BASIC GATES

EXPLANATION:

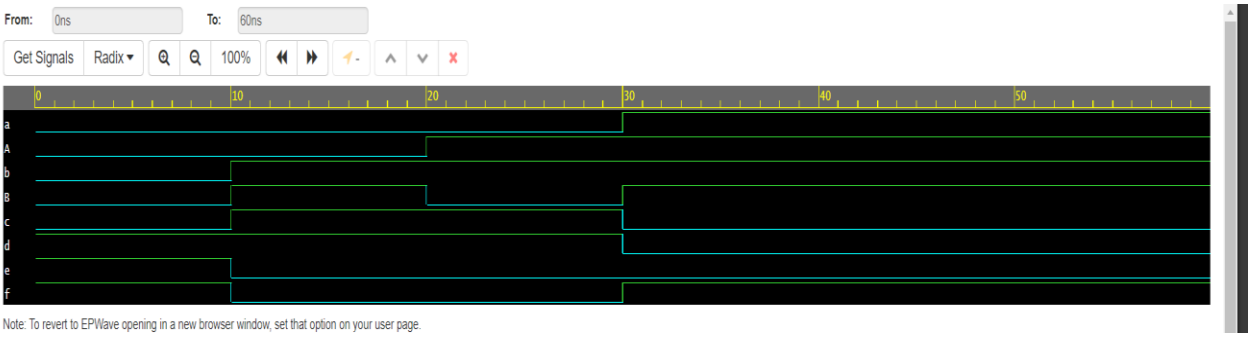
- AND GATE : whose output goes HIGH to a logic level 1 only when all of its inputs are HIGH
- OR GATE : whose output goes HIGH to a logic level 1 only when one or more of its inputs are HIGH
- NOT GATE : It is the most basic of all the logical gates and is often referred to as an Inverting Buffer or simply an Inverter
- NAND GATE: The output of the NAND gate is always at logic 1 and only goes to logic 0 when all the inputs to the NAND gate are at logic 1
- NOR GATE : Any one of the input is low ,output is high
- XOR GATE: odd number of inputs is high output is high
- XNOR GATE:Even number of inputs is high output is high

RTL CODE:

```
module gates(a,b,c,d,e,f,A,B);
  output a,b,c,d,e,f;
  input A,B;
  assign a=A&B;
  assign b=A|B;
  assign c=A^B;
  assign d=~(A&B);
  assign e=~(A|B);
  assign f=~(A^B);
endmodule
```

TEST BENCH:

```
module test_best;
  reg A,B;
  wire a,b,c,d,e,f;
  gates a1(a,b,c,d,e,f,A,B);
  initial
    begin
      $dumpfile("dump.vcd");
      $dumpvars(1);
    end
  initial
    begin
      A=0;B=0;
    end
  initial
    begin
      #10 A=0;B=1;
      #10 A=1;B=0;
      #10 A=1;B=1;
    end
  initial
    begin
      #60 $finish();
    end
endmodule
```



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