CSE260 Assignment - 1

Deadline - 26th Feb, 11:59 PM

Marks : 100

Assignment must be handwritten. Scan and upload PDF in the given google form

1. Convert the following decimal number to equivalent binary numbers: **[5]**
   (a) $(4195.25)_{10}$
   (b) $(2356.54)_{10}$
   [**for infinite fractional part, just do 4 steps and use dots for the rest**]
2. Convert the following base 7 number to equivalent base 5 numbers: **[5]**
   (a) $(5412)_7$
   (b) $(434.156)_7$
3. Convert the following binary numbers to equivalent hexadecimal numbers: **[5]**
   (a) $(10110111)_2$
   (b) $(1110010011.10101000101011)_2$
4. Convert the following binary numbers to equivalent octal numbers: **[5]**
   (q) $(010110111)_2$
   (b) $(1110010011.10101000101011)_2$
5. Perform the following base conversions **[2x5 = 10]**
   (a) $(A9)_{11} = (?)_7$
   (b) $(11335)_7 = (?)_4$
   (c) $(0011)_{BCD} = (?)_5$
   (d) $(1036)_{10} = (?)_{Excess3}$
   (e) $(27841)_{10} = (?)_{Excess5}$
6. Which one of the following numbers is the largest? **[5]**
   $(101101)_2$, $(57)_8$, $(35)_{10}$, $(1F)_{16}$
7. Perform **addition**, **subtraction** and **multiplication** for the pair of following base-8 numbers. Verify your results by converting the problem into decimal. **[10]**
   $(417)_8$
   $(134)_8$
8. Perform **addition**, **subtraction** and **multiplication** for the pair of following base-16 numbers. Verify your results by converting the problem into decimal. **[10]**
   $(A3)_{16}$
   $(47)_{16}$
9. $(-12345)_{10} = (?)_{1s}$ in 16 bits **[2]**
10. $(-2)_{10} = (?)_{1s}$ in 16 bits **[2]**
11. $(10101010)_{1s} = (?)_{10}$ **[2]**

12. $(10111100)_{2s} = (?)_{10}$ **[2]**
13. $(-120)_{10} = (?)_{2s}$ in 8 bits **[2]**
14. Subtract 499 from 91 in 10 bits using 1's complement number system and justify whether there is an overflow or not. **[5]**
15. Add 211 with 312 in 10 bits using 2's complement number system and justify whether there is an overflow or not. **[10]**
16. Subtract 1 from 511 in 10 bits using 2's complement number system and justify whether there is an overflow or not. **[5]**
17. You are a computer engineer and you want to buy two 8 GB DDR4 RAMs. Each RAM costs $(1C2)_{16}$ dollars. You also want to buy a graphics card RTX4070Ti which costs $(10010110000)_2$ dollars. However, you don't have that much money with you and you are afraid to ask your parents about it. Suddenly, one of your generous friends agreed to give you the money you need. He decided to give you $(4064)_8$ dollars. How much will you have left after buying those components? **[Show the answer in decimal]** **[15]**