

Reg. No. : 

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<b>Question Paper Code : 70391</b>
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B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2021.

Fourth/Fifth/Sixth/Seventh/Eighth Semester

Bio Medical Engineering

CS 6551 — COMPUTER NETWORKS

(Common to Computer Science and Engineering/  
Information Technology and Electronics and Communication  
Engineering/Mechatronics Engineering)

(Regulations 2013)

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

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List the services provided by data link layer.
2. Write the mechanism of stop and wait flow control.
3. Define hidden node problem.
4. What is Bluetooth?
5. How do routers differentiate the incoming unicast, multicast and broadcast IP packets?
6. Why is IPV4 to IPV6 transition required?
7. List some of the Quality of Service parameters of transport layer.
8. How does transport layer perform duplication control?
9. Mention the types of HTTP messages.
10. What is SMTP?

PART B — (5 × 13 = 65 marks)

11. (a) (i) Explain the challenges faced in building a network. (10)  
(ii) Obtain the 4-bit CRC code for the data bit sequence 10011011100 using the polynomial  $x^4 + x^2 + 1$ . (3)

Or

- (b) (i) With a protocol graph, explain the architecture of internet. (7)  
(ii) Consider a bus LAN with a number of equally spaced stations with a data rate of 9 Mbps and a bus length of 1 km. What is the mean time to send a frame of 500 bits to another station, measured from the beginning of transmission to the end of reception? Assume a propagation speed of 150 m/s. If two stations begin to monitor and transmit at the same time, how long does it need to wait before an interference is noticed? (6)

12. (a) Write short notes on :

- (i) Ethernet. (7)  
(ii) Wireless Lan. (6)

Or

- (b) Explain in detail ARP, DHCP, ICMP. (13)

13. (a) With a neat diagram explain Distance vector routing protocol. (13)

Or

- (b) Explain about IPV6. Compare IPV4 and IPV6. (13)

14. (a) Explain various fields of the TCP header and the working of the TCP protocol. (13)

Or

- (b) How is congestion controlled? Explain in detail about congestion control techniques in transport layer. (13)

15. (a) (i) Explain the message transfer using Simple Mail Transfer Protocol. (7)  
(ii) Explain the final delivery of email to the end user using POP3. (6)

Or

- (b) Write short notes on:

- (i) Web services. (7)  
(ii) SNMP. (6)

PART C — (1 × 15 = 15 marks)

16. (a) (i) Draw the format of TCP packet leader and explain each of its field. (10)
- (ii) Specify the justification for having variable field lengths for the fields in the TCP header. (5)

Or

- (b) Illustrate the sequence of events and the respective protocols involved while accessing a web page from a machine when it is connected with internet for first time. (15)
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