***U.S.N*** | | | | | | | | | | |

# P.E.S. College of Engineering, Mandya - 571 401

***(An Autonomous Institution affiliated to VTU, Belagavi)***

**Sixth Semester, B.E. - Electronics and Communication Engineering**

**Semester End Examination; May/June - 2019**

**Computer Communication Networks**

*Time: 3 hrs* *Max. Marks: 100*

***Note**: Answer **FIVE** full questions, selecting **ONE** full question from each unit.*

## UNIT - I

| | | | |
|---|---|---|---|
| 1 | a. | Describe duties of all five layers of TCP/IP protocol suite. | 10 |
| | b. | Define RFC and the levels of RFC with the help of a proper flow chart. | 6 |
| | c. | Discuss the de-capsulation and encapsulation process at a router. | 4 |
| 2 | a. | Explain the services of UDP and TCP transport layer protocols to the application layer. | 10 |
| | b. | Compare and contrast circuit switched network with packet switched network. | 6 |
| | c. | Discuss the Standard and Non-standard protocols of application layer. | 4 |

## UNIT - II

| | | | |
|---|---|---|---|
| 3 | a. | Discuss non-persistent and persistent connections for a HTTP protocol connection establishment. | 10 |
| | b. | With required diagram, explain the FTP protocol and discuss with respect to the security of FTP. | 10 |
| 4 | a. | Define cookie and the principle of its operation. Discuss the purpose of cookies in HTTP. | 10 |
| | b. | Explain how Distributed Hash Table (DHT) plays an important role in avoiding overhead problem found in unstructured P2P networks. | 10 |

## UNIT - III

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|---|---|---|---|
| 5 | a. | With a neat diagram, describe the semantics (field wise explanation) of TCP segment structure. | 10 |
| | b. | Examine the process of segment exchange using 3-way handshake signals. | 10 |
| 6 | a. | Write the UDP segment structure and explain its services. | 10 |
| | b. | Explain END to END congestion control and discuss congestion detection and avoidance in TCP. | 10 |

## UNIT - IV

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|---|---|---|---|
| 7 | a. | With a diagram, explain the internal architecture of router, analyze the packet queuing scenario at input and output ports with respect to the switching fabric. | 10 |
| | b. | With frame format, describe the discrete fields in IPv6 datagram. | 10 |

Contd…2

8 a. What is tunneling? Identify the need for Network Address Translation (NAT) in IPv4 and explain it briefly. 10

b. Discuss the transition of IPv4 to IPv6. 10

**UNIT - V**

9 a. Give that bit stream D = [1101011101] being transmitted using CRC method with the generator polynomial $x^4 + x + 1$. Compute the actual bit stream transmitted with CRC. 6

b. Explain in brief pure ALOHA scheme and show that its efficiency is 18%. 10

c. Compare MAC address with IP address. 4

10 a. Discuss the operation of CSMA / CD in handling collisions in network. 6

b. Illustrate the process of learning in a dynamic table link layer switch. 6

c. Explain the operation of traditional cable Network and Hybrid fibre-Coaxial network. 8

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