5. If A is a syntactic consequence in PS of a set Γ of formulas of P, then prove that A is a semantic consequence of the set Γ of formulas of P.   5

Or

6. Prove that $\Gamma \cup \{\sim A\}$ is a p-inconsistent set of PS iff $\Gamma \vdash_{PS} A$.   5

7. If a set of formulas of P has a model, then prove that it is a p-consistent set of PS.   5

Or

8. For any maximal p-consistent set Γ of PS and any formula A of P prove that exactly one of A and ~A is in Γ.   5

MASTER OF ARTS EXAMINATION, 2023

(2nd Year, 3rd Semester)

PHILOSOPHY

[Logic - II]

Time : Two Hours   Full Marks : 30

1. a) If S is a formal system in which for each formula A of S, there is a formula A' that on the intended interpretation expresses the negation of A, then prove that if S is simply consistent, it is absolutely consistent.

   b) If S is a formal system for which it is a metatheorem that A, $A' \vdash_{PS} B$ (where A and B are arbitrary formulas of S and A' expresses the negation of A on the intended interpretation), then if A is absolutely consistent, then prove that it is simply consistent.   5+5=10

Or

2. Prove that PS is both simply and absolutely consistent by model theoretic means.   10

3. If $\Gamma \cup \{A\} \vdash_{PS} B$, then prove that $\Gamma \vdash_{PS} A \supset B$.   10

Or

4. Prove that any p-consistent set of PS is a subset of some maximal p-consistent set of PS.   10

[Turn over