

THE HONG KONG POLYTECHNIC UNIVERSITY  
HONG KONG COMMUNITY COLLEGE

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**Subject Title** : Computer Organisation

**Subject Code** : CCN2264

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

**Numerical Answers**

**Question B1**

(a)  $2M \times 4 \text{ bytes} \Rightarrow 2 \times 2^{20} \times 2^2 = 2^{23}$   
=23 bits required

(b)  $0x \text{ FE01} = 1111 \ 1110 \ 0000 \ 0001 = -511$

**Question B2**

(a)  $2^{16} = 64K$

**Question B3**

(b) 5.8 cycles/instruction

**Question C2**

(a)(i) cache line =  $64KB/128B = 512$  lines.  
 $512/4 = 128$  sets

(a)(ii) 128 sets, 7 bits are required to select a set.  
Tag =  $32 - 7 \text{ (set)} - 7 \text{ (block)} = 18$

(a)(iii) within line=7, set =33  
within line =5B, set=B