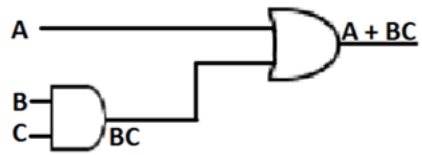


Bridge Course
Digital Logic and Computer Organization

Submission Date: 06-09-2020

1. Represent the numbers from 0 to 15 in the binary numbering system.
2. Convert the following numbers to decimal:
(a) 1110 (b) 11100 (c) 10101
3. Convert each decimal number to binary using sum-of-weights method. Verify using repeated division/multiplication by 2
(a) 15 (b) 2.8
4. Add the following binary numbers:
(a) 1000 + 0110 (b) 1001 + 1000
5. Represent each of the following in sign-magnitude, 1's complement and 2's complement forms
(a) - 68 (b) + 101
6. Determine the decimal value of the following signed number assuming them to be in sign magnitude, 1's complement and 2's complement forms
(a) 10011001 (b) 01110100 (c) 10111111
7. Perform the following operations using (1) 1's complement (2) 2's complement forms.
(a) 100 - 110000 (b) 0.1111 - 0.101
8. What is the base 10 value of hex values (a) BEEF (b) 2A
9. What is the hex and octal values of the decimals (a) 284 (b) 52
10. Convert each of the following hexadecimal numbers to binary and octal
(a) 3816 (b) A1416 (c) DEAD
11. Convert each of the following binary numbers to hexadecimal and Octal:
(a) 10111 (c) 1111110000
12. What is the maximum (unsigned) binary value that can be written if we only have 12 bits?
13. Which is the so called "weird number" in the 8 bit 2's complement form?
14. Give the range of numbers represented by n-bits for signed and unsigned numbers.

15. Write the truth table for the following circuit:



16. What is the memory capacity of a memory addressed by 32 bits?