B. Tech. Sem - VIII (Electronics) (2014 COURSE) (CBCS) : SUMMER - 2019

SUBJECT : ELECTIVE – II : SYSTEM ON CHIP (SOC)

Day : Thursday
Date : 30/05/2019

S-2019-2905

Time : 02.30 PM TO 05.30 PM
Max. Marks : 60

N. B. :

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Draw neat and labeled diagram **WHEREVER** necessary.
4) Assume suitable data, if necessary.

Q. 1 What are the fundamental trends in SOC design? **(10)**

OR

Q. 1 a) Draw and explain SOC design flow. **(05)**

b) State the characteristics of typical deep submicron integrated circuit design. Illustrate the challenges faced by SOC design team. **(05)**

Q. 2 Draw and explain the Hardware System Structure with reference to SOC design **(10)**

OR

Q. 2 a) Describe various hardware trends in hardware design. **(05)**

b) Explain following issues in SOC design: **(05)**
i) Changing Market Trends
ii) Risk, cost and delay in Design and Verification.

Q. 3 What are the basics of Processor-Centric SOC architecture? Explain in brief: Basic processor generation flow. **(10)**

OR

Q. 3 a) Write down the six key characteristics of processor memory system which are addressed by memory systems and configurability. **(05)**

b) Write essentials of SOC design methodology. **(05)**

Q. 4 Define the complex SOC system architecture opportunities and explain them in detail. **(10)**

OR

Q. 4 Explain major decisions in Processor-Centric SOC organization. **(10)**

Q. 5 Describe in detail: Pipelining for processor performance. **(10)**

OR

Q. 5 Explain issues with memory system considering following: **(10)**
i) Pipelining with multiple memory ports
ii) Memory alignment in SIMD instruction.

Q. 6 Describe the limitations of general purpose processors and SOC design transition with reference to SOC. **(10)**

OR

Q. 6 What are the future applications of complex SOCs? **(10)**

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