

$$\begin{aligned}
 9. \quad 10001110_2 &= 1 \times 2^7 + 0 \times 2^6 + 0 \times 2^5 + 0 \times 2^4 + 1 \times 2^3 + 1 \times 2^2 + 1 \times 2^1 + 0 \times 2^0 \\
 &= 128 + 0 + 0 + 0 + 8 + 4 + 2 + 0 \\
 &= \boxed{142_{10}}
 \end{aligned}$$

Convert the following binary numbers to hexadecimal

$$\begin{aligned}
 10. \quad 00110011_2 &= 0011_2 = 3_{16} \\
 &0011_2 = 3_{16} \quad \left. \vphantom{0011_2 = 3_{16}} \right] = \boxed{33_{16}}
 \end{aligned}$$

$$\begin{aligned}
 11. \quad 11000000_2 &= 1100_2 = C_{16} \\
 &0000_2 = \emptyset_{16} \quad \left. \vphantom{0000_2 = \emptyset_{16}} \right] = \boxed{C\emptyset_{16}}
 \end{aligned}$$

$$\begin{aligned}
 12. \quad 111111_2 &= 0001 = 1_{16} \\
 &1111 = F_{16} \quad \left. \vphantom{1111 = F_{16}} \right] = \boxed{1F_{16}}
 \end{aligned}$$