

NATURAL SCIENCES TRIPOS Part IB

Monday 4th June 2012 1.30 to 4.30

HISTORY AND PHILOSOPHY OF SCIENCE (1)

History of Science

Before you begin read these instructions carefully:

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

Begin each answer on a separate sheet.

*Write legibly and on only **one** side of the paper.*

Answers must be tied up in separate bundles, marked 1, 2, 3, etc. according to the number of the question.

*Attach a completed coversheet to each bundle and complete a master coversheet listing all questions attempted. It is essential that you write your examination number and **not** your name on the cover sheet and on **each** bundle.*

STATIONERY REQUIREMENTS

Script paper, blue coversheets, yellow master coversheet, and tags.

You may not start to read the questions printed on the subsequent pages of this question paper until instructed that you may do so by the Invigilator

SECTION A

1. How has the identity of the scientific practitioner changed since 1500?
2. Are wars and political revolutions good for science?

SECTION B

3. How did early modern anatomists and natural philosophers challenge Galenic views of bodies and diseases?
4. 'From the closed world to the infinite universe': is this a good description of the changes in European cosmology between 1500 and 1800?
5. Isaac Newton's 'miraculous year' at Woolsthorpe occurred in the same decade as the foundation of the Royal Society. Which was more important for science?
6. Was there a chemical revolution in the eighteenth century?
7. What led Charles Darwin to develop a theory of evolution?
8. How did scientific research emerge as a central activity of the modern university?
9. 'The key feature of modern medicine is that its diseases are defined in laboratories.' Use examples from the eighteenth, nineteenth and twentieth centuries to assess this statement.
10. Is it fair to suggest that the greatest legacy of the eugenics movement is The Pill?
11. Was the project to build an atomic bomb typical of the sciences in the twentieth century?
12. Discuss the respective roles of evidence and philosophical presuppositions in initiating major transformations in twentieth science, using as your principal example EITHER the debates about the theory of relativity OR the debates about continental drift.

END OF PAPER

NATURAL SCIENCES TRIPOS Part IB

Tuesday 5th June 2012 9.00 to 12.00

HISTORY AND PHILOSOPHY OF SCIENCE (2)

Philosophy of Science

Before you begin read these instructions carefully:

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

Begin each answer on a separate sheet.

*Write legibly and on only **one** side of the paper.*

Answers must be tied up in separate bundles, marked 1, 2, 3, etc. according to the number of the question.

*Attach a completed coversheet to each bundle and complete a master coversheet listing all questions attempted. It is essential that you write your examination number and **not** your name on the cover sheet and on **each** bundle.*

STATIONERY REQUIREMENTS

Script paper, blue coversheets, yellow master coversheet, and tags.

<p>You may not start to read the questions printed on the subsequent pages of this question paper until instructed that you may do so by the Invigilator</p>
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SECTION A

1. If scientists sometimes ignore inconvenient observations, how is science different from pseudo-science?
2. Why should we believe scientists' claims?

SECTION B

3. Did Popper solve the problem of induction?
4. Is incommensurability compatible with scientific progress?
5. Do physicists and astronomers have good reasons to believe that the unobservable entities postulated in their theories are real?
6. If most theories have been shown to be false, do we have any reason to have confidence in our theories?
7. Are explanations in chemistry incompatible with physics?
8. Understanding social action requires interpretation. Does this fact make the social sciences fundamentally different from the natural sciences?
9. Is Darwin's case for evolution inductive, deductive, abductive or something else?
10. Does the observation of a white shoe confirm the hypothesis that all ravens are black?
11. Is it wrong to fund research into racial IQ differences?
12. Is informed consent of subjects necessary for medical research to be ethical?

END OF PAPER