1. What are the different design options for Integrated Circuits? Compare them.
2. In a declaration reg [0:7] A, B; Which of the following is correct
   a. Both A and B are 8 bit, A[0] and B[0] is MSB ✔
   b. Both A and B are 8 bit, A[7] and B[7] is MSB
   c. A is 8 bit with A[0] as MSB, whereas B is a single bit
   d. None of the above

3. Write the following steps in correct order   **F--B--E--C--G--D--A**
   a. Post synthesis simulation
   b. Logic optimization
   c. Placement
   d. Routing
   e. Floor-planning
   f. HDL simulation
   g. Clock tree synthesis

4. Describe the FPGA design flow and Semicustom IC designflow.

5. Verilog is used for
   a. Hardware description ✔
   b. Hardware verification
   c. software description
   d. software verification

6. Which of the followings are not a keyword in Verilog 95?
   a. module
   b. always
   c. assign
   d. process
   e. entity ✔
   f. architecture ✔

7. In Verilog simulator infers, x when, it identifies:
   a. Signal is Uninitialized
   b. Conflicting drivers to a wire ✔
   c. Undefined behavior
   d. All the above

8. In Verilog, the equivalent binary of number-8'd6 is
   a. 11111010
   b. 00000110 ✔
   c. 11111001
   d. d.01111001

9. Which of the following statements are wrong
    a. A wire can hold values even after connectionis removed ✓
    b. Wire is default Net type for all signals
    c. Reg can hold values even after connection is removed
    d. The default value of reg data type is "x"

10. In Verilog, the two statements C_IN = A; and c_in = A;are equivalent .
    a. True
    b. False ✓

1. Ans (a)Full Custom Design:

Full custom design involves creating a circuit from scratch, designing every transistor and interconnection based on the specific requirements of the application.

Advantages:
High performance: Optimal transistor placement and sizing for specific functions.
Lower power consumption: Tailored designs for power efficiency.

Limitations:
Time-consuming: Designing from the ground up can be a lengthy process.
Expensive: Customization increases manufacturing costs.

(b)Semi-Custom Design:

Semi-custom design involves using predefined building blocks or standard cells while allowing customization of specific parts of the circuit.

Advantages:
Faster time to market: Standard cells reduce design time.
Cost-effective: Standardized components can be mass-produced, reducing manufacturing costs.

Limitations:
Less flexibility: Customization is limited to specific parts of the circuit.
Performance may not be as optimized as full custom.

(c)Programmable Logic Devices (PLDs):

PLDs are a type of IC where the functionality can be programmed or configured by the user after manufacturing. Examples include Field-Programmable Gate Arrays (FPGAs).

Advantages:
Flexibility: Can be reprogrammed for different functions after manufacturing.
Rapid prototyping: Accelerates the development cycle.

Limitations:
Lower performance: Generally not as fast as full custom designs.
Higher power consumption: Configurability comes at the cost of increased power usage.