Q: Write a procedure to perform addition of two binary n-bit vectors. Note that the input parameter list specifies two n- bit vectors, initial carry, the size of bit vector ‘n’. If the n+1 bit addition result is even parity (has even number of 1), then the output **ODD\_PARITY** = 0.

PROCEDURE add (A, B: IN BIT\_VECTOR; CIN: IN BIT; n: IN POSITIVE;  
SUM: OUT BIT\_VECTOR; COUT: OUT BIT; ODD\_PARITY: OUT BIT) IS

**VARIABLE TEMP\_SUM, TEMP\_A, TEMP\_B: BIT\_VECTOR;   
VARIABLE TEMP\_CARRY: BIT;  
VARIABLE TEMP\_ODD\_PARITY: BIT:’0’;**

BEGIN

**TEMP\_A := A;  
TEMP\_B := B;   
TEMP\_CARRY := CIN;   
  
FOR i IN 0 TO n-1 LOOP**

**TEMP\_SUM(i) := TEMP\_A(i) XOR TEMP\_B(i) XOR TEMP\_CARRY; TEMP\_CARRY := (TEMP\_A(i) AND TEMP\_B(i)) OR (TEMP\_A(i) AND**

**TEMP\_CARRY) OR (TEMP\_B(i) AND TEMP\_CARRY);**

**END LOOP;**

**COUT := TEMP\_CARRY;   
SUM := TEMP\_SUM;**

**FOR i IN 0 TO n-1 LOOP**

**TEMP\_ODD\_PARITY := TEMP\_ODD\_PARITY XOR TEMP\_SUM(i);**

**END LOOP;**

**TEMP\_ODD\_PARITY := TEMP\_ODD\_PARITY XOR TEMP\_CARRY; ODD\_PARITY := NOT TEMP\_ODD\_PARITY;**

END add;