Exam. Code: 1000
Sub. Code: 35000

2015
M.E. (Computer Science and Engineering)
Second Semester
Elective - IV
CS-8210: Telecommunication Technologies

Time allowed: 3 Hours **Max. Marks: 50**

NOTE: *Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Section.*

x-x-x

Q1. a) What are types of telecommunication systems?
b) Differentiate between throughput and bandwidth.
c) What is the difference between 3G and 4G networks?
d) What is flow control in networking?
e) Why is traffic management important in communication networks? 5x2

SECTION-A

Q2. a) Explain the key features and advancements of 3G technology over its predecessors. How did it revolutionize mobile communication? 5
b) Describe the working principle of CDMA. How does it differ from TDMA and FDMA in terms of resource allocation and efficiency? 5

Q3. a) What roles do SIP, RTP and H.323 protocols play in enabling VoIP communication? 5
b) Describe the MPLS architecture, including Label Edge Routers (LERs) and Label Switching Routers (LSRs). How do they interact to forward packets? 5

Q4. a) What is Debian and why is it considered a keystone of the Linux ecosystem? 4
b) Compare FreeSWITCH and Asterisk as open-source communication platforms. What are the key differences in features and use cases? 6

SECTION-B

Q5. a) What tools and techniques are commonly used for network traffic monitoring and analysis? 3
b) Explain the concept of traffic intensity and how it is measured using the Erlang unit. 3
c) Explain the Poisson process and its application in teletraffic modeling. 4

Q6. a) Explain the importance of authentication, confidentiality and integrity in telecommunication protocols. 5
b) How do SSL/TLS protocols ensure secure communication? Explain the handshake process. 5

Q7. a) What security mechanisms are implemented in the SIP protocol to secure VoIP communications? 5
b) How does RFC 3261 describe the process of initiating a call using the INVITE method? 5

x-x-x