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MCA

MCC303

3rd Semester Regular / Back Examination 2016-17
COMPUTER NETWORKS
BRANCH: MCA
Time: 3 Hours
Max Marks: 70
Q.CODE: Y613
Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

Q1   **Answer the following questions:**   **(2 x 10)**
   a) Difference between half-duplex and full-duplex transmission modes?
   b) Write down the three criteria necessary for an effective and efficient network?
   c) Distinguish between baseband transmission and broadband transmission?
   d) What is peer-to-peer process?
   e) Define three types of transmission impairment?
   f) What is the sampling rate of PCM if the frequency ranges from 2000 to 4000 Hz?
   g) How does NRZ-L differ from NRZ-I ?
   h) What do you mean by open loop congestion control?
   i) Differentiate Address Resolution Protocol (ARP) with Reverse Address Resolution Protocol (RARP)?
   j) Differentiate between classful addressing and classless addressing in IPv4?

Q2   What is CRC? Generate CRC code for the message 111001100 using   **(2+8)**
          the generator polynomial 11001. Show How it helps in error detection.

Q3 **a)** Describe the layered architecture of OSI model with functions of each   **(5)**
          layer.
   b) What does Shannon capacity to do with communications? A telephone   **(5)**
          line having a band width of 3000 Hz is assigned for   data
          communication. The signal to noise ratio is 3162. Calculate the
          capacity of the channel?

Q4 **a)** Show the NRZ-I and Manchester encoding for the bit pattern given   **(5)**
          below 0100 1110 1001 0001.
   b) Explain checksum technique with an example.   **(5)**

Q5 **a)** Explain the mechanism of Stop-and-Wait ARQ. **(5)**

b) A receiver receives the code 11001100111. Using hamming encoding **(5)**
algorithms, find which bit is in error and what the original code is sent.

Q6 **a)** Explain the CSMA/CD method of medium access in Ethernet LANs. **(5)**

b) What is QoS? Discuss the traffic shaping mechanism to improve QoS. **(5)**

Q7 Design at least 4 subnets and 20 hosts per subnet. Given the network **(10)**
address 192.127.4.0. Also find the subnet mask and broadcast address
for each of the subnets.

Q8 **Write short answer on any TWO:** **(5 x 2)**
a) SMTP
b) IPSec
c) PGP
d) Congestion Control