

CS601 Data Communication

Final Term Examination – Spring 2005

Time Allowed: 150 Minutes

Please read the following instructions carefully before attempting any question:

1. This examination is closed book, closed notes, closed neighbors.
2. Answer all questions.
 - a. There is no choice.
 - b. You will have to answer correctly all questions in this examination to get the maximum possible marks.
3. Do not ask any questions about the contents of this examination from anyone.
 - a. If you think that there is something wrong with any of the questions, attempt it to the best of your understanding.
 - b. If you believe that some essential piece of information is missing, make an appropriate assumption and use it to solve the problem.
4. Examination also consists of multiple-choice questions. Choose only one choice as your answer.
 - a. If you believe that two (or more) of the choices are the correct ones for a particular question, choose the best one.
 - b. On the other hand, if you believe that all of the choices provided for a particular question are the wrong ones, select the one that appears to you as being the least wrong.

****WARNING: Please note that Virtual University takes serious note of unfair means. Anyone found involved in cheating will get an 'F' grade in this course.**

Total Marks: 66

Total Questions: 10

Question No. 1

Marks : 02

In cyclic redundancy checking, what is the CRC?

- ☐ the divisor
- ☐ the quotient
- ☐ the dividend
- ☐ the remainder

Question No. 2

Marks : 02

In fiber optics the signal source is _____ waves.

- ☐ Light
- ☐ Radio
- ☐ Infrared
- ☐ Very Low frequency

Question No. 3

Marks : 02

Each device has a dedicated point – to – point line configuration only with the two devices on either side of it.

- ☐ Ring Topology
- ☐ Mesh Topology
- ☐ Star Topology
- ☐ Tree Topology

Question No. 4

Marks : 14

How Go-Back-n ARQ method of Error Control works?

- 1) when a data frame lost
- 2) when an acknowledgement lost

Explain your answer with the help of simple diagram.

Question No. 5

Marks : 12

Apply the Hamming code algorithm to transmit the seven bit data 1101010. Invert the 6th bit of the transmitted data and prove it at receiving end. The combinations used to calculate each of the four r values for a seven bit data sequence are as follows:

- r1: bits 1, 3, 5, 7, 9, 11
- r2: bits 2, 3, 6, 7, 10, 11
- r4: bits 4, 5, 6, 7
- r8: bits 8, 9, 10, 11

Question No. 6**Marks : 02**

Measures the relative strengths of two signals

- ☐ Decibel
- ☐ Bandwidth
- ☐ Phase
- ☐ Wavelength

Question No. 7**Marks : 02**

Which multiplexing technique shifts each signal to a different carrier frequency?

- ☐ FDM
- ☐ Synchronous TDM
- ☐ Asynchronous TDM
- ☐ None of the above

Question No. 8**Marks : 02**

The _____ of a signal is the width of the frequency spectrum.

- ☐ Amplitude
- ☐ Bandwidth
- ☐ Bit interval
- ☐ Phase

Question No. 9**Marks : 12**

Draw the transmitted frames using the following multiplexing techniques:

- 1) Synchronous TDM**
- 2) Asynchronous TDM**

Note: In an asynchronous system, if we have 'n' input lines, the frame contains no more than 'm' slots, where m is less than n.



Question No. 10

Marks : 15

An analog signal carries 7 bits in each signal element. If 1550 signal elements are sent per second. Find the baud rate and bit rate.

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