Question Paper

Exam Date & Time: 29-Nov-2018 (10:00 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

SCHOOL OF INFORMATION SCIENCES

FIRST SEMESTER MASTER OF ENGINEERING - ME (VLSI DESIGN)

System on Chip Design [EDA 615.5]

Marks: 100 **Duration: 180 mins.**

END SEMESTER DEGREE EXAMINATION NOVEMBER 2018

Answer all the questions.

1) What is the fundamental design decision in System on Chip design process? Mention the advantages of hardware and software implementations.Explain the programmability and performance in SOC design with help of a graph. (10)

2) Describe the abstraction levels in System on Chip design? How they are useful at different phases of an application implementation? (10)

3) Explain Partitioning and Post-partitioning analysis & debug in an Electronic System Level Flow. (10)

4) What are the four design principles in SoC? Explain them briefly. (10)

5) What are vector strides? Describe a vector functional unit. Give the timing of below instructions with 2 read ports.
VADD V3, V2, V1
VADD V6, V4, V5 (10)

6) What is out of order execution? Describe various methods in managing them. (10)

7) What is scratch pad and cache memory? List the performance factors of a cache memory. (10)

8) A system has following specifications:
Virtual address space = 64K, Memory size = 8K, Page size = 1024 words, Secondary memory address = 24 bits
a) Design a mapping scheme for translating virtual address to real address
b) Find out the physical address for the corresponding (10)

virtual addresses
i) 4784 ii) 32782 iii) 56692

9) Explain the basic microprocessor bus architecture components. (10)

10) Explain the dimensions of the synchronization problem in hardware software interfaces. (10)

-----End-----