CADT IDT វិទ្យាស្ថានបច្ចេកវិទ្យាឌីជីថល Institute of Digital Technology

Exercises of Conversion and operation in number system

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1. Convert each of the following binary numbers to octal, decimal, and hexadecimal formats.

   $(111011101)_2$

   $(10101010111)_2$

   $(111100000)_2$

2. Convert each of the following octal numbers to binary, decimal, and hexadecimal formats.

   $(3754)_8$

   $(7777)_8$

   $(247)_8$

3. Convert each of the following decimal numbers to binary, octal, and hexadecimal formats.

   $(3479)_{10}$

   $(642)_{10}$

   $(555)_{10}$

4. Convert each of the following hexadecimal numbers to binary, octal, and decimal formats.

   $(4FB2)_{16}$

   $(88BAE)_{16}$

   $(DC4)_{16}$

5. Perform each of the addition operations indicated below.

   $(1001011)_2 + (11101)_2$

   $(4556)_8 + (1245)_8$

   $(BCD)_{16} + (A34)_{16}$

6. Form the two's complement of each of the following binary numbers.

   $(111011101110)_2$

   $(111111111000100)_2$

   $(100000000)_2$

   $(1010101010111)_2$

7. Perform each of the subtraction operations indicated below using addition and the two's complement of the subtrahend.

   $(100101)_2 – (11011)_2$

   $(1101011)_2 – (111010)_2$

   $(1110111)_2 – (10110111)_2$

Review Questions:

1. perform the following binary additions:
   (a) 1101+1010 (b) 10111+01101
2. perform the following binary subtractions:
   (a) 11101- 0100 (b) 1001- 0111
3. perform the indicated binary operation:
   (a) 110 ×111 (b) 1100 ÷ 011
4. determine the 1's complement of each binary number:
   (a) 11010 (b) 001101
5. determine the 2's complement of each binary number:
   (a) 10111 (b) 010001
6. subtract the hexadecimal numbers:
   (a) $75_{(16)} - 21_{(16)}$ (b) $94_{(16)} - 5C_{(16)}$
7. add the hexadecimal numbers directly:
   (a) $18_{(16)} + 34_{(16)}$ (b) $3F_{(16)} + 2A_{(16)}$
8. multiply the following pairs of binary numbers:
   (a) 101.101 × 110.010
   (b) 0.1101 × 0.1011
9. perform the following divisions:
   (a) 10110.1101 ÷ 1.1
   (b) 111111 ÷ 1001