

**Q3. (a)** Xilinx XC4000 contains three function generators, F, G and H. F and G are 4-input function generators and H-is a three input function generator. Give an example of a 9-input function that cannot be implemented using XC4000 device. Justify. Can you generalize using your answer the class of functions that cannot be implemented using XC4000. [5]

**(b)** Computations are implemented either in hardware or software. Give examples of some devices for each domain. What are the important characteristics of both these domains that help the designer choose between the two? Where does FPGA fit in? What do you understand by the terms: Spatial and Temporal Computing? Say, you need to implement the following function using spatial and temporal computing. Show the implementation for both.

$$F = 0.50 * X + 0.25 * Y + 0.25 * Z \quad [6]$$