

CS 335 Winter 2020 Computer Networks

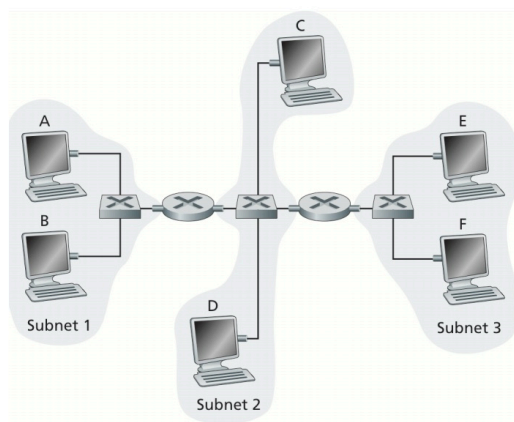
Assignment Five (Due on November 27, 2020)

NOTE: All assignments are to be submitted to URCourses. Please note that the due time of each assignment is at 10:00 pm (URCourses time) on the due date. Please make sure to “save the changes” after uploading your files. You must delete the uploaded file if you want to upload a new version. All uploaded files will be submitted automatically after the deadline and your update time is your submission time. You will be unable to change your files after deadline.

You may see partial markings from URCourses. Please do not complaint the marking until the announcement of completion marking. You should inform me any errors within 7 days of the announcement. Any request made after that will not be considered.

More Questions Will be Added Based on Class Schedule.

1. Read Chapters 1-9. (0 point)
2. (15 points) Consider the 5-bit CRC generator, $G=10011$, and suppose that D has the value 1001010101. What is the value of R ? What is the data to be transmitted? Redo the question with D 0101101010. Show your work with either synthetic division or polynomial division.
3. (15 points) Suppose that you are transmitting three 8-bit ASCII character *CAD* by using Hamming codes, construct the binary bits transmitted. Show that you can detect and correct a single bit error, say the 5th bits of A 's string by using Hamming code approach.
4. (10 points) Consider three LANs interconnected by two routers as shown below.



- a. Assign IP addresses to all of the interfaces. For Subnet 1 use addresses of the form 192.168.1.xxx; for Subnet 2 use addresses of the form 192.168.2.xxx; and for Subnet 3 use addresses of the form 192.168.3.xxx.
- b. Assign MAC addresses to all of the adapters.
- c. Consider sending an IP datagram from Host E to Host B. Suppose all of the ARP tables are up to date. Enumerate all steps, as done for the single router example in Section 5.4.1.
- d. Repeat (c), now assuming that the ARP table in the sending host is empty (and all other tables are up to date).

5. Create some review questions in the format of multiple choice, true or false, concept matching, filling blanks, etc. that are suitable for quizzes. (*option, bonus up to 5 points*)