Name: Id#

COE 202, Term 201

Digital Logic Design

Quiz# 1

 Date: Sunday, Sep. 13, 2020

**Question 1. Select the correct answer in each of the following questions: (10 points)**

1. Given that 1000 students are enrolled in a school. The school would like to assign an ID for each student. The number of binary bits needed to assign a unique ID code for each student and the number of remaining unused codes are:
2. 10 bits and 23 remaining unused codes
3. 10 bits and 24 remaining unused codes
4. 11 bits and 23 remaining unused codes
5. 11 bits and 24 remaining unused codes
6. The value of m that satisfies the equation  $\sum\_{n=0}^{3}(3×4^{n})=2^{m}-1$ is:
7. m=4
8. m=6
9. m=8
10. m=10
11. Given that (123)r = (83)10, then the base r is:
12. 4
13. 6
14. 8
15. 10
16. The number of bits required to represent the result of multiplying a 6-bit unsigned number by a 4-bit unsigned number is equal to:
17. 6 bits
18. 8 bits
19. 10 bits
20. 12 bits
21. Using a system with radix R=7, the operation 600-456 produces the following result:
22. 143
23. 144
24. 110
25. 111
26. In base R number system, given that (xC)R = (36)10, where x is a single digit in base R, then the proper values for x and R are:
27. x=1 and R=24
28. x=2 and R=12
29. x=3 and R=8
30. x=4 and R=6
31. The decimal number 58 is represented using excess-3 code as:
32. 1000 1000
33. 0101 1000
34. 0101 1011
35. 1000 1011
36. Assuming a number system with radix R=4 with 2 fraction digits, the largest fraction error for representing fractions using this representation is: (Note that Error=Actual Value-Represented Value)
37. 2-3
38. 2-4
39. 2-5
40. 2-6
41. Using a system with radix R=5, adding the numbers 111+444 produces the following result:
42. 1011
43. 1111
44. 1110
45. 1101
46. Assume that an alphabetic character is transmitted and the 8-bit binary code 1110 0101 is received by the receiver. Assuming that no error has occurred during transmission, then the transmitted character and the parity used are: (Note that bit 7 is the parity bit and the ASCII code for 'a' =0x61)
47. Character is 'd' and even parity
48. Character is 'd' and odd parity
49. Character is 'e' and even parity
50. Character is 'e' and odd parity