

THE HONG KONG POLYTECHNIC UNIVERSITY  
HONG KONG COMMUNITY COLLEGE

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**Subject Title** : Products and Materials in Modern Society      **Subject Code** : CCN2028

**Session** : Semester Two, 2013/14

**Numerical Answers**

**Question 2**

- (a) (i) Alloys B and C
- (ii) Alloy B
- (b) 2763 N

**Question 3**

- (b) 44.72°C
- (c) (i) 83710 J
- (ii) 23.37 minutes

**Question 4**

- (a) 240.6
- (b) 13% CW

**Question 5**

- (b) 40 kN
- (c) 3.493 mm
- (d) (i)  $\sigma_{max} = 200$  MPa
- $\sigma_{min} = -200$  MPa
- (ii)  $1 \times 10^6$  cycles

**Question 7**

- (a)  $E \geq 60$  GPa
- (b)  $V_f$  of glass fibre = 0.8217
- $V_f$  of carbon fibre A = 0.2531
- $V_f$  of carbon fibre B = 0.2038
- Carbon fibres A and B
- (c) Carbon fibre A