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## DSO

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Sec : B

## Ans. to the Question-No-1

8 Arithmatic operation, 4 logical operation

## Ans. to the Question - No-2

expected form of $x$ and $y$ is given below:

| Cin | operation | $x$ | $y$ |
|---|---|---|---|
| 0 | $A + B'$ | $A$ | $B'$ |
| 1 | $A + B' + 1$ | $A$ | $B'$ |

Ans. to the Question - No - 4

a) If A = all 1's

And a Cin is all $C_{in} = 1$

Then after the arithmatic operation $C_{out} = 1$

b) $F = A - B$

$\quad = A + \bar{B} + 1$

$\quad = A + 2^n - \cancel{1} - B + \cancel{1} \geqslant 2^n$

$\quad = A - B \geqslant 2^n$

## Ans. to the Question-No - 5

1 register is needed

## Ans. to the Question-No - 6

Excitation table of JK flip-flop is given below:

| Outputs | | Inputs | |
|---|---|---|---|
| $Q_n$ | $Q_{n+1}$ | J | K |
| 0 | 0 | 0 | X |
| 0 | 1 | 1 | X |
| 1 | 0 | X | 1 |
| 1 | 1 | X | 0 |

Ans. to the Question-No-7

Expected combinational Circuit :

For clear : $J - k = 0, 1$

$$JA_i = 0$$

$$kA_i = P_2$$

## Ans. to the Question-No-8

| Current A_i | B_i | BO_i | Next A_i | BO_{i+1} | JA_i | kA_i |
|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | X |
| 0 | 0 | 1 | 1 | 1 | 1 | X |
| 0 | 1 | 0 | 1 | 1 | 1 | X |
| 0 | 1 | 1 | 0 | 1 | 0 | X |
| 1 | 0 | 0 | 1 | 0 | X | 0 |
| 1 | 0 | 1 | 0 | 0 | X | 1 |
| 1 | 1 | 0 | 0 | D | X | 1 |
| 1 | 1 | 1 | 1 | 1 | X | 0 |



| $A_i$ \ $B_i B_{0i}$ | 00 | 01 | 11 | 10 |
|---|---|---|---|---|
| 0 | 0 | 1 | 0 | 1 |
| 1 | X | X | X | X |

$$JA_i = A_i + B_i B_{0i} + \overline{B_i} B_{0i}$$