Audio Processing exam, 27.02.2019

1.
A) Explain these terms with a few sentences (4)
- loudness
- pitch
- critical band
- phoneme

B) Equalization and dynamic range compression (2)
Explain what are shelving filters and how they differ from conventional low, high and band pass filters?

2. Filter banks and Transforms
A) What is STFT in audio processing, and where is it useful? Give an example (3)
B) Describe step by step how the input signal X(t) is converted into STFT representation X(n,f) where n is the index of audio frame and f the index of frequency. (3)

3. Hearing
A) What is masking? Explain and draw pictures both from time and frequency domain and explain, how the masking depends on the time or frequency. (4)
B) Give an example of masking. (2)

4. Speech synthesis: Text-to-speech using catenation of phonemes and unit selection
A) How does it work? (4)
B) How to measure the quality of it? (2)