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No. of Pages: 2

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**SECOND SEMESTER M.TECH DEGREE EXAMINATION, APRIL/MAY 2018**

*Branch: Computer Science and Engineering*

*Stream(s): Computer Science and Engineering*

*Course Code & Name:*

**01CS6106: Advanced Computer Networks**

*Answer any two full questions from each part.*

*Limit answers to the required points.*

Max. Marks: 60

Duration: 3 hours

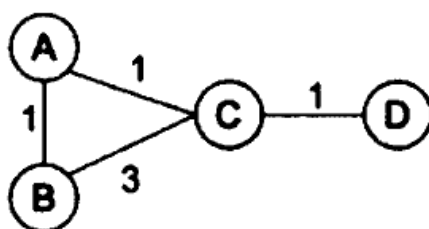
**PART A**

1. a. Compare classful and classless IP Addressing? Find the Number of subnets, Number of hosts, Subnet in which the IP belongs to, different Subnets and its Host range for the IP 192.168.30.14 Mask 255.255.255.248. 5  
b. What is DHCP? Explain its functions. 4
2. a. A router has the following CIDR entries in its routing table: 5  
Address/mask Next hop  
135.46.56.0/22 Interface 0  
135.46.60.0/22 Interface 1  
192.53.40.0/23 Router 1  
default Router 2  
  
For each of the following IP addresses, what does the router do if a packet with that address arrives?  
(a) 135.46.63.10  
(b) 135.46.57.14  
(c) 135.46.52.2  
(d) 192.53.40.7  
(e) 192.53.56.7  
b. List out major features of IPv6. 4
3. Consider an application that transmits data at a steady rate (for example the sender generates an N-bit unit of data every K time units, where K is small and fixed). Also, when such an application starts, it will continue running for a relatively long period of time. Answer the following questions, briefly justifying your answers.  
a. Would a packet-switched network is used and the only traffic in this network comes from this application as described above. Furthermore, assume that the sum of the application data rates is less than the capacities of each and every link. Is some form of congestion control needed? Why? 5

- b. Would a packet-switched network or a circuit-switched network be more appropriate for this application? Why? 4

**PART B**

4. a. Explain Karn's algorithm. 5  
b. Explain Bluetooth architecture. 4
5. a. How DCF and PCF can coexist within one cell? Explain with suitable diagrams. 5  
b. Based on the network shown below, state a sequence of events that will cause a count-to-infinity problem in Distance Vector Routing. (Assume that no corrective measure, e.g. poison reverse, is used) 4



6. a. Explain slow start, fast retransmit and fast recovery congestion control systems. 5  
b. State the major difference between Distance Vector Routing and Link State Routing. 4

**PART C**

7. a. Explain CDN. What problem would a DNS-based redirection mechanism encounter if it wants to select an appropriate server based on current load information? 6  
b. Describe how Integrated Service works and Integrated Service's main drawback. 6
8. a. Explain peer-to-peer networks. Explain how Gnutella work? What is the difference between end-to-end delay and packet jitter? What are the causes of packet jitter? 6  
b. Is RTP a transport protocol or a kind of application protocol? Explain. 6
9. a. What is the main drawback of IPSec VPN? 6  
b. What is compression? Why is video compression used? Explain about the Mpeg standards and compression. 6