國立臺灣科技大學
九十二學年度博士班招生考試試題
系所組別：電子工程系博士班乙組
科　目：計算機網路

總分 100 分

1.An image is 1024 x 768 pixels with 3 bytes/pixel. Assume the image is uncompressed. How long does it take to transmit it over a 1-Mbps cable modem?(10%)

2.Assume the binary chip sequence for station A,B,C and D are
A: 00011011 , B: 00101110 , C: 01011100, D:01000010
A CDMA receiver gets the following chips (-1 +1 -3 +1 -1 -3 +1 +1).
Which stations have transmitted? (15%)

3. Data link protocols almost always put the CRC in a trailer rather than in a header. Why?(10%)

4. Sketch the Manchester encoding for the bit stream: 0001110101(10%)

5.Consider building a CSMA/CD network running at 1Gbps over a 1-km cable with no repeaters. The signal speed in the cable is 200,000 km/sec. What is the minimum frame size?(15%)

6. A computer on a 6-Mbps network is regulated by a token bucket. The token bucket is filled at a rate of 1Mbps. It is initially filled to the capacity with 8 megabits. How long can the computer transmit at the full 6Mbps?(10%)

7.A network on the Internet has a subnet mask of 255.255.240.0. What is the maximum number of hosts it can handle? (15%)

8.A binary file is 3072 bytes long. How long will it be if encoding using bas264 encoding, with a CR+LF pair inserted after every 80bytes sent and at the end?(15%)