

NST1  
NATURAL SCIENCES TRIPOS PART IB

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**Monday, 3<sup>rd</sup> June 2013, 1.30 - 4.30 pm**

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**Paper HPS/1**

**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 to do so.**

## SECTION A

- 1 To what extent has the development of the sciences been driven by economic needs?
- 2 What part have universities played in the history of science?

## SECTION B

- 3 What did early Islam make of ancient Greek philosophy and science?
- 4 Why did William Harvey go to Padua and what did he learn there?
- 5 'Nature exhibits herself more clearly under the trials and vexations of art than when left to herself' (FRANCIS BACON). Why did early modern natural philosophers perform experiments?
- 6 What were the principal roles of astronomers in early modern Europe?
- 7 Did Newton use experiments as a means of discovery or as a way of verifying what he knew already?
- 8 What was the role of Malthus's *An Essay on the Principle of Population* in the development of the theory of natural selection?
- 9 How did early bacteriologists persuade their audiences to believe in the reality of disease-causing germs?
- 10 In what ways was early twentieth century genetics an applied science?
- 11 Discuss the effects of the atomic bomb project on scientific disciplines, with reference to **two** of the following: physics, biology, and ecology.
- 12 What influence did psychoanalysis have on the development of twentieth century psychiatry?

**END OF PAPER**

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**Tuesday, 4<sup>th</sup> June, 2013, 9am–12am**

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**Paper HPS/2**

**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.*

**You may not start to read the questions printed on the subsequent pages of this question paper until instructed to do so.**

## SECTION A

- 1 'There is no such thing as the philosophy of science, only philosophies of particular sciences'. Discuss.
- 2 Does philosophy of science have any important lessons for the practice of science?

## SECTION B

- 3 What is the best solution to the demarcation problem?
- 4 What is the best argument against scientific realism?
- 5 Is incommensurability incompatible with scientific progress?
- 6 Must good explanations involve causal claims?
- 7 Is evidence from randomised control trials always better than evidence from observational studies?
- 8 Can we justify our reliance on induction?
- 9 Should we worry about the fact that many concepts of modern physics are not amenable to direct observation or measurement?
- 10 Is it plausible to model humans as rational choosers?
- 11 Is there a biologically acceptable notion of human nature?
- 12 Is informed consent sufficient for research on human subjects to be ethical?

**END OF PAPER**