Practical-2

Q17 Binary to decimal

a) $(0101)_2 \rightarrow (?)_{10}$

$1\times2^0 + 0\times2^1 + 1\times2^2 + 0\times2^3$

$1 + 0 + 4 + 0$

$(5)_{10}$

b) $(0111)_2 \rightarrow (?)_{10}$

$0\times2^3 + 1\times2^2 + 1\times2^1 + 1\times2^0$

$0 + 4 + 2 + 1$

$(7)_{10}$

c) $(0011)_2 \rightarrow (?)_{10}$

$0\times2^3 + 0\times2^2 + 1\times2^1 + 1\times2^0$

$2 + 1$

$(3)_{10}$

d) $(1001)_2 \rightarrow (?)_{10}$

$1\times2^3 + 0\times2^2 + 0\times2^1 + 1\times2^0$

$8 + 1 = (9)_{10}$

e) $(1011)_2 \rightarrow (?)_{10}$

$1\times2^3 + 0\times2^2 + 1\times2^1 + 1\times2^0$

$8 + 0 + 2 + 1$

$(11)_{10}$

f) $(1111)_2$

$1\times2^3 + 1\times2^2 + 1\times2^1 + 1\times2^0$

$1 + 2 + 4 + 8$

$(15)_{10}$

g) $(0000)_2 \rightarrow (?)_{10}$

$0\times2^0 + 0\times2^1 + 0\times2^2 + 0\times2^3 + 0\times2^1$

$0 + 0 + 0 + 0$

$(0)_{10}$

h) $(1101)_2 \rightarrow (??)_{10}$

$1\times2^0 + 0\times2^1 + 1\times2^2 + 1\times2^3$

$1 + 0 + 4 + 8$

$(13)_{10}$

Q2 conversion Binary to decimal

a) $(00010101)_2 \rightarrow (?)_{10}$

$1\times2^0 + 0\times2^1 + 1\times2^2 + 0\times2^3 + 1\times2^4 + 0\times2^5 + 0\times2^6 + 0\times2^7$

$1 + 4 + 16$

$(21)_{10}$

b) $(10110101)_2 \rightarrow (??)_{10}$

$1\times2^0 + 1\times2^2 + 1\times2^4 + 1\times2^5 + 1\times2^7$

$1 + 4 + 16 + 32 + 128$

$(181)_{10}$

c) $(11010011)_2 \rightarrow (?)_{10}$

$1\times2^0 + 1\times2^1 + 0\times2^3 + 1\times2^4 + 0\times2^5 + 1\times2^6 + 1\times2^7$

$3 + 16 + 64 + 128$

$(211)_{10}$

d) $(01101000)_2 \rightarrow (?)_{10}$

$1\times2^3 + 1\times2^5 + 1\times2^6$

$8 + 32 + 64$

$(104)_{10}$

Q3 Binary to decimal

a) $(1011010100010101)_2 \rightarrow (?)_{10}$

$1\times2^0 + 1\times2^2 + 1\times2^4 + 1\times2^8 + 1\times2^{10} + 1\times2^{12} + 1\times2^{13} + 1\times2^{15}$

$1 + 4 + 16 + 256 + 1024 + 4096 + 8192 + 32768$

$(46357)_{10}$

b) $(0110100011010011)_2 \rightarrow (?)_{10}$

$1\times2^0 + 1\times2^1 + 1\times2^4 + 1\times2^6 + 1\times2^7 + 1\times2^{10} + 1\times2^{13} + 1\times2^{14}$

$1 + 2 + 16 + 128 + 2048 + 8192 + 16384$

$(26835)_{10}$

Q3 True / False

a) $(1001)_2 < (5)_{10}$ False

b) $(0111)_2 = (1111)_{10}$ False

c) $(0011)_2 > (2)_{10}$ True

d) $(1001)_2 > (1101)_2$ False

e) $(1011)_2 = (11)_{10}$ True

f) $(1111)_2 = (15)_{10}$ True

g) $(0000)_2 < (0)_{10}$ False