UNIVERSITY OF LONDON 088 0270

BA EXAMINATION 2002

for Internal Students

This paper is also taken by Combined Studies Students

PHILOSOPHY

Optional subject (r): Philosophy of Mathematics

Wednesday, 8 May 2002: 10.00 – 1.00

Answer THREE questions. Avoid overlap in your answers.

1. Explain and assess Kant's conviction that the propositions of arithmetic are synthetic a priori.

2. Given the multiple set-theoretic reductions of the natural number sequence, is it plausible to think that, so far as arithmetic is concerned, any omega sequence will do?

3. Assess the following argument: Knowledge of a range of objects presupposes causal contact with those objects; mathematical objects, if they exist, are abstract and hence acausal; so a Platonist interpretation of mathematics precludes the possibility of mathematical knowledge.

4. Explain and assess Field's contention that mathematics does not have to be true to be good.

5. Are sets of observable entities themselves observable?

6. Explain the impact of Gödel's incompleteness theorems on Hilbert's programme.

7. Frege believed that the analyticity of arithmetic was plausible given that the falsity of arithmetic was unthinkable (in contrast, say, with the falsity of physics or Euclidean geometry). Explain and assess Frege's reasoning.

8. Did Frege establish that arithmetic has a covertly logical subject matter?

9. What role, if any, does inference to the best explanation play in the justification of mathematical axioms?

10. What kinds of things have cardinalities – physical objects, concepts, sets?

TURN OVER

11. Did the intuitionists provide adequate grounds for rejecting the law of the excluded middle?

12. Are number words adjectives despite their surface-grammatical similarity to singular noun phrases?

13. What is the role of intuition in geometrical knowledge?

14. Explain the significance of the Julius Caesar problem for implicitly defining number in terms of an abstraction principle.

15. Explain and evaluate Russell's simple theory of types and his justification for it.

16. 'Numbers, if they exist, exist necessarily.' Discuss.

END OF PAPER