

Total No. of printed pages = 2

MCA 182501

Roll No. of candidate

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3/21st 2021

M.C.A. 5th Semester End-Term Examination

COMPUTER NETWORKS - II

(New Regulation & New Syllabus)

(w.e.f. 2018 - 19)

Full Marks - 70

Time - Three hours

The figures in the margin indicate full marks
for the questions.

Answer question No. 1 and any *four* from the rest.

1. Answer the following : (MCQ/Fill in the blanks) : (10 × 1 = 10)
- (a) Find the class of the following IPv4 addresses:
 - (i) 00000001 00001011 00001011 11101111
 - (ii) 252.5.15.111
 - (b) Expand the address 0:15::1:12:1213 to its original.
 - (c) Which fields of the IPv4 header change from router to router?
 - (d) What is the difference between a direct and an indirect delivery?
 - (e) If a host wants to continue membership in five groups, should it send five different membership report messages or just one?
 - (f) Why OSPF is called link state protocol?
 - (g) Why is there no need for the ICMPv4 message to travel outside its own network?
 - (h) Find the range of addresses in the following blocks.
 - (i) 123.56.77.32/29
 - (ii) 200.17.21.128/27
 - (i) Are both UDP and IP unreliable to the same degree? Why or why not?
 - (j) Name the policies that can prevent congestion.

[Turn over

2. (a) A block of addresses is granted to a small organization. If one of the addresses is 205.16.37.39/28. Find (5)
- (i) The first address
 - (ii) The last address
 - (iii) The number of addresses
- (b) Compare the TCP header and the UDP header. List the fields in the TCP header that are missing from UDP header. Give the reason for their absence. (3 + 1 + 1 = 5)
- (c) Write different flow characteristics in quality of service. (5)
3. (a) Write the steps involved in link state routing? (5)
- (b) Why SCTP is designed? Explain different SCTP services. (1 + 5 = 6)
- (c) What is resolver? How does the resolver work? (1 + 3 = 4)
4. (a) What is NAT? How can NAT help in address depletion? (1 + 3 = 4)
- (b) Explain the two factors to measure the performance of a network for congestion control. (5)
- (c) How different components involved in cryptography work together? (6)
5. (a) Compare RARP, BOOTP and DHCP. (5)
- (b) In TCP, if the value of HLEN is 0111, how many bytes of option are included in the segment? (1)
- (c) How are congestion control and quality of service related? (4)
- (d) Write different issues related to unicasting and multicasting. (5)
6. (a) Define fragmentation and explain why the IPv4 and IPv6 protocols need to fragment some packets. Is there any difference between the two protocols in this matter? (3 + 2 = 5)
- (b) Discuss TCP's general policy for handling congestion. (4)
- (c) Explain the following error reporting messages : (3 × 2 = 6)
- (i) Destination Unreachable
 - (ii) Source Quench
 - (iii) Redirection
7. (a) Define subnetting and supernetting. How do the subnet mask and supernet mask differ from a default mask in classful addressing? (2 + 3 = 5)
- (b) Explain how distance vector routing works. (5)
- (c) How does SMTP work? (5)

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