Total No. of Questions : 8]

SEAT No. :

P3415

[Total No. of Pages : 2

[4660] - 1198

M.E. (E & TC) (VLSI & Embedded Systems) (Semester - II)

SYSTEM ON CHIP

(2013 Pattern)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Attempt any five questions.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***All questions carry equal marks.***
5) ***Assume suitable data, if necessary.***

Q1) a) Explain SOC architecture and discuss the current issues in software/ hardware co-design in SOC. **[6]**

b) Draw SDF for PAM and explain its operation of role in SOC. **[4]**

Q2) a) Explain in detail the abstraction levels which are predominantly used in SOC modeling with suitable examples. **[5]**

b) Differentiate how hand shake signals have to be modified/ enhanced for pipelined architectures. **[5]**

Q3) a) Demonstrate in detail the stages of RISC pipeline and list out the advantages over general purpose processors. **[6]**

b) Briefly explain about the terms listed below : **[4]**

i) Simulation Race

ii) Timing Analysis for Digital circuits

iii) Switching activity

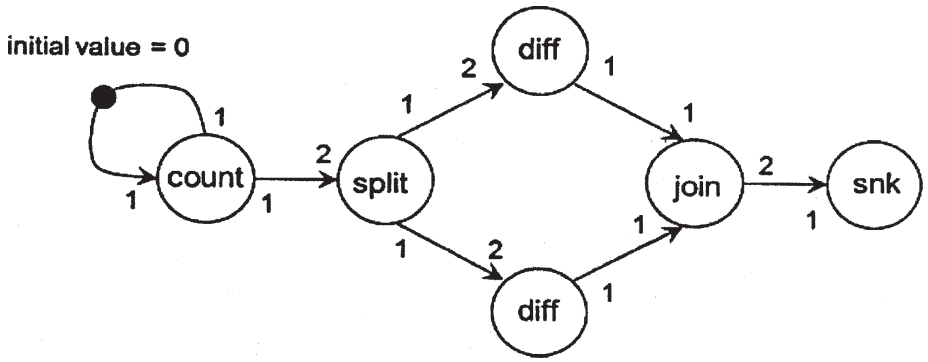
iv) Bus synchronization

P.T.O.

Q4) a) Elaborate in detail about a SOC Controller for Digital Still Camera. **[5]**

b) Explain about Energy Management Techniques for SOC Design. **[5]**

Q5) a) Design the FSM shown below and draw SDF for the design. **[6]**



b) Briefly explain about the terms listed below : **[4]**

i) SOC prototyping

ii) SOC verification

Q6) a) How clock gating is used to reduce switching rate in SOC. **[5]**

b) Discuss a simple start/done handshake to implement hierarchical control of iterative component. **[5]**

Q7) a) Define the factors for instruction set of custom-hardware module depends and provide guidelines for instruction set in context with co-design. **[5]**

b) What are components of layout of the coprocessor control shell? **[5]**

Q8) a) In the SOC design architecture list out the Importance of low power, causes and factors affecting power in physical design. **[6]**

b) Explain different sequential arcs with examples. **[4]**