



## SIXTH SEMESTER B.TECH.

END SEMESTER EXAMINATIONS, APRIL/MAY 2019

SUBJECT: OPEN ELECTIVE-II : NETWORKING WITH TCP/IP [ICT 3284]

(REVISED CREDIT SYSTEM)

(06/05/2019)

TIME: 3 HOURS

MAX. MARKS: 50

**Instructions to candidates:**

- Answer ALL questions.
- Missing data, if any, may be suitably assumed.

- 1A. Suppose that host A is connected to a router R1, R1 is connected to another router, R2, and R2 is connected to host B. Suppose that a TCP message that contains 800 bytes of data and 20 bytes of TCP header is passed to the IP code at host A for delivery to B. Show the Total length, Identification, DF, MF, and Fragment offset fields of the IP header in each packet transmitted over the three links. Assume that link A-R1 can support a maximum frame size of 1024 byte including a 14-byte frame header, link R1-R2 can support a maximum frame size of 512 bytes, including an 8-byte frame header, and link R2-B can support a maximum frame size of 512 bytes including a 12-byte frame header. 5
- 1B. With suitable illustration, explain protocols, hierarchies and services in networks. 3
- 1C. Distinguish between two level addresses and three level addresses w.r.t. IP addresses. 2
- 2A. With OSI reference model, discuss network support layers, protocols and functionalities. 5
- 2B. With a flow diagram, discuss communication at the transport layer. 3
- 2C. In a datagram, the M bit is zero, the value of HLEN is 5, the value of total length is 200, and the offset value is 200. What is the number of the first byte and number of the last byte in this datagram? Is this the last fragment, the first fragment, or a middle fragment? 2
- 3A. With packet formats, discuss ICMP source quench and Redirection messages. Why these messages are used? 5
- 3B. What is pseudoheader? Explain the significance of UDP pseudoheader with message format. 3
- 3C. In cases where reliability is not of primary importance, UDP would make a good transport protocol. Justify the statement with relevant examples. 2
- 4A. With a flow diagram, discuss 3 way handshaking in TCP. 5
- 4B. Discuss IGMP membership query message with a message format. 3

- 4C. How SCTP supports for multistream connection? 2
- 5A. An organisation is granted the block 16.0.0.0/8. The administrator wants to create 500 fixed length subnets.
- i) Find the subnet mask. ii) Find the number of addresses in each subnet.
  - iii) Find the first and last allocatable addresses in subnet 1. iv) Find the first and last allocatable addresses in subnet 500. 5
- 5B. Explain the HTTP response message with format. 3
- 5C. Explain various steps involved in the process of mapping a domain name to address in DNS. 2