



**INDIAN SCHOOL DARSAIT**  
**DEPARTMENT OF ICT**



**Subject:** Computer Science    **Topic:** Data Representation and Boolean Logic    **Worksheet No:** 1

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**Date:** \_\_\_\_\_

**Name of the Student :** \_\_\_\_\_

**Class & Div:** XI A

1. Convert the following binary numbers to decimal  
(A) 1010    (B) 111010    (C) 11011    (D) 10110101
2. Convert the following decimal numbers to binary  
(A) 23    (B) 100    (C) 43    (D) 85
3. Convert the following hexadecimal numbers to binary  
(A) 7AB4    (B) BE    (C) 9F2    (D) 814
4. Convert the following binary numbers to hexadecimal  
(A) 10011011101    (B) 1010110110111    (C) 10101110.010111    (D) 1010111010
5. Convert the following hexadecimal numbers to decimal  
(A) 56.08    (B) 7CA3    (C) 356    (D) 2AF
6. Convert the following decimal numbers to hexadecimal  
(A) 206    (B) 3619    (C) 423    (D) 214
7. Convert the following octal numbers to binary  
(A) 123    (B) 3527    (C) 472    (D) 5431
8. Convert the following binary numbers to octal  
(A) 111010    (B) 10011101    (C) 100111010    (D) 011010110
9. Convert the following octal numbers to decimal  
(A) 372    (B) 24.6    (C) 65    (D) 250

10. Convert the following decimal numbers to octal  
(A) 266 (B) 125 (C) 89 (D) 320
11. Add the following binary numbers  
(A) 10110111 and 1100101  
(B) 11101.110 and 11010.011
12. Using Boolean Logic, verify using the truth table that  
(A)  $X + XY = X$  for each  $X, Y$  in  $\{0,1\}$ .  
(B)  $(X + Y)' = X' Y'$  for each  $X, Y$  in  $\{0,1\}$ .
13. Prepare a truth table/ table of combinations for the following Boolean logic expressions:  
(A)  $XYZ' + XY'$  (B)  $XY'(Z + YZ') + Z'$   
(C)  $A[(B' + C) + C']$  (D)  $X'(Y'+Z') + XY'$
14. Explain briefly the basic architecture of a computer.
15. Give examples of each of system software and application software. Explain the function of each type.
16. Why is primary memory termed as 'destructive write' memory but 'non destructive read' memory?
17. What is the difference between RAM and ROM?
18. What is the difference between compiler and interpreter?
19. How is UTF-8 encoding scheme different from UTF- 32 encoding scheme?
20. What is meant by tautology and fallacy? Prove that  $1+Y$  is a tautology and  $0.Y$  is a fallacy.
21. What are De Morgan's theorems? Verify using truth table.
22. Describe the role of operating system as a resource manager.