

THE HONG KONG POLYTECHNIC UNIVERSITY
HONG KONG COMMUNITY COLLEGE

Subject Title : Physical Chemistry

Subject Code : CCN2275

Session : Semester Two, 2017/18

Numerical Answers

Question B1

- (a)(ii) 0.463 V
(b) -96.88 J/K

Question B2

- (a) -432.09 kJ/mol
(b) -61.788 J/mol

Question B4

$T_2 = 156.5 \text{ K}$
 $q=0$
 $w = \Delta U = -3.5283 \text{ kJ}$
 $\Delta H = -5.882 \text{ kJ}$
 $\Delta S = \Delta S_{\text{surroundings}} = \Delta S_{\text{system}} = 0$

Question B5

- (a) 55472.64 J/mol
(b) $K = 1.88 \times 10^{-10}$
(c) 1.37×10^{-5}

Question C1

- (b) $T_2 = 137.5 \text{ K}$; $n = 0.6134$

(c)

Steps	q (in J)	w (in J)	ΔU (in J)	ΔH (in J)
i	0	-2046	-2046	-2864.8
ii	2864.8	-818.5	2046	2864.8
iii	-4115.5	4115.5	0	0
cycle	-1250.7	1251	0	0