

## B1.5-R5 : DATA COMMUNICATIONS AND COMPUTER NETWORKS

**NOTE :**

1. Answer question 1 and any FOUR questions from 2 to 7.
2. Parts of the same question should be answered together and in the same sequence.

**Total Time : 3 Hours****Total Marks : 100**

1. (a) What are the various switching techniques that are used in data communications ? How do we classify the transmission media ?  
 (b) Compare and Contrast between TCP/IP and OSI reference models.  
 (c) What are the advantages and disadvantages of using Distance Vector Routing Protocol ?  
 (d) What are the advantages and disadvantages of Voice over Internet Protocol (VoIP) ?  
 (e) What is Asynchronous Transfer Mode (ATM) network ? Briefly explain.  
 (f) What is CoAP ? Explain.  
 (g) Compare and contrast between IPv4 and IPv6. (7x4)
2. (a) What is ICMP in computer network ? Give the important fields of ICMP Header.  
 (b) What is Phase Shift Keying ? Explain about QPSK and DPSK schemes.  
 (c) What are the differences between Go Back N and Selective Repeat protocols ? (6+6+6)
3. (a) What is the difference between unicasting, multicasting and broadcasting routing ?  
 (b) Compare and contrast between static and dynamic routing techniques.  
 (c) What is Border Gateway Protocol (BGP) ? What is Internal BGP and External BGP ? (6+6+6)
4. (a) What are the various services provided by TCP to the application layer ?  
 (b) How congestion control is achieved in TCP ? Briefly explain.  
 (c) What is Stream Control Transmission Protocol (SCTP) ? What are its advantages and disadvantages ? (6+6+6)
5. (a) What is Dynamic Host Configuration Protocol (DHCP) ? What are the benefits of DHCP ?  
 (b) What is Content Delivery Network (CDN) ? What are the reasons for using CDNs ?  
 (c) Compare the successful wireless technologies, i.e., ZigBee with GSM/CDMA, Wifi and Bluetooth in terms of their Applications, memory requirements, battery life, network size, bandwidth range and operation range. (8+5+5)
6. (a) Write a Client and Server Program in python using socket programming.  
 (b) What is the difference between Integrated Service (IntServ) and Differentiated Service (DiffServ) ?  
 (c) What are Frame Relay Network ? How are they beneficial ? (8+5+5)
7. (a) How does Software defined networking functions ? What are its advantages ?  
 (b) What are the differences between Hubs and Switches ?  
 (c) What are the key differences between Interdomain Routing protocols and Intradomain Routing protocols ? (8+5+5)

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