THE HONG KONG POLYTECHNIC UNIVERSITY
HONG KONG COMMUNITY COLLEGE

Subject Title : Physics II **Subject Code** : CCN1051

Session : Semester Two, 2017/18

Numerical Answers

Question B1

$\overrightarrow{F_3} = -3.96 \times 10^{-9}\vec{\imath} + 1.73 \times 10^{-8}\vec{\jmath}$ N

Question B2

(a) $V_A = 4.05 \times 10^6$ V and $V_B = -1.35 \times 10^6$ V
(b) $\Delta U = 27.0$ J
(c) $W_{app} = 27.0$ J

Question B4

(a) $\mathrm{V} = 2.16$ mV
(b) $\vec{E} = 0.108(-\vec{k})$ N/

Question B5

$i_p(t) = 33.72\cos(314t - 73.3°)$ A

Question B6

$EMF_{at\ 5\ sec} = 0.160$ V

Question B7

(c) $\theta_c = 61.0°$

Question B8

(a) n = 1.63

Question C1

(a)(i) $a = 4.92 \times 10^{-6}$ m and $d = 2.95 \times 10^{-5}$ m
(a)(ii) 16 diffraction minima
(b) $\vec{E} = 15.0\ (+\vec{\imath})$ kN/C and $V = -49.4$ kV

Question C2

(a)(i) 32 cm on the *x*-axis

(a)(ii) $f_2 = +10$ cm

(a)(iii) n = 1.5

(b)(i) $\overrightarrow{B_P} = -3.81 \times 10^{-7}\vec{\imath} + 6.40 \times 10^{-8}\vec{\jmath}$ T

(b)(ii) $\dfrac{\overrightarrow{F_1}}{L} = 5.00 \times 10^{-7}\vec{\imath}$ N/m