(b)

Path	q (J)	w (J)	ΔU (J)
1 \rightarrow 2	0	- 705	- 705
2 \rightarrow 3	1187.2	- 482	705
3 \rightarrow 1	-1273.5	1273.5	0
Total: Cycle	-86.3	86.5	0

Question C2

- (a)(i) $\Delta G_{\text{reaction}}^\circ = 27.44 \text{ kJ/mol}$
(a)(iii) $T = 435.8 \text{ K}$