

Draw the logic gate(තාර්කික ද්වාර) for Boolean Statement(බුලිය ප්‍රකාශනය) ?

(a)  $X = A B C + \overline{A} B + A B \overline{C}$

(b)  $X = \overline{A} B \overline{C} + A \overline{B} \overline{C} + \overline{A} \overline{B} \overline{C} + \overline{A} \overline{B} C$

(c)  $AB + \overline{A} C + B C = AB + \overline{A} C$

(d)  $(A + B)(\overline{A} + C)(B + C) = (A + B)(\overline{A} + C)$

(i)  $XYZ + \overline{X} \overline{Y} \overline{Z}$

(ii)  $ABC + A \overline{B} \overline{C} + \overline{A} \overline{B} \overline{C}$

(iii)  $(A + D)(B + C)$

(iv)  $(A + B)(A + C)(\overline{A} + \overline{B})$

(v)  $AB + \overline{A} \overline{B}$

Write the boolean statement (බුලිය ප්‍රකාශනය) for the following logic gates (තාර්කික ද්වාරය)

1)

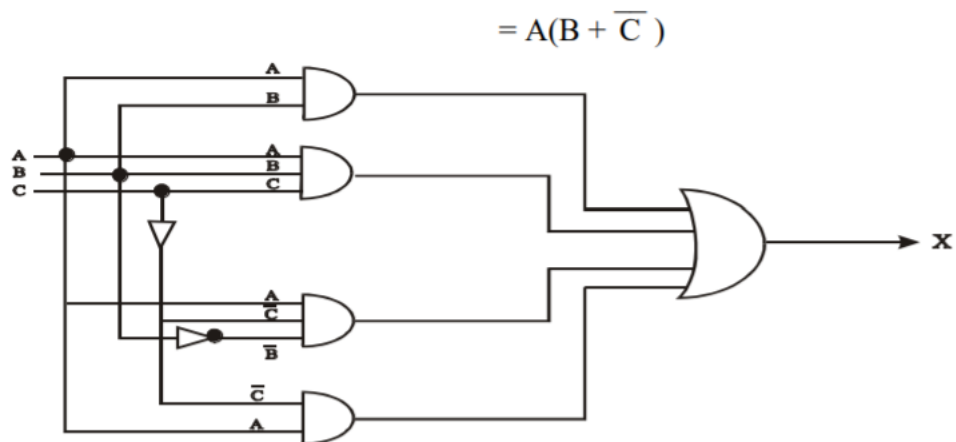
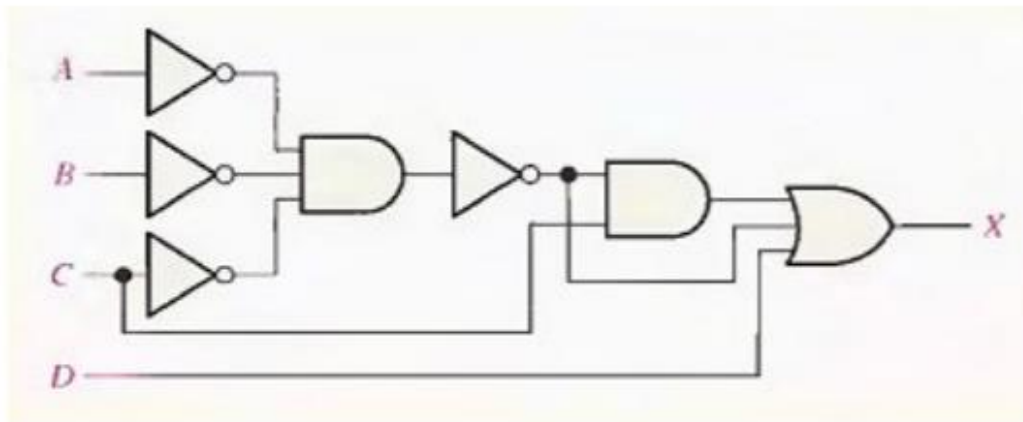
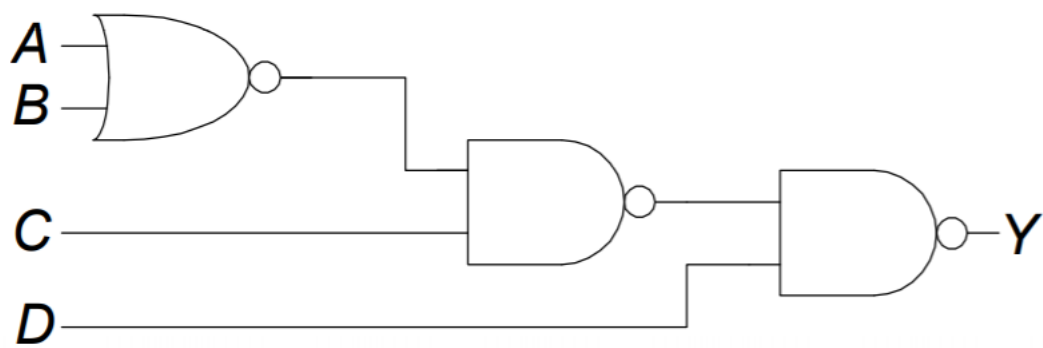


FIG. 12

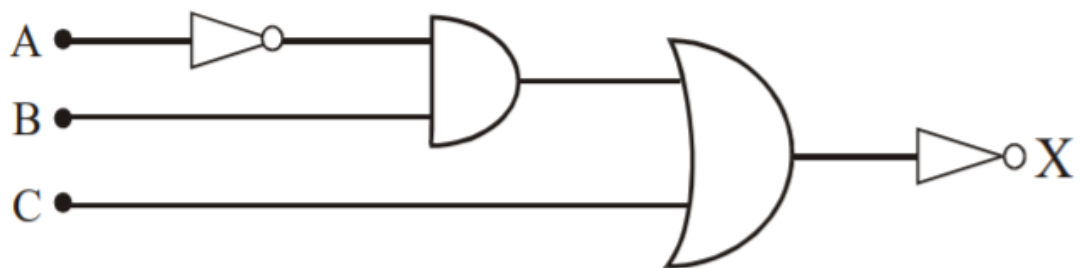
2)



3)



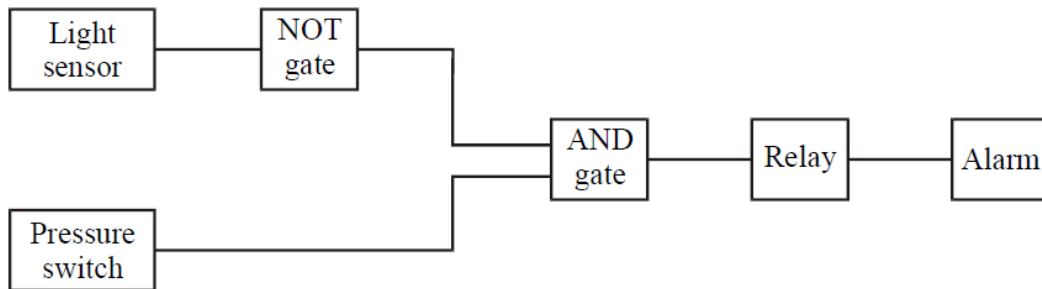
4)



**Fig.10**

This is a block diagram for an electronic system which switches on a security alarm if a burglar approaches a safe at night.

මෙය ඉලෙක්ට්‍රොනික පද්දතිය ආකෘතියක් වේ. රාත්‍රී කාලයේදී සොරෙක් ගෙට ඇතුළු වෙන විට මෙම ඉලෙක්ට්‍රොනික පද්දතියෙන් අනතුරු සබ්දයක් නිකුත් වේ.



Name

(i) the input(ආදාන) sensors.....

(ii) the parts of the processor .....

(iii) the output(ප්‍රතිදාන) device .....

(b) Complete the truth tables for the NOT and AND gates used in the circuit above.

NOT	
Input	Output
0	
1	

AND		
Input 1	Input 2	Output
0	0	
0	1	
1	0	
1	1	

1) Convert the follow hexadecimal numbers to decimal representation

- a)  $AA_{16}$
- b)  $76D_{16}$
- c)  $D8E_{16}$
- d)  $55BC_{16}$
- e)  $CEF_{16}$

2) Convert the follow hexadecimal numbers to octal representation

- a)  $A4A_{16}$
- b)  $716D_{16}$
- c)  $D18E_{16}$
- d)  $553BC_{16}$
- e)  $CE34F_{16}$

3) Convert the follow octal numbers to hexadecimal representation

- a)  $46_8$
- b)  $322_8$
- c)  $516_8$
- d)  $2008_8$
- e)  $18653_8$

Perform the following number system conversions:

- |                             |                         |
|-----------------------------|-------------------------|
| (a) $1101011_2 = ?_{16}$    | (b) $174003_8 = ?_2$    |
| (c) $10110111_2 = ?_{16}$   | (d) $67.24_8 = ?_2$     |
| (e) $10100.1101_2 = ?_{16}$ | (f) $F3A5_{16} = ?_2$   |
| (g) $11011001_2 = ?_8$      | (h) $AB3D_{16} = ?_2$   |
| (i) $101111.0111_2 = ?_8$   | (j) $15C.38_{16} = ?_2$ |

Convert the following octal numbers into binary and hexadecimal:

- |                                |                                   |
|--------------------------------|-----------------------------------|
| (a) $1234_8 = ?_2 = ?_{16}$    | (b) $174637_8 = ?_2 = ?_{16}$     |
| (c) $365517_8 = ?_2 = ?_{16}$  | (d) $2535321_8 = ?_2 = ?_{16}$    |
| (e) $7436.11_8 = ?_2 = ?_{16}$ | (f) $45316.7414_8 = ?_2 = ?_{16}$ |