Class B.tech 3rd yr (ECE)
Subt ADDV
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Topic : Register

Register : To increase the storage capacity in terms of number of bit we have used a group of flip flop. Such a group of flip flops is known as a register.

* Thus register is a group of flip flops. The "n-bit" register will consists of "n" number of flip flop and it is capable of storing an 'n-bit' word.

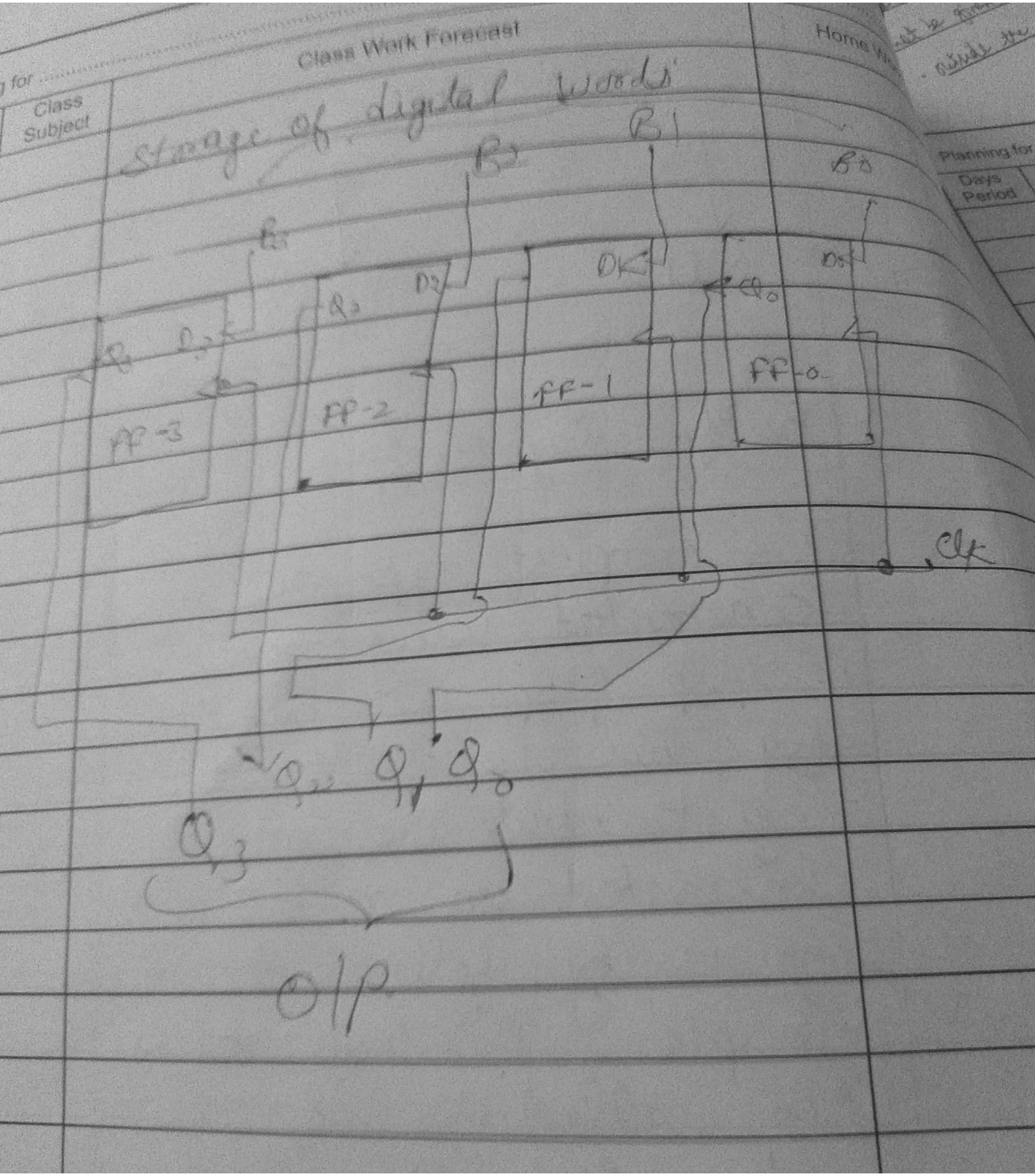
Registers

SISO SIPO PISO PIPO

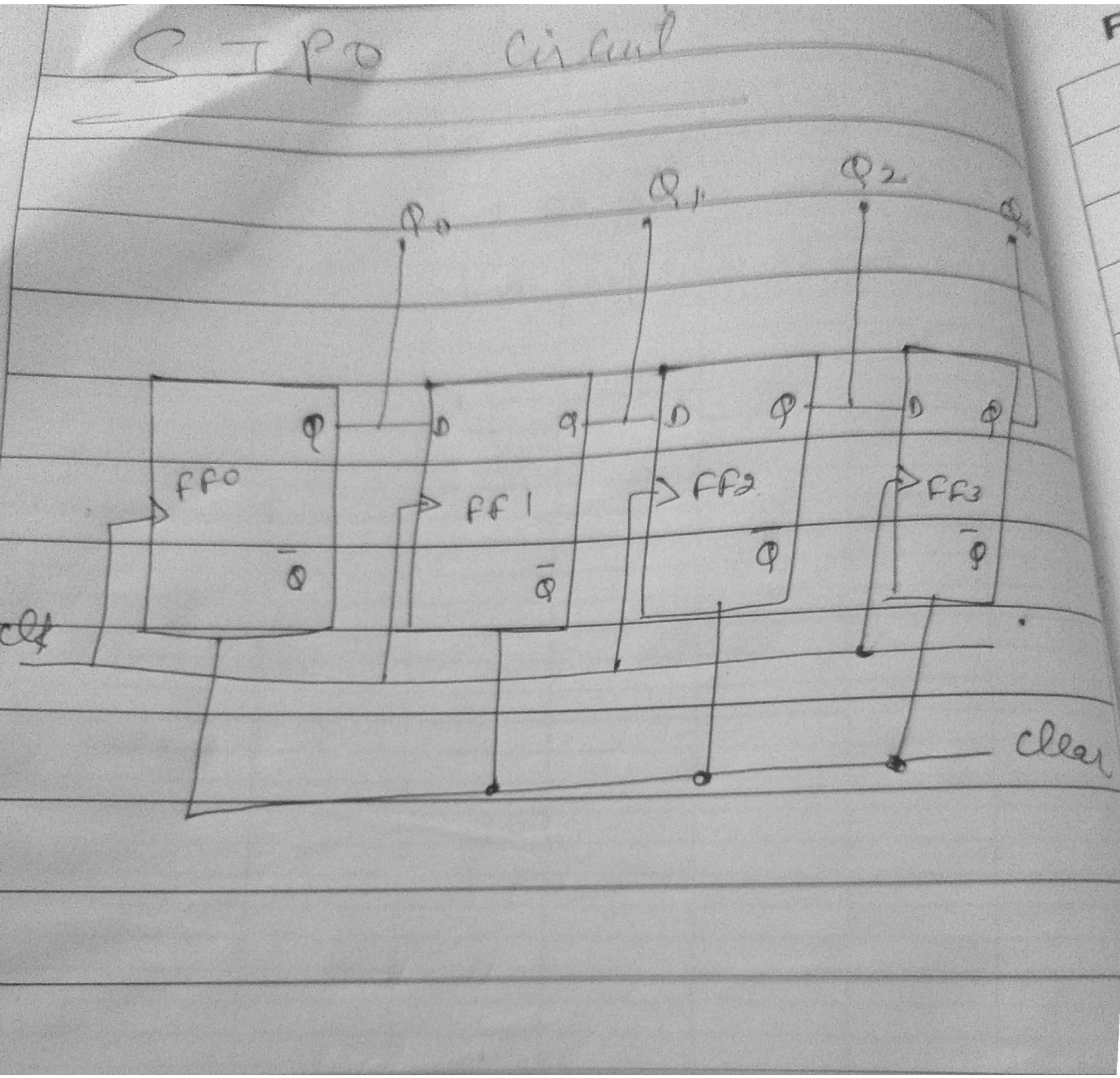
Buffer Registers :-

The simplest type of register constructed using four D-flip flops is shown in fig. This is a 4-bit register, but we can constructed an n-bit register by following the same principle. This register is also called as the buffer Register.

* In other words the Buffer Register are used for temporary.



SIPO Circuit



VHDL Code for SIPO

```
library ieee;
use ieee.std_logic_1164.all;
entity Sipo is
port (clk, clear : in std_logic;
Input_data : in std_logic;
Q : out std_logic_vector (3 downto 0));
end Sipo;
Architecture behaviour of Sipo is
begin
process (clk).
begin
if clear = '1' then
Q <= "0000";
```

```
elsif ( clk'event and clk = '1' )
  Q(3 downto 1) <= Q(2 downto 0);
  Q(0) <= Input_Data;
 end if;
end process;
end behaviour;
```