

Monday 5 June 2000
1.30 to 4.30

HISTORY AND PHILOSOPHY OF SCIENCE (1)

History of Science

Answer question one from Section A and three questions chosen from Section B.

SECTION A

1 Where has science been done?

SECTION B

- 2 'The revolution in astronomy and natural philosophy was accomplished by Kepler.' Discuss.
- 3 'In the 17th century, from Galileo to Boyle, the greatest changes in natural philosophy came through the use of instruments, not of mathematics.' Discuss.
- 4 What was mechanical philosophy in the seventeenth century?
- 5 Discuss the importance of commerce and industry to natural philosophy between 1650 and 1750.
- 6 Is the 18th the century of fluids and forces in natural philosophy?
- 7 **EITHER** How and why did the scientific career change during the nineteenth century?
OR How did the "hospital medicine" created after the French Revolution differ from eighteenth-century "bedside medicine", on the one hand, and late nineteenth-century "laboratory medicine", on the other?
- 8 How did Freud turn a medical practice specialising in nervous diseases into a laboratory of the normal human mind?

- 9 **EITHER** "Looking to the world at no very distant date, what an endless number of the lower races will have been eliminated by the higher civilised races throughout the world." (Charles Darwin) How and why has the theory of natural selection been applied to the human species?
OR Charles Darwin has sometimes been called the last of the natural theologians. Why?
- 10 **EITHER** Was the process leading to the discovery of the double helical structure of DNA characteristic of scientific work in the aftermath of World War II?
OR How did developments in atomic physics during the first half of the twentieth century, including those leading to the splitting of the uranium atom, change the image of the scientist?
- 11 Would physics be different had Einstein not lived?
- 12 What roles have women played in the history of the oral contraceptive pill?

END OF PAPER

Wednesday 7 June 2000
9 to 12

HISTORY AND PHILOSOPHY OF SCIENCE (2)

Philosophy of Science

Answer question one from Section A and three questions chosen from Section B.

SECTION A

- 1 Is there a scientific method?

SECTION B

- 2 'Perhaps we can have knowledge without experience, but we can't have knowledge without reason'. Discuss.
- 3 **EITHER** 'The failure to embrace idealism is just a failure of intellectual nerve.' Discuss.
OR Could there be a reason to believe that a scientific theory is true, and not just that its observable consequences are true?
- 4 Has Karl Popper solved the problem of induction?
- 5 **EITHER** 'Causation is all in the head.' Discuss.
OR What is the relation between laws of nature and universal generalisations?
- 6 Is there more than one mechanism by which we refer to particular objects? Does it matter?
- 7 How does knowing why a phenomenon occurs differ from knowing that it occurs?
- 8 Under what conditions does a given observation support a particular hypothesis?
- 9 Do Kuhn's claims about what science achieves follow from his claims about how science works?

- 10 **EITHER** Many sociologists of science hold that social and political interests shape the very content of scientific theories. Does this view entail that scientific theories are incapable of accurately 'mapping' the world?
OR 'Epistemological relativism is incoherent.' Discuss.
- 11 In what sense does the nature of quantum reality differ from that of classical reality?
- 12 Can we regard science as a pure search for knowledge and therefore free of any ethical problems?

END OF PAPER