

THE HONG KONG POLYTECHNIC UNIVERSITY  
HONG KONG COMMUNITY COLLEGE

---

**Subject Title** : Basic Electricity and Electronics      **Subject Code** : CCN2246

**Session** : Semester One, 2017/18

**Numerical Answers**

**Question A1**

- (a) 5V
- (b) 0.24A
- (c) 2.817V

**Question A2**

- (a) 14.539Ω
- (b) 0.00219W

**Question A3**

- (b)  $4+j2\Omega$
- (c)  $V_{bc} = 5\angle-120^\circ\text{V}$ ,  $V_{ca} = 5\angle120^\circ\text{V}$
- (d)  $I_{an} = 1.9365\angle-56.565^\circ\text{A}$ ,  $I_{bn} = 1.9365\angle-176.565^\circ\text{A}$ ,  $I_{cn} = 1.9365\angle63.435^\circ\text{A}$

**Question A4**

- (a)  $7.139 - j0.267\Omega$
- (b)  $1.7217\angle-8.7462^\circ\text{V}$

**Question A5**

- (a) 0.27A
- (b) 1.727V

**Question A6**

- (b) 352V
- (c) 3497.727 rpm

**Question B1**

- (a) 3
- (b) 2
- (c) 0.467V, 5.917V

(d)  $P_{3\Omega} = 9.9\text{W}$ ,  $P_{1A} = -5.45\text{W}$ ,  $P_{2A} = -11.833\text{W}$

**Question B2**

(a)  $2\angle 45^\circ\text{A}$

(b)  $Z_{3H} = j6\Omega$ ,  $Z_{8F} = -j0.0625\Omega$

(c)  $I_1 = 0.4066\angle 7.085^\circ\text{A}$ ,  $I_2 = 2\angle 45^\circ\text{A}$ ,  $I_3 = 0.0987\angle -3.729^\circ\text{A}$

(d)  $3.3844\angle 6.425^\circ\text{VA}$

(e)  $50.194^\circ$

(f)  $35.454^\circ$