

NST2HP

Natural Sciences Tripos Part II: History and Philosophy of Science

Monday 3 June

1.30 pm to 4.30 pm

Paper 2

Early Medicine

*Students taking **History and Philosophy of Science** should answer **FOUR** questions. Answer **one** question from Section A and **three** questions from Section B. All questions carry equal weighting.*

*Students taking **Biological and Biomedical Sciences** should answer **THREE** questions, all of them chosen from Section B. Do not answer any questions from Section A.*

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 coversheet and on **each** bundle.*

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SECTION A

1. To what extent does the availability of sources from before 1750 condition the types of history of medicine that can be written?
2. To what extent should the wide range of practices and types of knowledge associated with maintaining health and curing illness be characterised as medicine?
3. "From antiquity through the eighteenth century, men and women were seen as different in degree rather than in kind". Discuss.

SECTION B

4. **EITHER** a) How did ancient physicians establish their medical authority?
OR b) How did doctors' relationship with political power develop between the beginning and end of Graeco-Roman antiquity?
5. How important were the changes in ancient medical education after Galen's lifetime?
6. Is it right to blur the boundary between early and later medieval medicine?
7. What accounts for the prominence of leprosy amongst medieval sicknesses?
8. Did medieval ideas about the body reflect how disease was treated in practice?
9. **EITHER** a) 'To understand how health care developed and changed over the early modern period we must not look to the medical marketplace for an explanation, but seek to explain the medical marketplace itself.' Discuss.
OR b) To what extent was early modern medicine presented as 'rational'?
10. 'The anatomised body tells us nothing about the living body'. Discuss from the perspective of medical practitioners and/or their patients.
11. Should the history of early modern medicine be written as the history of diseases?

END OF PAPER

NST2HP

Natural Sciences Tripos Part II: History and Philosophy of Science

Thursday 30 May 9.00 am to 12.00 pm

Paper 3

Natural Philosophies: Renaissance to Enlightenment

*You should answer four questions in total. Answer **one** question from Section A and **three** questions from Section B. All questions carry equal weighting.*

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SECTION A

1. 'In science, the credit goes to the man who convinces the world, not to the man to whom the idea first occurs' (*Francis Darwin*). Is this true of the sciences during the seventeenth and eighteenth centuries?
2. Can and should historians distinguish between early modern rational beliefs and early modern superstitious beliefs?
3. What kinds of people studied nature in early modern Europe?

SECTION B

4. 'Alchemists sought to achieve change by using the power of nature; magicians sought it by using the power of spirits.' Is this a fair reflection of the relationship between early modern alchemy and magic?
5. How did the availability of printed books affect the pursuit of early modern natural history and natural philosophy?
6. How did new instruments change seventeenth- and eighteenth-century astronomy?
7. Was early modern astrology as much concerned with shaping the past as it was with predicting the future?
8. How was the 'noble savage' important for eighteenth-century writers and travellers?
9. Did eighteenth-century natural history collections tend to emphasize utility over novelty?
10. Compare and contrast natural philosophy in France and in England during the Enlightenment.
11. Why was Linnaeus' system of sexual classification of plants contentious?

END OF PAPER

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Natural Sciences Tripos Part II: History and Philosophy of Science

Friday 31 May 9.00 am to 12.00 pm

Paper 4

Science, Industry and Empire

*You should answer four questions in total. Answer **one** question from Section A and **three** questions from Section B. All questions carry equal weighting.*

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SECTION A

1. “The nineteenth century became the Age of Science partly because in those years science became not merely an intellectual activity but also an agent in changing society” (David Knight). Do you agree?
2. How and why did the places where scientific knowledge was produced change during the nineteenth century?
3. Is the history of nineteenth-century science the history of specific scientific disciplines?

SECTION B

4. Did science become a profession in Britain during the second half of the nineteenth century?
5. Was there any connection between the nineteenth-century development of telecommunications and physicists’ interest in precision measurement?
6. Was Darwin's theory of evolution progressive?
7. “Science owes more to the steam engine than the steam engine does to science”. Is this confirmed by the development of nineteenth-century physical sciences?
8. To what extent did nineteenth-century evolutionary theories conflict with religious beliefs?
9. How were nineteenth-century sciences affected by the media in which they were presented?
10. Discuss the ways that empire shaped the development of **either** geology **or** botany in the nineteenth century.
11. Who participated in nineteenth-century imperial sciences?

END OF PAPER

NST2HP

Natural Sciences Tripos Part II: History and Philosophy of Science

Monday 3 June

9.00 am to 12.00 pm

Paper 5

Modern Medicine and Biomedical Sciences

*Students taking **History and Philosophy of Science** should answer **FOUR** questions. Answer **one** question from Section A and **three** questions from Section B. All questions carry equal weighting.*

*Students taking **Biological and Biomedical Sciences** should answer **THREE** questions, all of them chosen from Section B. Do not answer any questions from Section A.*

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SECTION A

1. Is “medicalization” a useful concept for historians?
2. “Doctors used to cure disease; today, they manage risk.” Do you agree?
3. “Medicine is a social science, and politics is nothing else but medicine on a large scale” (Rudolf Virchow). Does the history of modern medicine confirm this claim?

SECTION B

4. How and why did hospitals change between the mid-eighteenth and mid-nineteenth centuries? What effect did this have on the theory and practice of medicine?
5. **EITHER** a) Why, and with what consequences did late-nineteenth-century surgeons construct their professional identity around Joseph Lister?
OR b) Explain the introduction of the Medical Act in 1858 and evaluate its effects on medical practice and medical training.
6. What role did experimental physiology play in the making of modern medicine?
7. Worboys’ *Spreading Germs* (2000) claims there were many different germ theories at the end of the nineteenth century. Consider his argument with reference to TB and malaria.
8. As penicillin was discovered in 1928, why did it only become available as a therapeutic in the 1940s?
9. **EITHER** a) Has the medical profession sought to control women’s reproductive capacity? Discuss, with respect to the history of contraception and pregnancy.
OR b) What is the relationship between cancer research and cancer treatment, and how did this change between 1900 and 1960?
10. Are medical values and news values at loggerheads?
11. Have psychopharmaceuticals revolutionised psychiatry, or did their introduction continue the nineteenth-century tradition of “restraint”?

END OF PAPER

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Natural Sciences Tripos Part II: History and Philosophy of Science

Wednesday 29 May 9.00 am to 12.00 pm

Paper 6

Metaphysics, Epistemology and the Sciences

*You should answer four questions in total. Answer **one** question from Section A and **three** questions from Section B. All questions carry equal weighting.*

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SECTION A

1. 'In science, there is physics. Everything else is just stamp collecting.' Discuss.
2. In what sense, if any, are the sciences unified?
3. Does science progress?

SECTION B

4. Is there a theory-free observational language?
5. In what sense, if any, is mathematics the language of science?
6. If models are always, strictly speaking, false, what is their value?
7. Are there any good reasons to accept constructive empiricism?
8. Does the underdetermination of theory by data present a serious problem for scientific realism?
9. Is evolution a good model for the development of the sciences?
10. Are biological species natural kinds?
11. What, if anything, distinguishes proximate from ultimate causes in biology?

END OF PAPER

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Natural Sciences Tripos Part II: History and Philosophy of Science

Thursday 30 May 1.30 pm to 4.30 pm

Paper 7

Ethics and Politics of Science, Technology and Medicine

*You should answer four questions in total. Answer **one** question from Section A and **three** questions from Section B. All questions carry equal weighting.*

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SECTION A

1. "Science aims at the truth, the whole truth, and nothing but the truth". Discuss.
2. Should science be insulated from society?
3. When and why should non-scientists defer to scientific experts?

SECTION B

4. How did J. D. Bernal and his socialist associates relate science to communism?
5. Does the problem of inductive risk show that science cannot be value-free?
6. Is there such a thing as scientific malpractice?
7. Are the social sciences more value-laden than the natural sciences?
8. Are there any important ethical differences between genetic tests and other medical tests?
9. "Experimental ability is invisible in its passage and in those who possess it" (H.M. Collins). Does this claim support a sociological approach to scientific knowledge?
10. What does the sociology of scientific knowledge imply for the claim that science should be more democratic?
11. Are theories of well-being relevant to debates over human enhancement?

END OF PAPER

NST2HP

Natural Sciences Tripos Part II: History and Philosophy of Science

Thursday 30 May 9.00 am to 12.00 pm

Paper 9

History of Philosophy of Science

*You should answer four questions in total. Answer **one** question from Section A and **three** questions from Section B. All questions carry equal weighting.*

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SECTION A

1. How does the philosophy of science relate to its history?
2. "Philosophers such as Locke, Berkeley, Hume, and Kant based their philosophies of science on sciences which differ very much from those we have today; therefore, their reflections are useless for understanding contemporary science." Discuss.
3. Are such general categories as "empiricism", "positivism", "rationalism", etc., useful for the historian of philosophy?

SECTION B

4. What is Locke's argument against "real essence"?
5. Can one refute Berkeley's idealism by kicking a stone?
6. Discuss one or more of Hume's uses of his maxim that all ideas are copied from former impressions.
7. How is geometry supposed to confirm Kant's transcendental idealism?
8. How did Kant relate Newtonian mechanics to his critical philosophy?
9. "All knowledge has observational foundations". Discuss in relation to the philosophy of the Vienna circle.
10. Compare the roles assigned by Mach and Duhem to theory in the sciences.
11. Is there any important sense in which there are multiple, equally good perspectives on the world? Answer in relation to pragmatism and/or Poincaré's conventionalism.

END OF PAPER

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Natural Sciences Tripos Part II: History and Philosophy of Science

Friday 31 May 1.30 pm to 4.30 pm

Paper 10

Mind and Society

*You should answer four questions in total. Answer **one** question from Section A and **three** questions from Section B. All questions carry equal weighting.*

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SECTION A

1. What has been the impact of social and ideological change on the sciences of mind and society?
2. Have the human sciences emulated the natural sciences? If so, have they done so successfully?
3. Is interpretation necessarily subjective?

SECTION B

4. If a lecturer is a computer in a robot body can they understand their own lectures?
5. Keynesianism is different from Keynes's economics. Explain how and why.
6. "If economists could manage to get themselves thought of as humble, competent people on a level with dentists, that would be splendid" (J.M. Keynes, *Essays in Persuasion*). Discuss.
7. Strict generalisations are hard to find in the social world, therefore most explanations in social sciences are deficient. Discuss.
8. Is rational choice theory about real human beings? Need it be?
9. How much was the reception of psychoanalysis affected by its insistence upon the centrality of sex in human psychology?
10. Is the therapy industry Freud's greatest legacy?
11. What are the implications of Foucault's concept of power for the history of the human sciences?

END OF PAPER

NST2HP

Natural Sciences Tripos Part II: History and Philosophy of Science

Friday 31 May 1.30 pm to 4.30 pm

Paper 11

Mesopotamian Science and Scholarship

*You should answer four questions in total. Answer **one** question from Section A and **three** questions from Section B. All questions carry equal weighting.*

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SECTION A

1. How and why did the historiography of Mesopotamian scholarship change over the course of the twentieth century?
2. How did scholarly knowledge travel in the ancient Middle East?
3. What are the benefits and disadvantages for the historian of science in the concept of “cuneiform culture”?

SECTION B

4. Who learned to be cuneiform literate in the Old Babylonian period? How and why?
5. How were literature and mathematics related in the Old Babylonian period?
6. Compare and contrast the images of healers portrayed in letters and literary works of the later second millennium BC.
7. How did Mesopotamian gods and goddesses affect human sickness and health?
8. To what extent did the Assyrian king trust his scholars?
9. “Assyrian court scholars relied more on observation and experience than on the written tradition of omens.” Discuss.
10. Why and how did celestial divination survive the end of the Assyrian empire while extispicy (sacrificial divination) did not?
11. How important was mathematisation to Late Babylonian scholarship?

END OF PAPER