

ELL788: Minor Test I

30th August, 2015

Maximum Marks: 20

1. Describe the classical and connectionist views of computation. Which view do you think is more useful for modelling human cognition? Are the two views necessarily incompatible? [5]
2. (a) You toss a coin 5 times and get 4 heads and 1 tail. Based on this, you have to decide whether the coin is fair or biased. Adopt a Bayesian model comparison approach to answer this question. Clearly define any notation you make use of. [3]
- (b) Does your answer change if the number of heads is 3 rather than 4? How do these answers compare to your own intuitive judgement in the two cases? [2]
3. There are two classes of fonts: **Serif** and **Sans Serif**. It is generally believed that **Serif** fonts have better readability for long texts, as compared to **Sans Serif** fonts. Justify the common belief with theories of visual perception. [3]

Same text is reproduced in **Serif** and **Sans Serif** fonts in the following paragraphs for your benefit.

Serif:

The law of proximity states that when an individual perceives an assortment of objects they perceive objects that are close to each other as forming a group. For example, in the figure that illustrates the Law of proximity, there are 72 circles, but we perceive the collection of circles in groups. Specifically, we perceive there is a group of 36 circles on the left side of the image, and three groups of 12 circles on the right side of the image. This law is often used in advertising logos to emphasize which aspects of events are associated.

Sans Serif:

The law of proximity states that when an individual perceives an assortment of objects they perceive objects that are close to each other as forming a group. For example, in the figure that illustrates the Law of proximity, there are 72 circles, but we perceive the collection of circles in groups. Specifically, we perceive there is a group of 36 circles on the left side of the image, and three groups of 12 circles on the right side of the image. This law is often used in advertising logos to emphasize which aspects of events are associated.

- 4.(a) Describe a functional model of human perception of sound frequency and justify it with the mechanism of frequency perception in human ear? [5]
- (b) What is the perceived pitch when two sound sources of 2kHz and 3kHz are played together. [2]