Computer Engineering
Western Technical-Commercial School

Name:

Date: Section:

Number Systems, Conversions, Add and Subtract Review Questions

Answer questions in sentence form neatly in the space provided. Use the related web resources to answer the questions fully. Half a mark for short points and one mark for each explanation.

1. Name the four main numbering systems and their base rate?
   a. _____
   _____

2. For each of the above numbering systems list the number/characters they represent?
   a. _____
   _____
   _____
   _____

3. Which numbering system does the computer use and why?
   a. _____

4. What is a bit, its representation, and there are _____ in a byte, _____ bytes in a kilobyte, _____ kilobytes in a megabyte, _____ megabytes in a gigabyte, _____ gigabytes in a terabyte?
   a. _____

5. Why are hex numbers more popular in computers than octal numbers?
   a. _____
   _____

6. How can you convert from binary to decimal?
   a. _____
   _____
   _____

7. Explain how you convert octal and hex from and to binary (padding?)?
   a. _____
   _____
   _____
   _____
   _____
   _____
   _____
   _____

Mark Breakdown Column

Q#	A
1	2
2	4
3	1
4	3
5	2
6	3
7	9
8	15
9	5
10	5
11	4
12	4
13	4
14	4
15	8
16	8
T=	81

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8. Fill in the following chart

Decimal	Binary	Octal	Hexadecimal
0			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Mark Breakdown Column

Q#	A
1	2
2	4
3	1
4	3
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7	9
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9	5
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11	4
12	4
13	4
14	4
15	8
16	8
T=	81

9. Convert the following from binary to decimal:

   a. 11001011 = _____

   b. 00110101 = _____

   c. 10000011 = _____

   d. 10001111 = _____

   e. 11100011 = _____

10. Convert the following from decimal to binary:

   a. 23 = _____

   b. 143 = _____

   c. 6 = _____

   d. 1 = _____

   e. 197 = _____

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11. Convert the following from binary to hexadecimal:
   a. 11001100 = _____
   b. 11110001 = _____
   c. 00110001 = _____
   d. 11000010 = _____

12. Convert the following from hexadecimal to binary:
   a. 0x45 = _____
   b. 0xFA = _____
   c. 0x5D = _____
   d. 0x99 = _____

13. Convert the following from decimal to hexadecimal:
   a. 21 = _____
   b. 9 = _____
   c. 75 = _____
   d. 188 = _____

14. Convert the following from hexadecimal to decimal:
   a. 0x5A = _____
   b. 0xCC = _____
   c. 0x97 = _____
   d. 0x40 = _____

15. Add the following binary numbers and double check with decimal (show rough work on back):
   a. 10001 + 11101 = _____
   b. 1110 + 1111 = _____
   c. 101101 + 11001 = _____
   d. 10111 + 110101 = _____

16. Subtract the following binary numbers and double check with decimal (show rough work on back):
   a. 1011011 – 10010 = _____
   b. 100010110 – 1111010 = _____
   c. 1010110 – 101010 = _____
   d. 101101 – 100111 = _____

Mark Breakdown Column

Q#	A
1	2
2	4
3	1
4	3
5	2
6	3
7	9
8	15
9	5
10	5
11	4
12	4
13	4
14	4
15	8
16	8
T=	81