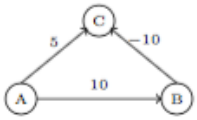
EE4204 Computer Networks Quiz 2 Practice/Sample Questions - Solutions

1. D
2. TCP is used in the applications where reliable communication is important and excessive delay can be tolerated, for example, in file transfer applications. UDP is used in the applications where delay requirements are stringent and occasional unreliability (packet losses) can be tolerated. Voice and video traffic is generally transmitted using UDP.
3. C
4. 

Consider the network shown in the figure. When node A uses the distance vector routing, the shortest path to node C is the path via node B with cost of 0 units. On the other hand, when node A uses the link state routing, the shortest path to node C is the direct path with cost of 5 units. In both the algorithms the shortest path to B is the direct path with cost of 10 units.
5. C
6. (TCP window size in segments) = (Bandwidth in bits per second)× (RTT in seconds)/((number of bytes per segment)× 8)= 8×10E9×10×10E−3 /(1000x8) = 10000.
7. TCP uses a sliding window protocol for the flow control and congestion control. The flow window is advertised by the receiver to the sender. TCP handles congestion by dynamically adjusting the congestion window (which is the same as rate) at which data enters the network.
8. C
9. In binary representation 170=10101010. Since, we need to count only 21 bits, we have first address as 212.56.10101000.1 which is same as 212.56.168.1 and the last address is 212.56.10101111.254 which is 212.56.175.254.
10. IP classless addressing allocates the address space more efficiently by allowing finer resolution addressing.
11. C
Since Slow Start is used, window size is increased by the number of segments successfully sent. This happens until either threshold value is reached or time out occurs. In both of the above situations AIMD is used to avoid congestion. If threshold is reached, window size will be increased linearly. If there is timeout, window size will be reduced to half. Window size for 1st transmission = 2 MSS
Window size for 2nd transmission = 4 MSS
Window size for 3rd transmission = 8 MSS
threshold reached, increase linearly (according to AIMD)
Window size for 4th transmission = 9 MSS
Window size for 5th transmission = 10 MSS
time out occurs, resend 5th with window size starts with as slow start. Window size for 6th transmission = 2 MSS
Window size for 7th transmission = 4 MSS
threshold reached, now increase linearly (according to AIMD) Additive Increase: 5 MSS (since 8 MSS isnt permissible anymore) Window size for 8th transmission = 5 MSS
Window size for 9th transmission = 6 MSS
Window size for 10th transmission = 7 MSS
12. We say that AIMD is fair in the sense that it will result in equal allocation of the outgoing link bandwidth of a router to all intersecting TCP flows. Recall that AIMD is also efficient, in the sense that it will use all of the available resources.