Name: _____

1. Why are field-programmable logic devices so cost-effective for small-volume designs, but
    much less cost-effective than standard-cell based chips for high-volume designs? (15 points)

2. Briefly describe the difference between a D flip-flop and T flip-flop. (15 points)

3. How are the various components of a CMOS transistor, such as the diffusion regions that form the source and drain, "drawn" on the transistor? (10 points)

4. Explain how the Waveform Editor and the Simulator in the Altera MAX+PLUS II tools are designed to work together. (15 points)

5. Suppose you are trying to choose between the Actel ACT 1 family and the Xilinx 4000 family. What types of designs would be best suited for each of these families of devices, and why? (15 points)

6. The Altera UP1 Education Board contains an Altera MAX 7128 and an Altera FLEX 10k20. Distinguish between these two devices in terms of their capabilities on the UP1 board and their internal architecture (programming method, cell organization, routing, etc.). (30 points)