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## Second Semester M.Tech. Degree Examination, June/July 2013

# Protocols Engineering

Time: 3 hrs.　　　　　　　　　　　　　　　　　　　　　　Max. Marks:100

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

1　a.　Define communication protocol. With the help of FSM and state transition table, discuss the simple message exchange protocol. (FSM – Finite State Machine) **(08 Marks)**
　　b.　Explain the additional properties of FSM. **(04 Marks)**
　　c.　What is meant by protocol engineering? Explain the phases of protocol engineering. **(08 Marks)**

2　a.　What are CRC codes? Generate a CRC code for a given message $x^9 + x^8 + x^6 + x^4 + x^2 + 1$ and generator polynomial is $x^4 + x^2 + 1$. **(05 Marks)**
　　b.　Explain the use of sequence numbers and negative acknowledgement in flow control. **(08 Marks)**
　　c.　What are different sliding window protocols? Explain the design of selective repeat ARQ protocol. **(07 Marks)**

3　a.　What are the different classes of IP? Explain the IP address subnetting. **(06 Marks)**
　　b.　Explain the following protocols:
　　　　i)　BGP　　　　　　　ii) ICMP　　　　　　　iii) RSVP
　　　　iv) RTP　　　　　　　v) IMAP　　　　　　　vi) RTSP **(06 Marks)**
　　c.　Explain with a neat figure data transfer across OSI layers. **(08 Marks)**

4　a.　With a neat figure of FSM, explain the sender and receiver entity specifications. **(08 Marks)**
　　b.　Give the FSM of RSVP specifications at router and host level. **(08 Marks)**
　　c.　Describe the characteristics of multimedia systems. **(04 Marks)**

5　a.　Give the SDL description of sliding window protocol. **(08 Marks)**
　　b.　Give the SDL description of network topology used in OSPF. **(06 Marks)**
　　c.　Explain in brief the various protocol specification languages. **(06 Marks)**

6　a.　What is protocol verification? Explain the verification of ABP using finite state machine. **(10 Marks)**
　　b.　Explain the perturbation technique for protocol validation with an example. What are its advantages and disadvantages? **(10 Marks)**

7　a.　Discuss the local conformance test architecture with an example. **(08 Marks)**
　　b.　What are the different types of test sequence methods? **(07 Marks)**
　　c.　Explain the SDL based performance testing of TCP. **(05 Marks)**

8　a.　What is protocol synthesis? Explain the automatic synthesis algorithm. **(06 Marks)**
　　b.　Explain the object based approach to protocol implementation. **(07 Marks)**
　　c.　Explain the automatic code generation from CVOPS. **(07 Marks)**

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