

Duration: 3hrs

[Max Marks:80]

- N.B. : (1) Question No 1 is Compulsory.
(2) Attempt any three questions out of the remaining five.
(3) All questions carry equal marks.
(4) Assume suitable data, if required and state it clearly.

- 1 Solve any 4 [20]**
- a** What are the deciding factors in determining whether to implement a task using software or hardware? **5**
 - b** Compare early binding and late binding of interaction mechanism in terms of SOC designs. **5**
 - c** Write a Verilog code for 4:1 mux synthesized to priority logic. **5**
 - d** Differentiate between Event Based Simulation and Cycle Based Simulation **5**
 - e** Explain following terms related to physical design of SoC: **5**
 - 1. Track
 - 2. Row
 - 3. Guide
- 2 a** What are challenges in SoC design? Explain in details. **[10]**
- b** Explain the detailed SoC Design Flow for application Specific processor based design methodology with proper diagram. **[10]**
- 3 a** What are the different communication structures selected in SOC design based on the following needs? **[10]**
- a. Low cost and good flexibility
 - b. Good throughput and good flexibility
 - c. Best latency and throughput
- b** What are different latency hiding and latency-tolerance mechanisms? **[10]**
- 4 a** Design Talking doll systems using RTL design technique. **[10]**
- b** Write short note on use of the following directives in RTL coding **[10]**
- a. *full_case*
 - b. *casez*
- 5 a** Explain the top-down design and verification approach. **[10]**
- b** What is code coverage? What are the different types of code coverage? Explain any two with examples. **[10]**
- 6 a** Draw and explain detailed physical design flow. **[10]**
- b** Explain the concept of Ground Routing **[10]**
