

THE HONG KONG POLYTECHNIC UNIVERSITY  
HONG KONG COMMUNITY COLLEGE

**Subject Title** : Physics II

**Subject Code** : CCN1051

**Session** : Semester Two, 2015/16

**Numerical Answers**

**Question B1**

$$C_{eq} = 3.983 \times 10^{-12} \text{ F}$$

**Question B2**

$$|\vec{F}_{2,net}| = 7.158 \times 10^{-9} \text{ N}$$
$$\angle \vec{F}_{2,net} = 160.426^\circ$$

**Question B3**

$$i(t) = 1.694 \sin(314t - 32.129^\circ) \text{ A}$$
$$P_{avg} = 7.173 \text{ W}$$

**Question B4**

$$i = 2.458 \text{ A}$$

**Question B5**

$$V_P = -1.161 \times 10^4 \text{ V}$$

**Question B6**

$$\vec{B}_P = -3.692 \times 10^{-7} (\vec{i}) - 2.538 \times 10^{-7} (\vec{j}) \text{ T}$$

**Question B7**

$$L = 446.429 \times 10^{-9} \text{ m}$$

**Question B8**

(a)  $D = 67.1 \text{ m}$

**Question C1**

(a)(i)  $40.542^\circ$  and 29 bright fringes

(a)(ii) approximately  $0.5\lambda$

(b)  $\vec{E}_{net} = -0.349\vec{j}$  N/C

**Question C2**

(a)(i) 80 cm

(a)(ii) 12.6 cm

(a)(iii) 78.4 cm

(a)(iv) -4.2

(b)(iii)  $i = 1.989 \times 10^{-3}$  A