***3.Convert the following numbers to base indicated and vice-versa (Cross-Verify)***

***​(1101)​2​ => ( )​8***

***Sol.***

***(15)8.***

***(1111 1111 1110)2=>()10***

***Sol.***

***(4091)10.***

***(221201)9***

***Sol.***

***(694)10.***

***(76)8=>()10***

***Sol.***

***(62)10***

***(0xF00)16=>()8***

***Sol.***

***(400)8***

***(0xDACE)=>()12***

***Sol.***

***(32B0)12***

***(0x2B)=>()8***

***Sol.***

***(53)8***

***4.Convert the following numbers to the ​base 10​ :***

***(3312)​8***

***Sol.***

***(1736)10***

***(202103)​9***

***Sol.***

***(1076676)10***

***(3132334)​16***

***Sol.***

***(51585844)10***

***(0xF2)8***

***Sol.***

***(122)2***

***5.Convert the following base 10 numbers to the base indicated:***

***(5610)​10 ​ => (1010111101010 )​2***

***(5610)​10 ​ => (222210)​3***

***(5610)​10 ​ => (32B6)​12***

***(5610)​10 ​ => (168A)​16***

***(22110)​10​ => (100000000110)​2***

***(22110)​10​ => (22120)3***

***(22110)​10​ => (53136)​8***

***(22110)​10​ => (109760)​12***

***(22110)​10​ => (5652)​16***

***6.Convert the following​ floating numbers***

1. ***(34.34)​10=(100010.0101……)2***
2. ***(125.125)​10=(1111101.001)2***
3. ***(10.16)​10=(1010.00101)2***

***7.What is the ​largest positive number​ one can represent in a ​12-bit 2's complement​ code? Write your result in binary and decimal?***

***(011111111111)2***

***Sol.***

***(2047)10***

***8.What are the 8-bit patterns used to represent each of the characters in the string "​CODE/THS 2019***

***​ "? (Only represent the characters between the quotation marks.) \*\*Note: There is space between THS​ and 2019.***

***C=01000011***

***O=01001111***

***D=01000100***

***E=01000101***

***/=00101111***

***T=10010100***

***H=01001000***

***S=01010011***

***=00100000***

***2=00110010***

***0=00110000***

***1=00110001***

***9=00111001***

***10. (1101)​2​ × (101)​2 .***

***111201***

***11. (1001)​2​ ÷ (101)​2.***

***9.910891089***

***12. What is the biggest binary number you can write with 5 bits?***

***00000***

***13. What is the biggest binary number you can write with n bits?***

***11111111***

***15. In hex,​ 2BFC + 54A7 ??***

***(80A3)16 ,(32931)10***

***16. If a number has ​k​ digits in hex, how many digits (bits) does it have in ​binary​?***

***4 DIGIT***

***17. Convert the binary number ​1101101111110101 to hex ?***

***(DBF5)16***

***18. Convert the hex number ​ABC7 to binary?***

***(1010101111000111)2***

***19. In hex, ​AC74 − B3F?***

***(A135)16,(41269)10***

***20. Convert the following binary fractions to ordinary fractions***

***0.1001=0.5625***

***1.0011=1.1875***

***1.1111=1.9375***

***21. The decimal expansion of ​11/17 is 0.647. ​Find the binary expansion of the fraction ​11/17.***

***0.1010***

***22. The decimal expansion of ​3/11 is 0.2727.​ Find ​the binary expansion​ of the fraction ​3/11.***

***0.0100***

***25. The following binary numbers are ​4-bit 2's complement binary numbers​. Which of the following operations generate overflow? Justify your answers by translating the operands and results into decimal.***

***0011+1100=1111***

***0111+1111=10110***

***0110+0010=1000***