

NST2HP

Natural Sciences Tripos Part II: History and Philosophy of Science

Saturday 28 May 9.00am to 12.00pm

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 describe the fortunes of Galen over the centuries is almost to write the history of medicine since his death." Discuss.
2. In medieval and early modern Europe, could men and women suffer the same diseases?
3. Did patients create the medical marketplace?

SECTION B

4. Was prognosis more important than diagnosis for medieval practitioners and patients?
5. A complex movement of texts, ideas and practices is at the heart of the historical development of medicine in the medieval Islamic world. Show how the terms "transmission," "reception," "assimilation" and "systematization" can be effective tools for understanding it.
6. Were sites of learning or sites of practice more important to medieval medicine?
7. Was humanism the primary driver of medical innovation in the sixteenth and seventeenth centuries?
8. How far did new ingredients and the rise of advertising change the practice of medicine in early modern Europe?
9. Does it make sense to speak about early modern mental health?
10. How and to what extent did institutional change drive change in medicine in early modern Europe?
11. Do available sources give us more information about the experiences of early modern patients or of practitioners?

END OF PAPER

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Natural Sciences Tripos Part II: History and Philosophy of Science

Monday 30 May

9.00am to 12.00pm

Paper 3

Sciences in Transition: 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. Was the world “disenchanted” between 1550 and 1750?
2. How did commerce and empire affect the development of natural knowledge in the seventeenth and eighteenth centuries?
3. Why did early modern European patrons support the pursuit of natural knowledge?

SECTION B

4. To what extent did the practices of early modern natural philosophy abandon textual traditions?
5. “Astrologie, is an Arte Mathematicall, which reasonably demonstrateth the operations and effectes, of the naturall beames, of light, and secrete influence, of the Sterres and Planets, in euery element and elementall body, at all times, in any Horizon assigned.” (John Dee, *Preface to Euclid’s Elements of Geometry*, 1570)
Discuss.
6. How did the introduction of new instruments change seventeenth-century natural philosophy?
7. What was the role of “improvement” in natural historical exploration and collection?
8. “God said, Let Newton Be!” (Alexander Pope, *Epitaph on Sir Isaac Newton*, 1727). What was the effect of Newton’s work on eighteenth-century natural philosophy and astronomy?
9. What were the main issues in the eighteenth-century debates on the generation of animals? Why was the topic so controversial?
10. Were eighteenth-century electricity and chemistry enlightened sciences?
11. Is it useful to describe the period around 1800 as marking “the end of natural history”?

END OF PAPER

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Natural Sciences Tripos Part II: History and Philosophy of Science

Thursday 26 May 1.30pm to 4.30pm

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. How did relations between experts and their audiences change during the nineteenth century?
2. Did processes of colonization and of decolonization in the nineteenth and twentieth centuries change scientific practices?
3. How did different nineteenth-century sciences define the notion of progress?

SECTION B

4. How did biogeographical studies relate to nineteenth-century empire building?
5. How did the doctrine of evolution naturalise human differences in European nations and empires?
6. What was the significance of cities to the development of the sciences in the nineteenth century?
7. Was Darwinism an agent of secularization?
8. “The Royal Observatory is quietly contributing to the punctuality of business through a large portion of this busy country” (George Airy). What were the functions of nineteenth-century observatories?
9. In what ways were disciplines important to the practice of science in the nineteenth century?
10. How did physiology inform understandings of perception, and technologies of vision, in the later nineteenth and early twentieth centuries?
11. How did the Qing dynasty participate in imperial science?

END OF PAPER

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Natural Sciences Tripos Part II: History and Philosophy of Science

Monday 30 May

1.30pm to 4.30pm

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.*

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SECTION A

1. "Science has always been more important as ideal than as practice." Does your understanding of the history of medicine since 1750 support this claim?
2. "The history of modern medicine should focus not on the eminent doctors and scientists who named or cured diseases, but on the perspectives of patients who suffered from those diseases." What are the advantages and disadvantages of this approach?
3. To what extent and in what ways have governments shaped medicine since 1750?

SECTION B

4. "The innovations credited to the post-revolutionary Paris clinical school were not nearly so revolutionary as historians have claimed." Do you agree?
5. "The rise of medicine as a profession in the mid-nineteenth century sounded the death knell for women's participation in healing practices." Assess this claim.
6. To what extent did the rise of experimental physiology depend on institutions outside the laboratory?
7. X-rays and cinema were invented in the same year: 1895. Outline and explain their divergent careers in medicine and in public culture.
8. How and with what consequences did methods of assessing the safety and effectiveness of pharmaceuticals change in the twentieth century?
9. Why was there so much optimism about the power of medical science to improve health after World War II? When and why did this optimism decline?
10. "The most significant modern interventions in human reproduction were more social than technical." Assess this claim.
11. How did decolonization in the twentieth century affect medicine and public health in former European colonies?

END OF PAPER

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Natural Sciences Tripos Part II: History and Philosophy of Science

Friday 27 May

9.00am to 12.00pm

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. Does it matter if different branches of science exhibit methodological differences?
2. How can philosophers of science profit from study of the history of the philosophy of science?
3. "The recipe for doing good science is simple: choose the theory that fits the observational data!" Discuss.

SECTION B

4. What is a scientific explanation?
5. "Values should play no role in science." Discuss.
6. What role did the distinction between theory and observation play for the positivists of the Vienna Circle?
7. Compare the views of William Whewell and John Stuart Mill on the ways in which progress in the sciences has come about.
8. What role(s) could chance play in a deterministic theory of evolution?
9. Present and defend the most plausible account of scientific laws.
10. What would science lose if scientists could not rely on tacit knowledge?
11. Discuss Locke's representation theory of perception in relation to the responses of two or more of Leibniz, Berkeley and Hume.

END OF PAPER

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Natural Sciences Tripos Part II: History and Philosophy of Science

Wednesday 25 May 1.30pm to 4.30pm

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. Should we “get the science right” first, before addressing the social, political and/or economic dimensions of a controversial subject? Is this even possible? Discuss with reference to historical examples.
2. “Science is politics pursued by other means.” Is it?
3. How can there be a sociology of scientific knowledge?

SECTION B

4. “The place of science is everywhere and nowhere.” Discuss the sociological significance of the location of scientific work.
5. Should scientific claims presuppose value judgments? If so, how? If not, why not?
6. What were the political issues in the mid-twentieth-century debate about the role of technology in the formation of “modern science”?
7. Can there be a reliable and policy-relevant science of well-being?
8. Why has the question of the purity and disinterestedness of science been so controversial?
9. What is new in our current debates about climate?
10. What is the significance, if any, of differences between the validity of a scientific knowledge claim and the credibility of that claim?
11. Are there morally significant differences between eugenic judgements or actions at the parental level and those at the societal level?

END OF PAPER

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Natural Sciences Tripos Part II: History and Philosophy of Science

Wednesday 25 May 9.00am to 12.00pm

Paper 8

History and Philosophy of the Physical 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. How successful has reduction to physics been, as a strategy for the development of other physical sciences?
2. In what ways has the character of the physical sciences changed over the centuries?
3. Have there been genuine cases of underdetermination in the physical sciences? Discuss with reference to specific examples.

SECTION B

4. What are the historical similarities and contrasts between meteorology and climatology?
5. "Then it was that an astronomical observatory began, for the first time, to take on the appearance of a laboratory" (William Huggins, 1897). What was the significance of this transformation in the history of astronomy?
6. What is the function of demonstration experiments in the physical sciences?
7. What is the quantum measurement problem? For which interpretations of quantum mechanics is it a problem, and why?
8. Would the history of physics between 1900 and 1920 be markedly different if Albert Einstein had not lived?
9. Did chemists in the nineteenth century have sufficient reason to believe that atoms and molecules were real?
10. What explains the lasting success of the periodic table of chemical elements?
11. How has the search for unity affected the development of the physical sciences?

END OF PAPER

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Natural Sciences Tripos Part II: History and Philosophy of Science

Saturday 28 May 1.30pm to 4.30pm

Paper 10

Human and Behavioural 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. To what extent have the human sciences provided a mirror on Western assumptions about the mind and society?
2. How have the natural sciences shaped the methods used to study humans?
3. Laws of human science are an impossible dream. Discuss.

SECTION B

4. In what way (or ways) should social science provide understanding of social phenomena?
5. Pick the most compelling objection to rational choice modelling. Is there a good reply to it?
6. Why was the study of the unconscious mind so controversial in the nineteenth century?
7. To what extent does fieldwork change the nature of anthropologists' relations to the peoples they study?
8. How have anthropological encounters changed over time?
9. What role, if any, should beliefs and desires play in the scientific investigation of the mind?
10. "The best way to understand the mind is by investigating the brain." Do you agree?
11. What form should explanations take in psychology and/or psychiatry?

END OF PAPER