

THE HONG KONG POLYTECHNIC UNIVERSITY
HONG KONG COMMUNITY COLLEGE

Subject Title : Physics II

Subject Code : CCN1051

Session : Semester Two, 2016/17

Numerical Answers

Question B1

$$\vec{F}_{2,net} = 67.439\mu \vec{i} + 33.719\mu \vec{j} \text{ N}$$

Question B2

$$V_{net} = 575.695 \text{ kV}$$

Question B3

- (a) $R_{AB} = 2.5 \Omega$
- (b) $V_{AC} = -10.5 \text{ V}$

Question B4

$$\vec{B}_{net \text{ at } (-2,0)} = -879.996n \vec{i} + 239.998n \vec{j} \text{ T}$$

Question B5

$$i(t) = 1.687 \sin(100\pi t + 32.48^\circ) \text{ mA}$$

Power factor = 0.844, leading

Question B6

(b) $D = 22.808 \text{ m}$

Question B7

- (a) 2
- (b) 25%

Question B8

(a) $L = 1.6 \mu\text{m}$

Question C1

(a)(i) 7

(a)(ii) 5

Question C2

(a)(i) 2 m

(a)(ii) -1 m

(a)(iii) 1.25 m

(a)(iv) 0.5

(b)(iii) $i_{ind} = 21.513 \text{ nA}$