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Roll No

MEVD-301(B)**M.E./M.Tech., III Semester**

Examination, December 2017

System On Chip (SOC) Design**(Elective-IV)***Time : Three Hours**Maximum Marks : 70*

- Note:** i) Attempt any five questions only.
 ii) Each question contains equal marks i.e. [14].
 iii) Assume necessary suitable data.

1. a) What are the various Methodologies of FPGA? Explain the same with neat diagram.
 b) Explain One Time Programmable (OTP) based FPGA. Explain its basic programming elements.
2. a) Explain in detail about FPGA based system design.
 b) Why SRAM based FPGAs are popular as compared to other types and explain?
3. a) What is the Internal Architecture of FPGA and define LUT?
 b) What are the key parameters to be considered while designing a logic circuit?

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4. a) How design parameters are interrelated to each other and how to optimize the circuit for higher performance?
 b) With a neat flowchart, explain the high level verification for a SoC device?
5. a) What are the fundamental issues in hardware-software co design?
 b) Draw the structure of a sequential A.L.U and explain the functioning.
6. a) Draw the diagram for a 4-stage floating point adder. Explain its operation.
 b) Design architecture for brown multiplier whose multiplicand and multiplier is 4x4.
7. a) Describe the programming model of ARM processor.
 b) Explain how memory is organised in ARM processor. Explain address mapping techniques used in cache memory.
8. a) Describe the operations carried out by the different data processing instructions in ARM processor.
 b) Explain the whole process of simulation, synthesis on FPGA development board with suitable example.

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