

TNPSC GROUP I MAIN 2023 INFORMATION TECHNOLOGY NUMBER SYSTEM எண் அமைப்பு

1. Types of Numbers System:

- i) Decimal - Base Value - 10 (0, 1, 2, 3, 4, 5, 6, 7, 8, 9)
- ii) Binary - Base value - 2 (0, 1)
- iii) Octal - Base value - 8 (0, 1, 2, 3, 4, 5, 6, 7)
- iv) Hexadecimal - Base value - 16
(0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F)

எண்கள் அமைப்பின் வகைகள்:

- i) பதின்ம எண் - அடிப்படை மதிப்பு - 10
(0, 1, 2, 3, 4, 5, 6, 7, 8, 9)
- ii) இருநிலை எண் - அடிப்படை மதிப்பு - 2 (0,1)
- iii) எண்ணிலை எண் - அடிப்படை மதிப்பு - 8 (0,1,2,3,4,5,6,7)
- iv) பதினாறு நிலை - அடிப்படை மதிப்பு - 16
(0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F)

Decimal	Binary	Octal	Hexadecimal
0	0000	000	0000
1	0001	001	0001
2	0010	002	0002
3	0011	003	0003
4	0100	004	0004
5	0101	005	0005
6	0110	006	0006
7	0111	007	0007
8	1000	010	0008
9	1001	011	0009
10	1010	012	A
11	1011	013	B
12	1100	014	C
13	1101	015	D
14	1110	016	E
15	1111	017	F

2. Convert Binary to Decimal - $(101101)_2 = (?)_{10}$
3. Convert Binary to Decimal - $(1100011)_2 = (?)_{10}$
4. Convert Binary to Decimal - $(100011101)_2 = (?)_{10}$

5. Convert Decimal to Binary - $(41)_{10} = (?)_2$
6. Convert Decimal to Binary - $(502)_{10} = (?)_2$
7. Convert Decimal to Binary - $(241)_{10} = (?)_2$

8. Convert Binary to Octal - $(11010110)_2 - (?)_8$
9. Convert Binary to Octal - $(10010010)_2 - (?)_8$
10. Convert Binary to Octal - $(1101001001)_2 - (?)_8$

11. Convert Octal to Binary - $(6213)_8 - (?)_2$
12. Convert Octal to Binary - $(5401)_8 - (?)_2$
13. Convert Octal to Binary - $(103)_8 - (?)_2$

14. Convert Decimal to Hexadecimal - $(31)_{10} - (?)_{16}$
15. Convert Decimal to Hexadecimal - $(68)_{10} - (?)_{16}$
16. Convert Decimal to Hexadecimal - $(79)_{10} - (?)_{16}$

17. Convert Binary to Hexadecimal - $(1111010110)_2 - (?)_{16}$
18. Convert Binary to Hexadecimal - $(1001010110)_2 - (?)_{16}$
19. Convert Binary to Hexadecimal - $(1011000111)_2 - (?)_{16}$

20. Convert Hexadecimal to Decimal - $(25F)_{16} - (\quad)_{10}$
21. Convert Hexadecimal to Decimal - $(36B)_{16} - (\quad)_{10}$
22. Convert Hexadecimal to Decimal - $(D51)_{16} - (\quad)_{10}$

23. Convert Hexadecimal to Binary - $(8CA)_{16} - (\quad)_2$
24. Convert Hexadecimal to Binary - $(9BD)_{16} - (\quad)_2$
25. Convert Hexadecimal to Binary - $(6FB)_{16} - (\quad)_2$

26. Decimal fraction to Binary - $(43.167)_{10} - (\quad)_2$
27. Decimal fraction to Binary - $(213.58)_{10} - (\quad)_2$
28. Decimal fraction to Binary - $(304.71)_{10} - (\quad)_2$

- 29. Decimal fraction to Hexadecimal - $(2607.8125)_{10} - (\quad)_{16}$**
30. Decimal fraction to Hexadecimal - $(207.245)_{10} - (\quad)_{16}$
31. Decimal fraction to Hexadecimal - $(27.245)_{10} - (\quad)_{16}$

- 32. Binary fraction to Decimal - $(101.11)_2 - (\quad)_{10}$**
33. Binary fraction to Decimal - $(1110.111)_2 - (\quad)_{10}$
34. Binary fraction to Decimal - $(11011.1011)_2 - (\quad)_{10}$

- 35. Decimal fraction to Octal - $(983.27)_{10} - (\quad)_8$**
36. Decimal fraction to Octal - $(713.35)_{10} - (\quad)_8$
37. Decimal fraction to Octal - $(502.41)_{10} - (\quad)_8$

38. Binary Addition - $(1101)_2 + (1001)_2$

39. Binary Addition - $(11011)_2 + (1111)_2$

40. Binary Subtraction - $(1101)_2 - (1001)_2$

41. Binary Subtraction - $(11011)_2 - (1111)_2$

42. Binary Multiplication - $(111)_2 \times (101)_2$

43. Binary Multiplication - $(1101)_2 \times (1110)_2$

44. Find 1's complements for $(-24)_{10}$

45. Find 1's complements for $(-35)_{10}$

46. Find 2's complements for $(-24)_{10}$

47. Find 2's complements for $(-35)_{10}$

49. Perform Binary addition for the following: $23_{10} + 12_{10}$

50. Perform Binary addition for the following: $10_{10} + 15_{10}$

51. Perform Binary Subtraction for the following : $21_{10} - 5_{10}$

52. Perform Binary Subtraction for the following : $14_{10} - 12_{10}$