

Question Paper

Exam Date & Time: 15-Feb-2021 (02:00 PM - 05:15 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

MANIPAL SCHOOL OF INFORMATION SCIENCES, MANIPAL
FIRST SEMESTER MASTER OF SCIENCE- M.Sc. (INFORMATION SCIENCE) DEGREE EXAMINATION - FEBRUARY 2021
Computer Network [MIS 509]

Marks: 100

Duration: 180 mins.

MONDAY, FEBRUARY 15, 2021

Answer all the questions.

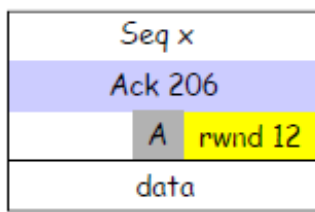
- 1) Compare the features of Repeater, Bridge and Router. (TLO 1.2) (10 Marks) (10)
- 2) Write a short note on the following routing techniques with suitable diagrams: (TLO 2.1) (5+5 Marks) (10)
 - a. Next Hop Routing Method
 - b. Default Routing Method
- 3) Describe the responsibilities of the Physical layer and Transport layer in the OSI model? (TLO 1.1) (10 Marks) (10)
- 4) An ISP is granted a block of addresses starting with 173.200.0.0/16. The ISP needs to distribute these addresses to three groups of customers as follows: (10)
 - a. The first group has 128 customers; each need 256 addresses.
 - b. The second group has 64 customers; each need 128 addresses.
 - c. The third group has 64 customers; each need 64 addresses.

Design the sub-blocks and find out how many addresses are still available after these allocations. (TLO 1.3) (10 Marks)
- 5) Write a short note on the following special addresses with suitable diagrams: (TLO 1.3) (5+5 Marks) (10)
 - a. This host on this network
 - b. Specific host on this Network
- 6) What is DHCP and why do we need it? Explain the address allocation modes in DHCP. (TLO 3.2) (4+6 Marks) (10)
- 7) What is ICMP in computer network? What are the types of (10)

query messages used in ICMP? Explain. (TLO 1.3) (2+8 Marks)

- 8) Write a note on the congestion prevention policies. (TLO 2.2) (10 Marks)
- 9) What is TCP and its significance? Describe the TCP segment format with a diagram. (TLO 3.1). (2+8 Marks) (10)
- 10) If a server receives a packet with an acknowledgement value of 202 and rwnd of 9. The host having sent bytes 202, 203, 204 and 205. The value of cwnd being 20. Show the sliding window. (10)

Now the sender receives a packet as shown below with no change in cwnd and host having sent no new bytes. Show the new window. (TLO 3.1) (10 Marks)



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