Mostafa Nasser Mahmoud Abdelmoneim
Id: 202018241

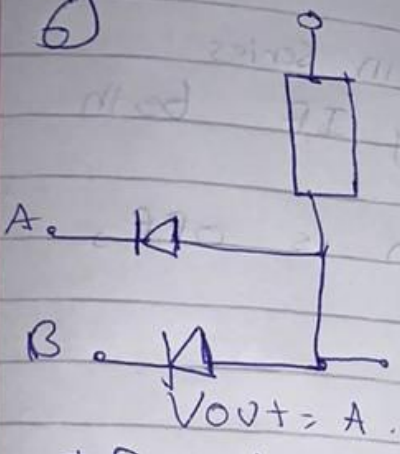
Sheet 8:

Transistor AND Gate.

9). The two transistors are in Series
- The output is High only IF both A and B are High
- If one transistor, or both is off, output = 0 (low)

10) Transistor OR gate
- The output Vout (Q) is High if one or both transistors are ON, IE When A or B or Both are High. The output is Zero only if the transistors are OFF (A = B = 0), in this case no current flows in Emitter resistance and Vout = 0

6)



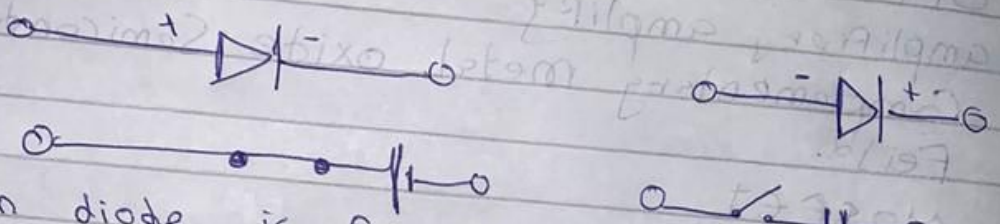
If and diode is Connected to low Voltage (0) is forward biasses and Vout = 0 The output is High only if the inputs to the two diodes are High and ~~both~~ both diodes are reverse biased , in this Case no Current flows in R and output = 5V (High).

7) When Vin = 0 (Low) Transistor Cutt-off and Vout = Vcc (High) (switch off) when vin >= 0.7 v (High) transiston in saturation , and Vout = 0 (Low)(switch is on)

8) If input is low, transistors is off then output is high and vice versa output is the complement (inverse) of the input

Sheet B

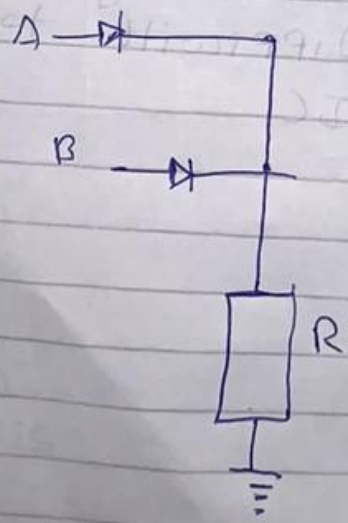
1) digital, finite, binary
2) False
3) Forward, Reverse
4)



When diode is forward biased switch is Closed (ON), when diode is reverse biased switch is open (OFF).

5) OR GATE $V_{out} = A + B$

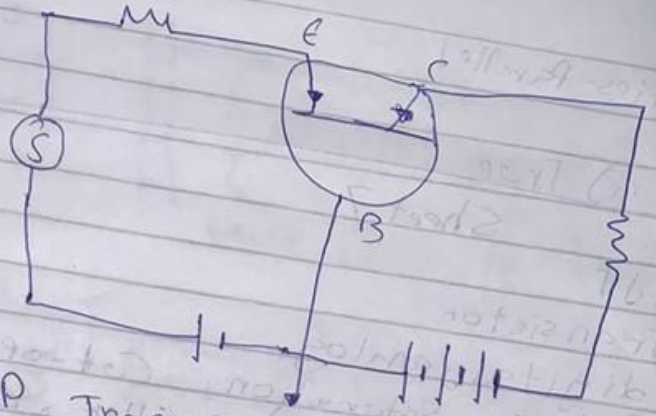
If A is High or Both A and B are High the output is High, since diodes are Forward biased and act as Closed switches



13) Small
14) Transistor
15) OFF, on
16) OFF
17) amplifier, amplify
18) Complementary metal oxide Semiconductor
19) Feild
20) MOSFET
21) Advantage
22)

FET	BJT
- uni polar device	- Bi polar device
- Voltage controlled device	- Current controlled device
- High input impedance	- low input impedance
- Better thermal stability	- low thermal stability
- High switching speeds	- lower switching speed
- Less Noisy	- More noisy
- Easy to fabricate	- Difficult to fabricate on IC

11)



- In PNP Transistor, Base - Emitter is forward biased, and Base - Collector is reverse biased
- The Base is common between input and outpout
- No Current gain (Ic is less than De) but there is a voltage gain

12)

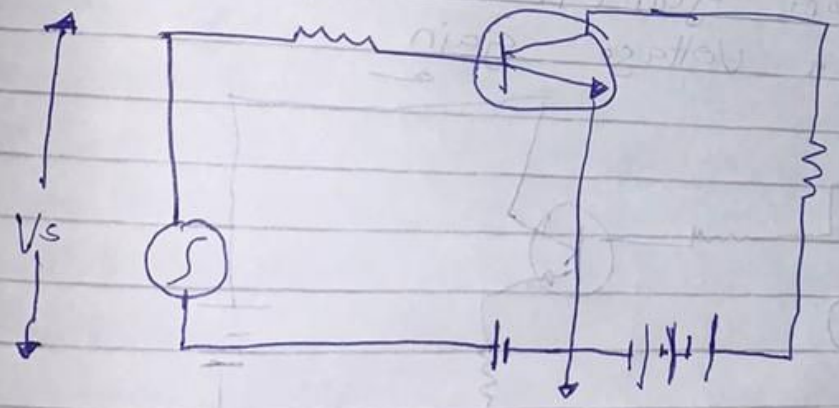
- Collector is common between input and outpout
- Vout = Vin So Called emitter follower
- There is Current gain but no voltage gain
- Input impedance is high and outpout impedance is low

27) Series- Parallel

28) a) True

Sheet 7

1) BJT
2) Transiston
3) digital, analog
4) Active Saturation, Cut-off
5) ~~Base, Collector~~ Emitter, Base, Collector
6) Current
7) Voltage
8) Voltage
9) Voltage
10)



In the common emitter configuration the input signal is applied between the base and emmiter while the output is taken between to collector and the emitter