TUTORIAL 1: Numbering Systems

1. Convert the following to decimal numbers.

(a) 11100111 2

231

(b) 5577 8

2943

(c) ABCD H

43981

2. Convert the followings to Base-2, Base-8 and Base-16 respectively.

(a) 3064 D

Base-2 = 101111111000, Base-8 = 5770, Base-16 = BF8

(b) 2016 10

Base-2 = 011111100000, Base-8 = 3740, Base-16 = 7E0

(c) 2899 base-10

Base-2 = 101101010011, Base-8 = 5523, Base-16 = B53

3. Convert the following numbers to the respective base.

(a) 1111 1010 0011 1100 2 to base-8 and base-16 respectively

Base-8 = 175074, Base-16 = FA3C

(b) 257ACH to base-2 and base-8 respectively

Base-2 = 00100101011110101100, Base-8 = 453654

(c) 754 8 to base-16

Base-16 = 1EC

(d) 447 16 to base-8

Base-8 = 2107

4. Perform the following conversions. You are required to show the working steps clearly. If the

operation(s) is illogical, explain the reason.

(a) 1658 10 to hexadecimal number (PYP-08/14: 2

marks)

(b) 765 8 to hexadecimal number (PYP-08/14: 2

marks)

(c) 67324 7 to decimal number (PYP-08/13: 2

marks)

5. Perform the following conversions. You are required to show the working steps clearly. If the

operation(s) is illogical, explain the reason.

(a) 1230 10 to base-6 number (PYP-04/13: 2

marks)

(b) 1528 10 to hexadecimal number (PYP-08/15: 2

marks)

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(c) 230 10 to base-7 number (PYP-01/14: 2

marks)

6. Perform the following operations and show the answers in the respective number base. You are

required to show your working steps clearly

(a) ABC 16 + FFF 16 (PYP-01/14: 3

marks)

(b) 125 8 – 77 8 (PYP-01/14: 2

marks)

(c) 11011 2 x 1011 2

(d) 10011100 2 + 01001011 2

7. Perform the following operations and show the answers in the respective number base. You are

required to show your working steps clearly

(a) 461 8 + 515 8

(b) 173H x AAH

(c) 3064 16 x 213 8 (Show your final answer in Hex format.) (PYP-08/12: 3

marks)