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Roll No.

Total Pages : 3

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Mar. 2022

M.Tech. (ECE) I SEMESTER

Advanced Communication Networks (MEC-101)

Time : 90 Minutes]

[Max. Marks : 25

Instructions :

1. *It is compulsory to answer all the questions (1 mark each) of Part-A in short.*
2. *Answer any three questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

PART-A

1. (a) The optional field in TCP packet is of _____ bytes. (1)
- (b) Differentiate between fairness and efficiency. (1)
- (c) Give *two* differences between token bucket and leaky bucket algorithm. (1)
- (d) How many services are provided by intserv model? (1)
- (e) What are problems of intserv model that were overcome by diffserv model? (1)

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- (f) Differentiate between longest prefix and binary tries in terms of search time complexity. (1)
- (g) If HLEN is "1100" than the number of bytes in header is. (1)
- (h) Explain how IP over ATM is advantageous? (1)
- (i) Give the advantage of weighted fair Queuing over simple queuing technique. (1)
- (j) Give the IP address to broadcast a packet. (1)

PART-B

2. The following are the prefixes

$$P_1 = 0^*$$

$$P_2 = 01000^*$$

$$P_3 = 011^*$$

$$P_4 = 1^*$$

$$P_5 = 100^*$$

$$P_6 = 1100^*$$

$$P_7 = 1101^*$$

$$P_8 = 1110$$

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$$P_9 = 1111^*$$

Draw the multi-bit binary tries with prefix fixed to 2, 4 and 5 bits. (5)

3. (a) Explain TCP/IP fairness issue and how it can be solved. (2)
- (b) Computer A has 19.5 MB to send on a network and transmits the data in a burst @ 6 Mbps. The maximum transmission rate across routers in the network is 4 Mbps. If Computer A's transmission is shaped using a leaky bucket, how much capacity must the queue in the bucket hold not to discard any data? (3)
4. Explain integrated services architecture in brief. (5)
5. Explain Diffserv model in detail. (5)
6. Write short note on the following :
- (a) RED.
- (b) Traffic engineering issues in MPLS. (5)
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