FINAL EXAM

All questions are worth 5 points unless otherwise stated.

Translate these sentences into standard categorical statements (All S are P, No S are P, etc.)

Questions 1-10 Each is worth 2 points

1. No one can come to the party unless they are invited.
2. Whenever the Giants win the people are happy.
3. Wherever there are cowboys there are horses.
4. No one can pass the test unless they study.
5. Only children are allowed to come to the party.
6. Being a scientist is not enough to win the Nobel Prize.
7. There are students who don’t study.
8. There are no cats who are logicians.
9. A few contestants will win a prize
10. Only the winners will get a prize.
11. Symbolize the following into a standard-form categorical claim and determine the three corresponding standard-form claims (use the Square of Opposition). Then, assuming the truth value in parentheses, determine the truth value of as many of the other three as you an.

Logic problems are fun. (assume to be True) 10 points

1. Assuming that “All Martians are friendly” write down its converse, obverse, and contrapositive (with their truth values—true, false, or undetermined.
2. What is the contrary of the obverse of “All scientists are cats.”
3. What is the contrapositive of the contradictory of No cats are dogs.
4. Make these two claims correspond to each other.

All students study hard.

Some people who do not study hard are students.

1. All engineers are scientists.

Some scientists are not friendly.

Thus, some engineers are not friendly.

Draw the Venn diagram for this categorical syllogism and state if it is valid or invalid.

1. No cats are musicians.

Some musicians are curious.

Thus, some cats are not curious.

Draw the Venn diagram and state if valid.

1. Consider this statement: Some women are not biologists.

Is “women” distributed or undistributed?

Is “biologists” distributed or undistributed.

Symbolize the following arguments in propositional logic and state if valid or invalid (Use capital letters to symbolize the statements and state what the letters mean). Use the arrow (🡪) for :if…then”  
19. If today is Monday then there is a test. Thus, today is Monday because there is a test.

20. There will be a party tonight because if there will be a party tonight then today is Friday and indeed, today is Friday.

21. If the book is on the table then the pen is on the shelf Thus, the pen is not on the shelf because the book is not on the table.

22 Since Mozart was not a great scientist, Einstein is not a great musician because if Einstein is a great musician then Mozart is a great scientist.

23. If I will pass the test then I will go to the movies tonight, because I will pass the test then I will be happy and if I will be happy then I will go to the movies tonight.

Symbolize the following sentences into propositional logic using capital letters (and say what the letters mean)

24. Either Jones is President or if Matthews is Secretary then Peters is Vice-President.

25. Only if the taxes are lowered will I buy a new house.

26. I will cut the lawn only if you don’t cut the lawn.

27. Either you will lose, or if you do not lose then you be happy.

28. Draw the truth table for the following argument and use the truth table to determine if it is valid.

If it is invalid, draw a squiggly line through the line or lines that make it invalid.

P v Q

Q🡪P

Thus, P🡪Q

29. Use the short truth table >method to determine if the following argument is valid or invalid.

Plug in the truth values so I can see how you arrived at your answer. Briefly explain your answer.

P🡪Q

Q v –R

R\_\_\_\_\_\_

P🡪(Q v R)

Translate into propositional logic

1. Assuming the P is false and Q is false and R is true what is the truth value of the following statement.

Plug in all the truth values (below the letters and the connectives) so I can see how you got the answer. –P means “not P” 🡪 means “if…then”

(--P v Q)🡪(R🡪Q)

*31. What is life’s little joke? (See “Life’s Little Joke” by Gould) short answer.*

*Fill in the missing premise to make this argument valid (for 32 and 33)*

*32. You ought to pay back the money because you promised to pay it back.*

*33.* Since the death penalty is cruel and unusual punishment it is unconstitutional.

34. What is the sufficient condition and what is the necessary condition of the following statement? “If you study for the test you will pass the test.” 5 points

In the following argument from analogy identify the premise analogue, the conclusion analogue, and the attribute of interest:

I found Joyce’s Ulysses very difficult to read, so I’ll probably find Finnegans Wake difficult too.

For the following questions

A=statistical syllogism B = generalization from a sample C=argument from analogy

D = causal argument E=causal statement

35. She is tired because she worked all day.

36. Since she worked all day she must be tired.

37. Since all the students in the class have read Great Expectations I’m sure they have all read it.

38. She is a physicist and since most physicists love math I’m sure that she also loves math

39. Most of the physicists I’ve met love math so I conclude that most physicists love math.

40. I’ve read Hamlet and Macbeth, which are both tragedies written by Shakespeare, and I loved them both. On the other hand, I read King Lear, which is also a tragedy by Shakespeare, and didn’t like it. I’ve also read Much Ado About Nothing and The Tempest, both of which are written by Shakespeare but are not tragedies. So, I think I’ll probably like Othello, because it is written by Shakespeare and is a tragedy.

In this argument from analogy, identity the conclusion analogue, the premise analogues. Then state the similarities, the dissimilarities, and the counter example. 5 points

41. Complete the following deduction using one or more of the following rulels:

MP Modus Ponens MT modus tollens

1. P Premise
2. P->Q Premise
3. Q->R/Thus, R

4.

5.

Identify each of the following as examples of

covariation principle (CP), common variation principle (CVP), or paired unusual event (PUE)

CV common variation principle

PUE paired unusual event

41. The more you study the better the grades you will get.

42. This morning when I woke up the legs were very sore. It must have been because I walked five miles the day before.