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Question Paper Code : 91405

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2019
Fourth/Fifth/Sixth/Seventh/Eighth Semester
Computer Science and Engineering
CS 6551 – COMPUTER NETWORKS
(Common to Biomedical Engineering/Electronics and Communication
Engineering/Mechatronics Engineering/Information Technology)
(Regulations 2013)

(Also Common to : PTCS 6551 – Computer Networks for B.E. (Part-Time) – Third
Semester – Computer Science and Engineering – Regulations 2014)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. List out the four major categories of physical components in a computer network.
2. Highlight the important feature of flow control.
3. Identify the functions of MAC.
4. What is a virtual circuit ?
5. What are the main functions of network layer ?
6. Define time-to-live.
7. Compare the network layer delivery and the transport layer delivery.
8. What are the three events involved in the connection establishment between source and destination ?
9. Mention the three main divisions of the domain name space.
10. How does MIME enhance SMTP ?

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PART – B

(5×13=65 Marks)

11. a) Summarize the major functions performed by the Network and Transport layer of the ISO-OSI model. (13)
(OR)
b) Explain the error correction mechanisms used in computer network. (13)
12. a) i) Describe the IEEE 802.11 architecture with diagram. (8)
ii) Explain ARP in network layer and how is it different from RARP ? (5)
(OR)
b) Explain the need for ICMP with a suitable example.
13. a) Differentiate Distance Vector Routing and Link State Routing. Discuss how these routing techniques work. (13)
(OR)
b) Explain the multicast routing DVMRP in detail. (13)
14. a) Describe the operation of TCP connection in detail. (13)
(OR)
b) Explain the network scheduler suited for congestion avoidance. (13)
15. a) Mention the features of HTTP and also discuss how HTTP works. (13)
(OR)
b) Write short notes on IMAP. (13)

PART – C

(1×15=15 Marks)

16. a) The IEEE 802.11a WLAN uses a 64-subchannel implementation of multicarrier modulation (MCM, i.e., OFDM). Forty-eight subcarriers are used for information transmission, 4 subcarriers for pilot tones are used for synchronization and 12 are reserved. Each subchannel has a symbol rate of 250 kilo symbols per second (Ksps). The occupied bandwidth is 20 MHz. Find the bandwidth of a subchannel. What is modulation efficiency ? What is a user symbol rate ? If 16-QAM modulation is used, what is the user data rate if the information bits are encoded with a rate of 3/4 ? If the guard time between two transmitted symbols is 800 ns, what is the time utilization efficiency of the system ?
(OR)
b) An ISP is granted a block of addresses starting with 150.80.0.0/16. The ISP wants to distribute these blocks to 2600 customers as follows :
i) The first group has 200 medium size businesses; each need 128 addresses.
ii) The second group has 400 small businesses; each need 16 addresses.
iii) The third group has 2000 households; each need 4 addresses.
Design the sub blocks and give the slash notation for each sub block. Find out how many addresses are still available after these allocations.