UNIVERSITY OF LONDON
M PHIL EXAMINATIONS 2005
for internal students

PHILOSOPHY OF MATHEMATICS

Candidates should answer THREE of the following questions. Please avoid overlap in your answers.

1. Does bivalence hold for all mathematical propositions?

2. Does the justification for believing a mathematical theory depend on its role in empirical science?

3. What are cardinal numbers?

4. Does intuition have a role in geometrical understanding and discovery?

5. Is a geometrical theory that is not true of actual physical space thereby not true?

6. Does the discovery that the goal of Hilbert's Programme is unachievable make confidence in non-finitary mathematics irrational?

7. 'A numeral is a name of a number. The referent of a name is an object. Therefore numbers are objects.' Discuss.

8. Explain the difference between sets and proper classes. If we believe in sets, should we believe in proper classes also?

9. Are the axioms of Dedekind-Peano arithmetic theorems in some axiomatisation of logic?

10. Does the Downward Lowenheim-Skolem theorem, or other results in model theory, do anything to undermine mathematical realism?

11. 'The principal objection to mathematical structuralism is that it fails to attach any clear meaning to the term "structure".' Discuss.

12. What, if anything, does our capacity to do mathematics tell us about the nature of the human mind?

END OF PAPER