**Arithmetic Logical Unit**

Q1. The two numbers given below are multiplied using the Booth’s algorithm.

Multiplicand: 0101 1010 1110 1110 Multiplier: 0111 0111 1011 1101

How many additions/Subtractions are required for the multiplication of the above two numbers?

(A) 6  
(B) 8  
(C) 10  
(D) 12

Ans: (B)

Q2. When multiplicand Y is multiplied by multiplier X = xn – 1xn-2 ….x0 using bit-pair recoding in Booth’s algorithm, partial products are generated according to the following table.

Table

Description automatically generated

The partial products for rows 5 and 8 are  
(A) 2Y and Y  
(B) -2Y and 2Y  
(C) -2Y and 0  
(D) 0 and Y

Ans: C

Q3. Using Booth’s Algorithm for multiplication, the multiplier -57 will be recoded as

(A) 0 -1 0 0 1 0 0 -1  
(B) 1 1 0 0 0 1 1 1  
(C) 0 -1 0 0 1 0 0 0  
(D) 0 1 0 0 -1 0 0 1

**Answer:** **(A)**

Q4. Booth’s algorithm for integer multiplication gives worst performance when the multiplier pattern is

(A) 101010 ………1010

(B) 100000 ………0001

(C) 111111 ………1111

(D) 011111 ………1110

**Answer:** **(A)**

5) Which of the following is used for binary multiplication?

a) Restoring Multiplication  
b) Booth’s Algorithm  
c) Pascal’s Rule  
d) Digit-by-digit multiplication

Answer: b

6) One extra bit is added on the left of a binary number, in case of Binary Multiplication using Booth’s Algorithm.

a) True  
b) False

Answer: a

7) The binary number obtained after applying RSC on 11010 will be \_\_\_\_\_\_\_\_\_\_\_

a) 11101  
b) 10100  
c) 01101  
d) 01000

Answer: c

8) The result of >> of 11001 by 3-bits will be \_\_\_\_\_\_\_\_\_\_\_\_\_\_

a) 01000  
b) 01111  
c) 00011  
d) 11111

Answer: a

9) Booth’s Algorithm is applied on \_\_\_\_\_\_\_\_\_\_\_\_\_

a) decimal numbers  
b) binary numbers  
c) hexadecimal numbers  
d) octal Numbers

Answer: b

10) If Booth’s Multiplication is performed on the numbers 22\*3, then what is 3 referred to as \_\_\_\_\_\_\_\_\_\_

a) accumulator  
b) multiplicand  
c) quotient  
d) multiplier

Answer: d

11) What is the default value of accumulator in booth’s multiplication of two 4-bit binary numbers?

a) 0  
b) 1  
c) 0000  
d) 00000

Answer: d

12) What is the value of n in multiplication of 110\* 1000?

a) 2  
b) 3  
c) 4  
d) 0

Answer: a

13) What will be the value obtained after multiplication of (-2) \* (-3) using Booth’s Algorithm?

a) 6  
b) -6  
c) -2  
d) -3

Answer: a