

# SCXT 350

## Exam #3

Name \_\_\_\_\_

Friday, April 29  
100 pts.



3. (20 pts.) In our discussion of artificial intelligence, we have looked at two primary approaches: symbolic AI (or GOFAI) and connectionist AI. Give definitions of both approaches, and say how they differ from each other.

4. (15 pts.) Sketch the architecture of an expert system, identifying parts.

5. (10 pts.) Suppose that we want to store information in a CLIPS database about music majors. We want to store the student's name, number of years on piano, number of years on strings, number of years playing brass instruments and whether or not the student has taken a year of music theory. Write an appropriate **deftemplate** command in CLIPS to do this.
6. (5 pts.) Write an appropriate **deffacts** command to store the information that a student named MARPLE has had five years on piano, four years on strings, one year on brass, and has taken a year of music theory.

6. (15 pts.) Suppose that we have the following rules:

```
(defrule rule1
  (gate alarm)
  (guard on-duty)
=>
  (assert (call-guard))
)
```

```
(defrule rule2
  (gate alarm)
  (guard off-duty)
=>
  (assert (call-police))
)
```

with the following initial facts in our database:

```
(gate alarm)
(guard on-duty)
```

Which of the rules will fire, and which will not (and why in either case), and what will be the effect of the rule(s) that fire on the database?

7. (15 pts.) Consider a two input perceptron with  $w_0 = 1$ ,  $w_1 = -2$ , and  $w_2 = 2$ .

a. Sketch the perceptron using the scheme we have been using in class.

b. Complete the following table for this perceptron

X1	X2	Out
0	0	1
0	1	1
1	0	0
1	1	1

c. A two-input perceptron is associated with a straight line which separates the points for which the perceptron fires with those for which it does not fire. What is the equation of the line associated with this perceptron?