1. **The digital systems usually operate on .....system.**
   (a) Binary
   (b) Decimal
   (c) Octal
   (d) Hexadecimal.
2. **The binary system uses powers of .....for positional values.**
   (a) 2
   (b) 10
   (c) 8
   (d) 16
3. **After counting 0, 1, 10, 11, the next binary number is**
   (a) 12
   (b) 100
   (c) 101
   (d) 110
4. **The number 1000_2 is equivalent to decimal number**
   (a) One thousand
   (b) Eight
   (c) Four
   (d) Sixteen.
5. **In binary numbers, shifting the binary point one place to the right.**
   (a) Multiplies by 2
   (b) Divides by 2
   (c) Decreases by 10
   (d) Increases by 10.
6. **The binary addition 1 + 1 + 1 gives**
   (a) 111
   (b) 10
   (c) 110
   (d) 11
7. **The cumulative addition of the four binary bits (1 + 1 + 1 + 1) gives**
   (a) 1111
   (b) 111
   (c) 100
   (d) 1001
8. **The number $(12)_8$ is equivalent to decimal**
   (a) 12
   (b) 20
   (c) 10
   (d) 4
9. **The number 100101_2 is equivalent to octal**
   (a) 54
   (b) 45
   (c) 37
   (d) 25.
10. **The number $(17)_8$ is equivalent to binary**
    (a) 111
    (b) 1110
    (c) 10000
    (d) 1111.
11. **Which of the following is NOT an octal number?**
    (a) 19
    (b) 77
    (c) 15
    (d) 101
12. **The binary equivalent of $(A)_{16}$ is**
    (a) 1010
    (b) 1011
    (c) 1000
    (d) 1110.
13. **BCD code is**
    (a) Non-weighted
    (b) The same thing as binary numbers
    (c) A binary code
    (d) An alphanumeric code.
14. **Which of the following 4-bit combinations is/are invalid in the BCD code?**
    (a) 1010
    (b) 0010
    (c) 0101
    (d) 1000
15. **Octal coding involves grouping the bits in**
    (a) 5's
    (b) 7's
    (c) 4's
    (d) 3's.
16. **Which numbering system uses numbers and letters as symbols?**
    (a) Decimal
    (b) Binary
    (c) Octal
    (d) Hexadecimal
17. **To convert a whole decimal number into a hexadecimal equivalent, one should divide the decimal value by.....**
    (a) 2
    (b) 8
    (c) 10

(d) 16

18. **The parameter through which 16 distinct values can be represented is known as:**
    a) Bit
    b) Byte
    c) Nibble
    d) Word
19. **If the decimal number is a fraction then its binary equivalent is obtained by _____ the number continuously by 2.**
    a) Dividing
    b) Multiplying
    c) Adding
    d) Subtracting
20. **The binary equivalent of $(1011.011)_{10}$ is equal to**
    a) 11.375
    b) 10.123
    c) 11.175
    d) 9.234
21. **Which is typically the longest: bit, byte, nibble, word?**
    a) Bit
    b) Byte
    c) Nibble
    d) Word
22. **How many bits are in an ASCII character?**
    a) 16
    b) 8
    c) 7
    d) 4
23. **A binary number's value changes most drastically when the _____ is changed.**
    a) MSB
    b) Frequency
    c) LSB
    d) Machine cycle
24. **Find the base k of the number system, if $(543)_6=(317)_k$**
    a) 10
    b) 6
    c) 4
    d) 8
25. **The number of bits used to store a BCD digit is:**
    a) 8
    b) 4
    c) 1
    d) 2
26. **Convert the decimal number 151.75 to binary.**
    a) 10000111.11
    b) 11010011.01
    c) 00111100.00
    d) 10010111.11
27. **What is the resultant binary of the decimal problem 49 + 1 =?**
    a) 01010101
    b) 00110101
    c) 00110010
    d) 00110001

Exercises (Number Systems Conversion)

28. **Convert the following decimal numbers into binary and hexadecimal numbers:**
    a) 108
    b) 4848
    c) 9000
29. **Convert the following binary numbers into hexadecimal and decimal numbers:**
    a) 1000011000
    b) 10000000
    c) 101010101010
30. **If $(10011)_x = (631)_{10}$ then what is the value of x?**
    a) 2
    b) 8
    c) 5
    d) 4
31. **Which of the following is the base-4 representation of the decimal number 213?**
    a) 3111
    b) 1111
    c) 3133
    d) 3113
32. **If $(1101)_x = (241)_{16}$, then what is the value of x?**

a) 2
b) 4
c) 10
d) 8

33. Identify the missing digits in the following expression so that the left hand side is equal to the right hand side.
$(1010?)_2 + (?\ 7)_8 = (24)_{16}$
a) 1, 600
b) 0, 1
c) 1, 2
d) 1, 1

34. If $(12?07)_8 = (1010110000111)_2$, then what is the missing digit in $(12?07)_8$?
a) 5
b) 6
c) 4
d) 7

35. Considering 2's complement representation for negative numbers, what is the decimal equivalent of 8-bit register content 10000000?
a) -128
b) +0
c) -0
d) +128

36. What is the 15's complement of the hexadecimal number $(C00D0)_{16}$
a) 2EE3E
b) 3EE2E
c) 2FF3F
d) 3FF2F

37. What is the 10's complement of the decimal number 20100?
a) 79899
b) 79900
c) 89999
d) 79800

38. **Convert binary number into gray code: 100101**
a) 101101
b) 001110
c) 110111
d) 111001

39. **The binary representation of BCD number 00101001 is**
a) 0011101
b) 0110101
c) 1101001
d) 0101011

40. **Reflected binary code is also known as**
a) BCD code
b) Binary code
c) ASCII code
d) Gray Code

41. **Binary coded decimal is a combination of**
a) Two binary digits
b) Three binary digits
c) Four binary digits
d) None of the Mentioned

42. **The decimal number 10 is represented in its BCD form as**
a) 1010
b) 01010
c) 00010000
d) 001010

43. **Add the two BCD numbers: 1001 + 0100 =?**
a) 1101
b) 00001101
c) 00110011
d) None of the mentioned

44. **Carry out BCD subtraction for (68) – (61) using 10's complement method.**
a) 00000111
b) 01110000
c) 100000111
d) 011111000

45. **A three digit decimal number requires _____ for representation in the conventional BCD format.**
a) 3 bits
b) 6 bits
c) 12 bits
d) 24 bits

46. **The excess-3 code for 597 is given by**
    a) 100011001010
    b) 100010100111
    c) 010110010111
    d) 010110101101
47. **The decimal equivalent of the excess-3 number 110010100011.01110101 is**
    a) 970.42
    b) 1253.75
    c) 861.75
    d) None of the Mentioned
48. **2's complement of 11001011 is**
    a) 01010111
    b) 11010100
    c) 00110101
    d) 11100010
49. **1's complement of 1011101 is**
    a) 0101110
    b) 1001101
    c) 0100010
    d) 1100101
50. **On subtracting $(010110)_2$ from $(1011001)_2$ using 2's complements, we get**
    a) 01110010
    b) 11001010
    c) 01101101
    d) 01000011
51. **On addition of 28 and 18 using 2's complements, we get**
    a) 00101110
    b) 0101110
    c) 00101111
    d) 1001111
52. **On addition +38 and -20 using 2's complements, we get**
    a) 11110001
    b) 10000111
    c) 00010010
    d) 11010101
53. **On addition -46 and +28 using 2's complements, we get**
    a) 11101110
    b) 00010101
    c) 101011111
    d) 000100101
54. **The addition of -33 and -40 using 2's complements is equal to**
    a) 01001110
    b) 111010101
    c) 10110001
    d) 10110111
55. **1's complement can be easily obtained by using**
    a) Comparator
    b) Inverter
    c) Adder
    d) Subtractor
56. **$(1E.53)_{16}$ is equivalent to**
    a) $(36.68)_8$
    b) $(36.24)_8$
    c) $(35.34)_8$
    d) $(35.59)_8$
57. **$(651.124)_8$ is equivalent to**
    a) $(1A9.2A)_{16}$
    b) $(1B0.1A)_{16}$
    c) $(1A8.023)_{16}$
    d) $(1B0.289)_{16}$
58. **Convert hexadecimal to Decimal: $(1E2)_{16}$ =?**
    a) 480
    b) 483
    c) 482
    d) 484
59. **Convert $(0.345)_{10}$ in to an octal number.**
    a) $(0.1605)_8$
    b) $(0.2605)_8$
    c) $(0.1945)_8$
    d) $(0.2404)_8$
60. **Binary to decimal: $(01011.1011)_2$ =?**
    a) $(11.6875)_{10}$
    b) $(11.5874)_{10}$
    c) $(10.9876)_{10}$
    d) $(10.7893)_{10}$