Cognitive Systems 303 — Midterm Exam

XXX xx, 20xx

Name: ________________________________

Student ID: ___________________________

Total marks: 60

Please answer in less than 3-4 sentences if at all possible. Continue on back if necessary.

PART I. Evaluating an Argument (35 marks)

1. [4 marks]. What is the fixed mindset? Why might people not believe in it?

2. [4 marks]. What is the growth mindset? Why might some people resist believing it?
3. [6 marks; 3 marks each] Cognitive Dissonance.
   
a. Define “cognitive dissonance”.

b. Give a concrete example of cognitive dissonance.

4. [6 marks] Define “warrant” (as described in the readings). Give an example.
5. [5 marks] Assumptions

   a. [2 marks] Define “value assumption”.

   b. [3 marks] Give a concrete example of a value assumption.
6. [10 marks] List five well-defined properties or objects—*not involving BMI, volume, intelligence, or consciousness*—that would require a proxy measure for their measurement. For each, explain why a proxy *must* be used—why can’t it be determined more directly?
PART II. Finding an Explanation (25 marks)

1. [6 marks] What is an example of a problem in one of the areas of Cognitive Systems where visualization would help someone understand what is going on? [Do not include data analysis—this is about the visualization of the problem/situation itself.] Explain how this visualization would help, and why it would work.

2. [8 marks; 4 marks each] Regression to the mean
   a. Define “regression to the mean”.
   b. How does regression to the mean explain why punishment works, while encouragement fails in improving performance?
3. [6 marks] What are three ways in which intuition is poor compared to conscious thought?

4. [5 marks] Define “satisficing”. Give a concrete example.
PART III. Analytic Skills (10 marks)

1. [10 marks] Design an experiment to test the proverb “The best defense is a good offence”, with this proverb taken literally.

   • Please define and operationalize each of the three main terms (best, defense, offence) so that this proverb can be tested empirically.

   • For each of these choices, justify your operationalization—why does it capture the meaning of the term?

   • What is the independent variable? What is the dependent variable?