MID-TERM EXAM
FUNDAMENTALS OF LOGIC/INTRODUCTION TO LOGIC
PHIL 1

If you calculate all the marks available you will see you reach 95, which is A, out of 100. Therefore, in this midterm there are 5 marks that can be assigned by the instructor following these criteria:

1. **Students who gave both acceptable answers for exercise 9, +1 point**
2. **Students who gave both acceptable answer for exercise 12, +1 point**
3. **Students who completed all the points listed in exercises 16, +2 points**
4. **Everyone gets +1 to start with, that's my present for you.**

NOTE: Depending on how the exam goes I may decide to allocate these 4 points to support weaker submissions [e.g. D+4; C+3; B+2; A+1]

SECTION 1
EXERCISES
(up to 30 marks, 6 questions for 5 marks each).

1. Consider the following argument:

If you buy the jumbo popcorn, then you will need a large drink. You bought the jumbo popcorn. You will need a large drink.

What syllogism? Write your answer here and explain why: **Valid**, **modus ponens**

2.Consider the following argument:

> If you get the bon bons, you won't need popcorn. Ruslan needed popcorn. So, he did not get the bon bons.

What syllogism? Write your answer here and explain why: **Valid, modus tollens**

3. Consider the following argument:

Anyone who plays the piano well must have done a lot of practice. Yuja has done a lot of practice. Therefore, she plays the piano well.

What syllogism? Write your answer here and explain why: **Invalid, affirming the consequent**

4. If a valid argument has a false conclusion, then at least one premise must be false
Is this true or false?

Write your answer here and explain why: **True**

A valid argument cannot have all true premises and a false conclusion. So, if a valid argument does have a false conclusion, it cannot have all true premises. Thus, at least one premises must be false

5. If an invalid argument has all true premises, then the conclusion must be false

Is this true or false? Write your answer here and explain why: **False**
It is possible for an invalid argument to have all true premises and a true

conclusion. Ex: P1: All dogs are mammals.: All terriers are mammals. C: All terriers are dogs.

6. Open Theoretical Question (answer no more no less than ½ A4 page)
Explain the Differences between Stoic Logic and Categorical Logic. Then reflect on the importance of Stoic Logic for the development of Propositional Logic. What are the differences/similarities between them?

Answer: slides

SECTION 2
EXERCISES (explain your answers, when needed)
(up to 50 marks, 10 questions for 5 marks each)

7. An invalid deductive argument could have all true statements in it.

Is this true or false? _____**true**____

The conclusion of the argument could just be true by coincidence. For example, 'the sky is blue and grass is green, so you are working this problem now'. Admittedly, it is doubtful anyone would intentionally offer such an argument.

8. Consider the following argument:
You will meet a tall, handsome stranger or you will stay home and pick fleas off of your cat. You didn't meet a tall, handsome stranger. Therefore, you stayed home and picked fleas off of your cat.

A. Invalid, Disjunctive Syllogism
B. Valid Disjunctive Syllogism
C. Invalid, Modus Ponens
D. Valid, Modus Tollens
E. Invalid, Affirming the Consequent

Write your answer here: **B**

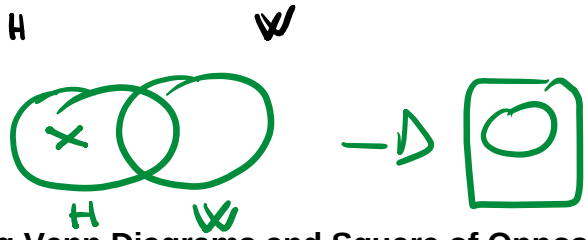
9. Consider the following argument:
If the lever is depressed then the valve will open, provided the pressure in the boiler is over 500 psi and the temperature exceeds 80C. The pressure right now is 600 psi. The gauge, which is extremely reliable, reads 90C. So if the valve won't open then the level isn't depressed.

Which of the following is true?

A. If we accept the basic premises then we should accept the final conclusion as a certainty.
B. If we accept the basic premises and we have no further information, then we should accept the final conclusion.
C. The argument contains a fallacy.
D. The whole argument is inductive.
E. None of the above.

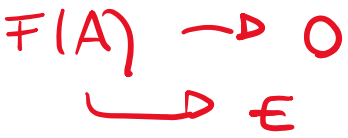
Write your answer here **B (being charitable)/ A also acceptable**

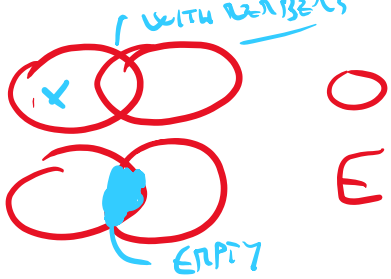
10. Venn Diagram the following Statement and say what sort of statement it is
Some Humans are not Women



11. Using Venn Diagrams and Square of Opposition Determine whether the inference is conditionally valid, unconditionally valid, invalid or logically unknown.

a. It is false that all students are geniuses
b. Therefore, no students are geniuses





INFERENCE IS (INVALID) / LOGICALLY UNDETERMINED

12. Rephrase the following statement in standard categorical proposition. Individuate subject, predicate, copula and quantifier. Then say which term (If any) gets distributed

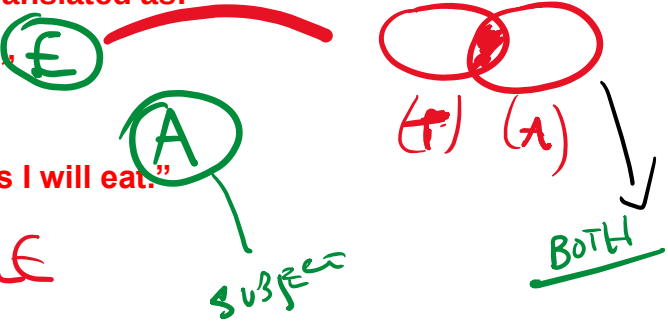
"I will eat all toppings except anchovies on my pizza''

This tells us TWO things: (1) Something about what I will NOT eat, and (2) Something about what I WILL eat. So, this gets translated as:

(1) "No pizza toppings I will eat are anchovies''

Q S C P

AND (2) "All non-anchovies are pizza toppings I will eat."

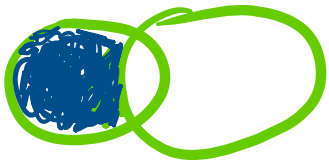


BOTH ACCEPTABLE

13. Rephrase the following statement in standard categorical proposition. Individuate subject, predicate, copula and quantifier. Then say which term (If any) gets distributed

No one except my friends are allowed to borrow my car

REPHRASED: "All people allowed to borrow my car are my friends''.
Subject: People…
Predicate: my friend
Copula: are
Quantifier: All



P F

[All S are P: A statement]. Subject gets distributed
E statement also acceptable if properly framed

14. Determine the main operator in the following proposition. Then determine its truth values. Let *A*, *B*, and *C* be true and *X*, *Y*, and *Z* be false. Circle your answers.

$\sim[(A \equiv X) \vee (Z \equiv Y)] \vee [(\sim Y \supset B) \bullet (Z \supset C)]$

15. Determine the main operator in the following proposition. Then determine its truth values. Let *A*, *B*, and *C* be true and *X*, *Y*, and *Z* be false. Circle your answers.

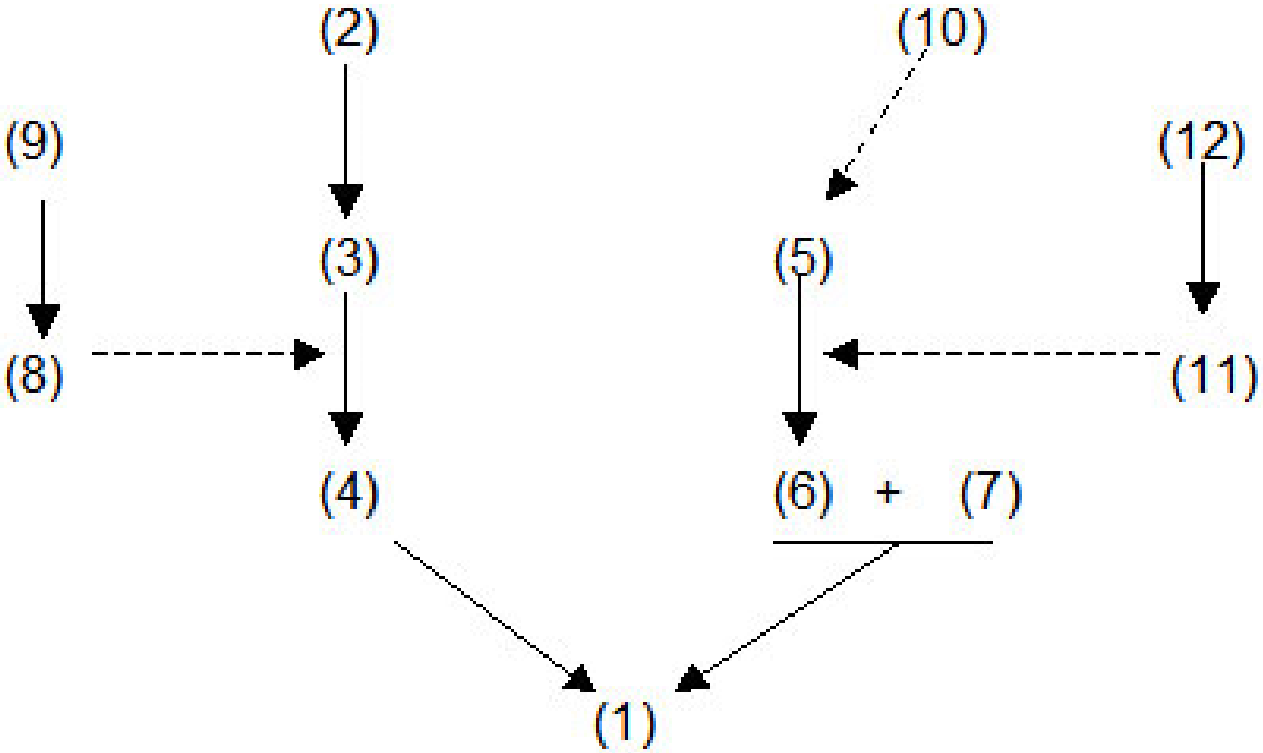
$(Z \supset C) \supset \{[(\sim X \supset B) \supset (C \supset Y)] \equiv [(Z \supset X) \supset (\sim Y \supset Z)]\}$

SECTION 3
16. DIAGRAMMING (20 marks)
For 20 marks, define the 4 types of reasoning involved in diagramming and give one example for each type.

Answer: slides

Then individuate premises/conclusion of the following diagram. Finally, diagram the following passage

'I know of two reasons for being hopeful that (1) the global economy will improve. First of all, since (2) the Chinese and Indian economies are booming, (3) demand for goods from all over the world will increase, and so (4) considerable growth in international trade may be expected. But a different reason is this: (5) the political situation in America is much better now, which means that (6) American confidence will increase; and we know that (7) increased American confidence will improve the global economy. My feeling, however, is that both of these reasons are poor. For one, (8) there is no clear relation between the demand for goods and growth in international trade because (9) many nations take protectionist measures to ensure that the demand for goods can be locally met. Moreover, (10) the state of American politics is not as rosy as the media would have us believe. Besides, (11) an upbeat political situation would not increase American confidence anyway because (12) the fundamentals of the American economy remain weak'.


(2)
(10)
(9)
(12)
(3)
(5)
(8)
(11)
(4)
(6) + (7)
(1)