Q1 what is Computer Architecture mention its types?

Ans→ Computer Architecture is concerned with the structure and behaviour of the computer as seen by the user.

Types of are

a) Von-neumann Architecture

b) Harvand Architecture

Q2 Compare Von Neuman and Harvard Architecture

Ans→

Von-Neumann Architecture	Harvard Architecture
a) Single memory will be shared by both data and program	seperate memories are used by data and program
b) Two sets of clock cycle required	single set of clock cycle required
c) pipe lining is not possible	pipe lining is possible
d) simple in design	complex in design
e) Requires less space	Requires more space

3. Explain half adder and full adder with an neat diagram?

→ Half adder is a combinational circuited designed to add two single bit numbers. It consits of 2 inputs and 2 outputs (sum and carry).
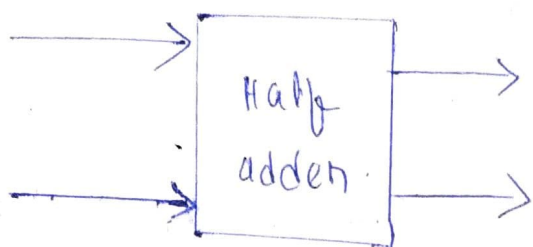
Input		Output	
A	B	S	C
0	0	0	0
0	1	1	0
1	0	1	0
1	1	0	1
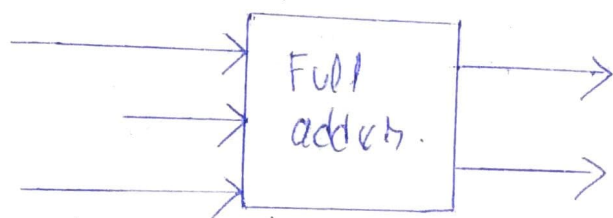
Input			Output	
A	B	Cin	S	Cat
0	0	0	0	0
0	0	1	1	0
0	1	0	1	0
1	0	1	0	1
1	1	0	1	0
1	1	1	1	1

8. What is K-map? Simplify $F(ABCD)$.

$\Sigma m(13, 7, 11, 15) + \Sigma d(6, 2, 5)$

$\rightarrow$ K-map is a method which provides a simple straight. This method is a pictorial arrangement of the truth table which allows an easy interpretation for choosing the minimum number of terms needed to express function algebrically.

$Y = CD = \bar{A}\bar{B} + \bar{A}D$

$= A(\bar{B} + BD) + CD$

$= D(\bar{C} + \bar{A}) + \bar{A}B$

5) Define : a) Bidirectional Register.
   b) multiplexer.
   c) Demultiplexer.
   d) Encoder
   e) Decoder.

→ a Bidirectional Register :- There are the register which are capable of shifting the data either right or left depending on the mode selected. If mode = 1, data will be shifted towards right and if mode = 0, data will be shifted towards left direction.

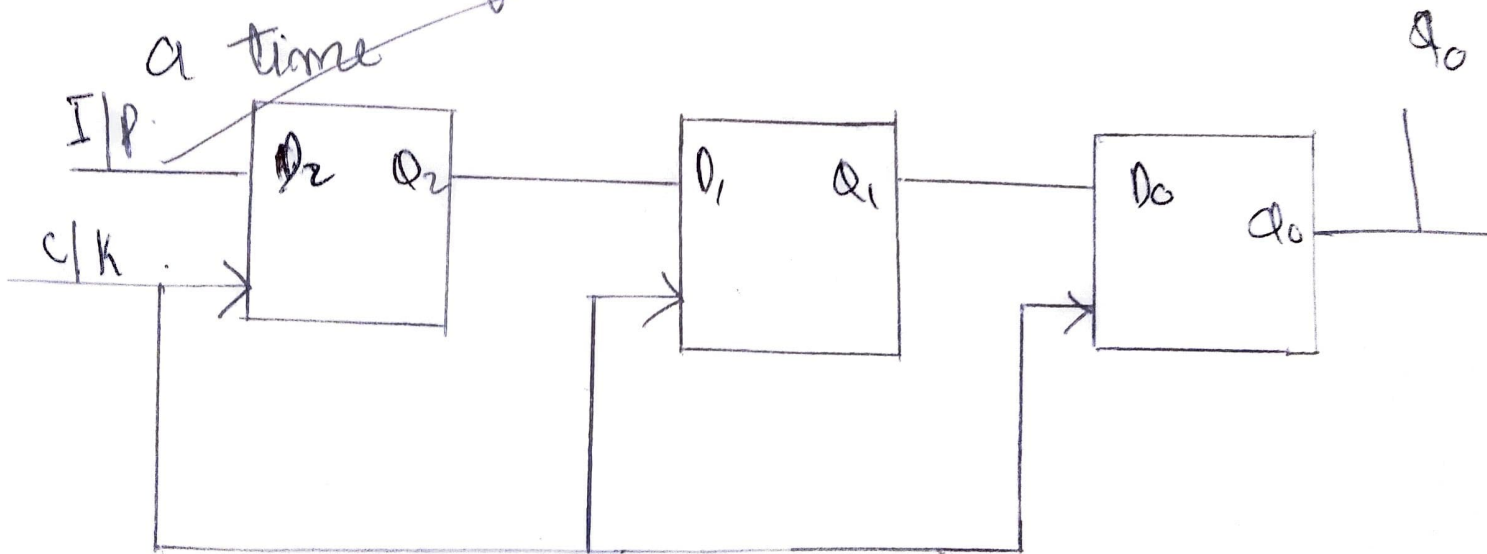There are four types of shift register

a) Serial in Parallel out

The register is loaded with serial data, one bit at a time the stored data being available in parallel form.
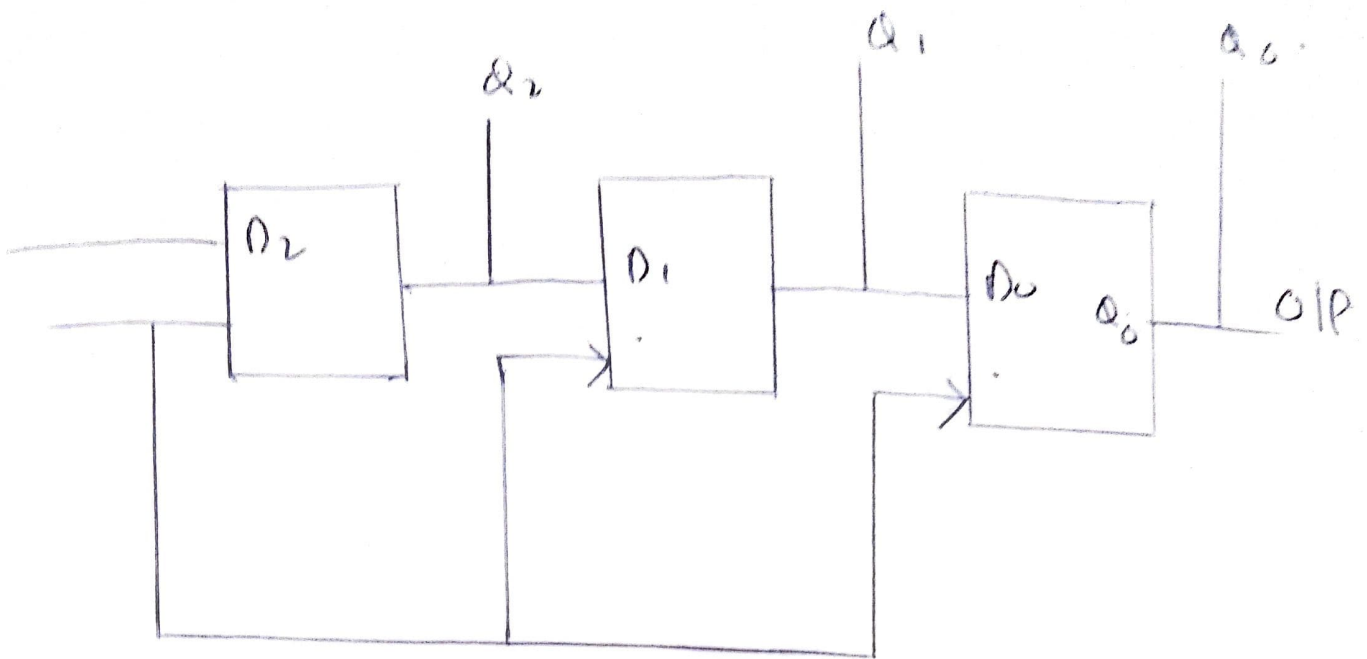
SIPO Shift Register

b) Serial in serial out

The data is shifted or loaded serially in and out of the register or one bit at a time

SISO shift Regin