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10SCS253

**Second Semester M.Tech. Degree Examination, June 2012**  
**Protocols Engineering**

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions.**

- 1 a. What is meant by protocol engineering? Explain the phases of protocol engineering. (08 Marks)  
b. Explain the different methods of design and development of communication protocols. (12 Marks)
- 2 a. Explain the following terms : Encapsulation, Segmentation, Error control, Flowcontrol, Multiplexing. (10 Marks)  
b. Explain the exponential averaging and Jacobson algorithm for RTT estimation in TCP. (10 Marks)
- 3 a. Design finite state machines for the sender process and receiver process of the alternating bit protocol. (14 Marks)  
b. Describe the components of a protocol to be specified. (06 Marks)
- 4 a. List any six salient features of SDL. (06 Marks)  
b. Explain the SDL specifications of TCP. (14 Marks)
- 5 a. Explain the ADT concept used within SDL, with an example. (04 Marks)  
b. What is protocol verification? Explain safety property and liveness property, with examples. (06 Marks)  
c. Verify the ABP protocol for its safety and liveness properties by using global system states. (10 Marks)
- 6 a. Explain the perturbation technique for protocol validation, with an example. What are the advantages and disadvantages? (10 Marks)  
b. Define conformance testing. What are the basic components in conformance testing? (05 Marks)  
c. Explain the conceptual conformance test architecture. (05 Marks)
- 7 a. Explain the U method to generate test sequence in conformance testing with an example. (10 Marks)  
b. Define the following : message response time, throughput, reliability, cost, queuing network models. (10 Marks)
- 8 a. What is interoperability? Explain the relationship between conformance and interoperability test suits. (08 Marks)  
b. What is protocol synthesis? Explain the interactive synthesis algorithm. (08 Marks)  
c. Mention the requirements of protocol implementation. (04 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.