UNIVERSITY OF LONDON 0088 0270

BA EXAMINATION

For Internal Students

This paper is also taken by Combined Studies Students

PHILOSOPHY

Optional Subject (r) Philosophy of Mathematics

Tuesaday, 13th May, 2003, 10.00 am - 1.00 pm.

Answer THREE questions, Avoid overlap in your answers.

1. What considerations led Plato to hold that geometrical entities are not perceptible? What difficulties face this view and can they be overcome?

2. Can we really form an idea of a point without extension or a line without breadth?

3. Is the view that Euclidean geometry is a body of a priori knowledge about physical space coherent?

4. Assess Mill's view that we know by induction from experience that two straight lines meet at most once.

5. 'Any positive integer n is the sum of n units; therefore a number is a multitude of units.' Discuss.

6. How does Mill interpret arithmetical equations such as $4 + 6 = 2 \times 5$? Assess the objections to his view.

7. What are the merits of and problems for a formalist view of arithmetic?

8. Did Frege present good grounds for his view of number in *The Foundations of Arithmetic*?

9. Explain the view that mathematics is really logic, in light of the fact that mathematics, unlike logic, is about specific kinds of entity such as numbers and functions. Why is Russell's paradox a threat to this view?

10. 'Arithmetic may not be logic, but it is analytic.' Discuss.

11. Explain the significance of the view that mathematical objects are mental constructions for the logic of mathematics.

12. Present and assess an argument from considerations of meaning for the claim that no mathematical truth is in principle unknowable.

13. Are there good reasons for thinking that, though there are finite sets, there are no infinite sets?

14. Describe Hilbert's proposal for a finitist justification of non-finitary mathematics. Was this proposal reasonable at the time it was made?

15. Is pure mathematics rationally revisable in the light of empirical findings?

16. Should we regard as fictional those parts of mathematics which are not needed by our best total empirical science?

END OF PAPER