

Feedback for EEE116 Session:2007-2008

Feedback: Please write simple statements about how well students addressed the exam paper in general and each individual question in particular including common problems/mistakes and areas of concern in the boxes provided below. Increase row height if necessary.

General Comments:

Question 2 and 3 were answered well and question 1 was answered very poorly. A few mistakes common to all questions are as follows:

- Not reading the question properly and therefore not answering to what is asked.
- Failing to write or writing wrong units.
- Badly drawn diagrams (incorrect or no axis labels).

Question 1:

Not many students attempted this question and those who have attempted did not answer well.

In (a) most answers were incomplete. Most students defined temporal masking correctly. But failed to define frequency masking correctly. In the frequency masking figure most students wrongly labeled the y axis as frequency.

In (b) almost all students did not draw the correct block diagram. Rather than drawing an mp3 block diagram, most students drew the audio digitization block diagram (which was examined in 2006/07 exam)

On average, (c) was well answered. But most students failed to mention the usage in transition from black and white tv to colour tv to reuse the existing infrastructure and programmes as a benefit.

(d) Most students just wrote "the quality is reduced" without explaining what sort of artifacts appearing at which locations with high/low frequency components.

(e) Well answered. The most common mistakes were in considering the sampling factors for 4:2:2 resolution and computing the frame rate.

(f) a name of the video coding standard was required as opposed to explaining how compression is achieved.

Question 2:

This question was attempted by almost all students and was answered very well.

(a) Almost all students accurately computed the Shannon's entropy for the given data set. But only about half of the class was able to interpret it correctly as the minimum average theoretical code length. Some students did not use the correct units.

(b) Well answered. Some students forgot to consider the two symbols with the LOWEST probabilities at each stage for merging. Some students confused the final probability value of 1 as a code bit and included that in the codewords.

(c) the average code length was computed accurately. But some students forgot the formula for computing the efficiency.

(d) Well answered

(e) Students were expected to use the average code length and the Nyquist rate to compute the data rate. Most students figured out this relationship. But some failed to compute the Nyquist rate from the given information on sampling.

(f) answered well.

Question 3:

This question was also answered well.

- (a) well answered.
- (b) Most students struggled in describing the 4 redundancy types and some did not specify the functions involved in the compression process to remove them.
- (c) Well answered
- (d) Students failed to identify the number of frames needs to be kept in the buffer.
- (e) Most students identify that the P and I frames need to be encoded before the B frame. But only a few identified them with the frame numbers. Most students failed to state the bi-directional prediction process and coding of the prediction errors.

Question 4:

The performance in this question was average.

- (a) "circuit switching" part was explained well. But most students failed to mention in packet switching there was no dedicated path and thereby the packets can reach the destination via any route. Most failed to mention that destination address needed to be specified.
- (b) the most common mistake here was failing to label the time axis and to label the time lines for source and destination.
- (c) well answered
- (d) Another poorly answered question. It seems that most students have confused the functionality of TCP header fields with those of IP header fields.
- (e) Most students fail to compare the main functionality (reliable vs. best-effort delivery) of TCP and UDP.
- (f) This question requires the students to calculate the transmit time. But majority of students did not read the question properly and went on to compute not only the transmit time, but also the propagation time and presented the total time as the final answer. (that was answering to a completely different question)

Question 5:

Question 6:

Question 7:

Question 8: