

NST Part IB History and Philosophy of Science
Senior Examiner's Report
3 October 2020

1. The examination process

As in previous years, the Part IB HPS examination consisted of two papers: History of Science (HPS/1), and Philosophy of Science (HPS/2). The examiners were Dr Matt Farr (senior examiner), Dr Salim Al-Gailani, Dr Emma Perkins, Prof. Simon Schaffer, Dr Anna Alexandrova, and Dr Andrew Buskell. There was no external examiner.

Due to the Covid-19 pandemic, the History of Science (HPS/1) and Philosophy of Science (HPS/2) exams were replaced by online essay assignments. For Part IB students, these took the form of single-marked formative assessments, and for Part II students, these were double-marked and formally assessed (contributing towards final degree transcripts). For each paper, the assessment consisted of a written essay of no more than 3000 words from a choice of two questions. For each paper, the questions took the form of 'Section A' questions from typical HPS Part IB exam papers. The questions were released on April 21 2020, with a submission deadline of 12noon BST on Monday 1 June 2020.

There were no notable incidents during the examinations, to the examiners' best knowledge. All candidates with registered disabilities were accommodated appropriately, also to the examiners' best knowledge.

Al-Gailani, Perkins, and Schaffer read the History of Science essays, and Farr, Alexandrova, and Buskell read the Philosophy of Science essays. For Part IB candidates, each script was blind single-marked, with each examiner reading 1/3 of scripts. For Part II candidates, each paper was blind double-marked, with each examiner reading 2/3 of scripts, the rota being arranged so that each pairing of examiners was assigned 1/3 of the whole set. A numerical mark out of 100 was given by each examiner to each script as a whole, and that mark was agreed between the two examiners in each case; in very few cases, agreement was reached with the help of the remaining examiner.

The HPS Part IB examiners' meeting was held on Monday 8 June, to agree all marks and discuss any issues. In preparation for this meeting, the two groups of three markers of each paper met independently on Friday 5 June to discuss each script in detail.

The electronic scripts bypassed the problem of deciphering the handwriting of candidates, which has required much time and effort on the part of the examiners in previous years.

2. The subject examiners' meeting, and recommendations arising from it

The HPS subject examiners' meeting on 8 June was attended by all examiners. Marks on the individual papers, HPS/1 and HPS/2, had all been agreed at the meetings on 5 June, and were combined to provide an overall mark. Since the assessments were only formative for IB candidates, there was no need to scale the marks to meet a specific distribution.

A noticeable feature of the essays submitted in comparison with previous Part IB exams was, unsurprisingly, the detail of content and structure, and range of material synthesised in answers. Offered the time and space for greater reflection and expansion, and using notes and the internet, many students took the opportunity to pen synthetic essays. More than in other years, these ranged over the entirety of the course material, and often integrated material from the four-week modules as examples. Some essays were more targeted, and developed material from supervision essays to make a focused point—and these tended to be more successful. Ranging anywhere from five to eight pages, the essays were much better edited and organized, and many students took the opportunity to create subdivisions in their work. This also resulted in more creative and unusual essays, with students taking the opportunity to bring in original and relevant material from the sciences they are studying in parallel with HPS. The examiners remarked that this allowed the examinations to act as a better test of students' abilities to construct well-structured essays than the typical closed-book three-hour exam format.

A number of suggestions were made by the examiners that might be of particular use in future online-only exams.

The role of supervisors and supervisions for the assessments was discussed by the examiners. In particular, it is important to make more clear exactly what the function of supervisions in these exam conditions, in order to ensure fairness for candidates with different supervisors; e.g. how much supervision is permitted for candidates, and how much the supervisor may contribute towards the planning of the essay.

The longer length of essays (3000 words for a single essay) compared to the traditional exam format (four essays written in three hours) allowed students to demonstrate greater structure within essays (such as sections and subsections), draw on wider sources, and show a greater depth of understanding of the issues.

3. Summary of results

A total of 50 candidates submitted essays for both HPS/1 and HPS/2; 62 submitted an essay for HPS/1; and 61 submitted an essay for HPS/2. The breakdown of marks is listed in the following tables. The average combined mark for students who took both papers was 66; the average mark for HPS/1 was 66; the average mark for HPS/2 was 67. Since only one essay was to be submitted, and since a month was available to complete this essay, and since the exercise allowed consultation of primary and secondary sources, it is perhaps unsurprising that there was a higher distribution of marks compared to previous years.

HPS/1 & HPS/2

class	number	%
1st	17	34.00%
2.1	25	50.00%
2.2	8	16.00%
3rd	0	0.00%
Fail	0	0.00%
Total	50	100.00%

HPS/1

class	number	%
1st	20	32.26%
2.1	30	48.39%
2.2	12	19.35%
3rd	0	0.00%
Fail	0	0.00%
Total	62	100.00%

HPS/2

class	number	%
1st	22	36.07%
2.1	27	44.26%
2.2	11	18.03%
3rd	1	1.64%
Fail	0	0.00%
Total	61	100.00%

There was a wide range of marks awarded to essays, demonstrating that the take-home exam format allowed the examiners to differentiate well between strong and weak performances.

Range of marks

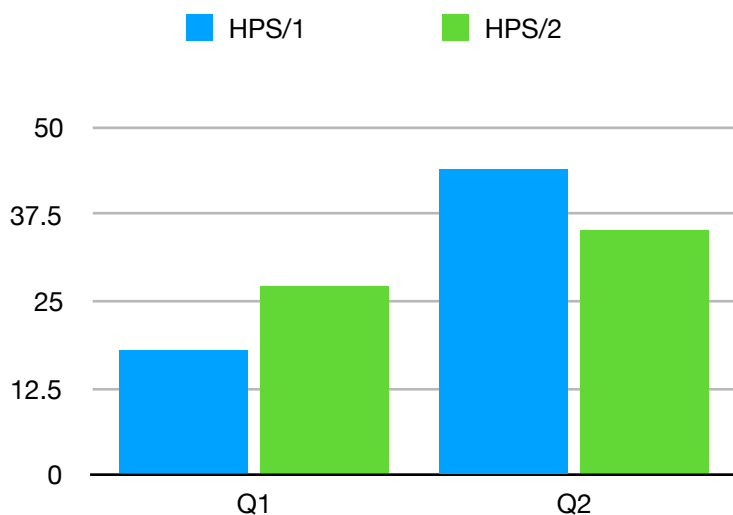
	HPS/1	HPS/2	Overall
Highest	82	90	82
Lowest	53	48	54

4. Comments on performance on individual questions

Given there were only two choices of essay question for each exam, the only remark to be made about the statistics of essay questions chosen is that there was a heavy preference for Q2 in the HPS/1 paper. Examiners suggested that this particular preference was unsurprising since Q2 allowed students to offer notes and drafts from a range of supervision topics, including material from Parisian medicine, from Darwinian evolution and racial science, and from the Manhattan project.

Distribution of questions answered

	Q1	Q2
HPS/1	18	44
HPS/2	27	35



History of Science (HPS/1)

The HPS/1 essays showed an impressive level of engagement with the course material, both lectures and readings. The format allowed for more creative and original approaches, with students emboldened to use a wider range of historical examples and case studies and reflect on the writing of history, and consequently the questions seemed to generate fewer formulaic answers.

Q1. “Observation [not theorising ...] is the key to knowledge of nature.” Does your understanding of the history of the sciences confirm this view?

Q1 provoked a wide thematic distribution of answers, including some that included extended discussions of the experimental method and inductivism, interpreting the question as directed at a contrast between empiricism and instrumentalism. Stronger answers offered some valuable remarks on the historical changes in the definition and function of theory, and on the historical practices that underwrite notions of theory-laden observation.

Q2. Does history of science demonstrate that “knowledge is power”?

Responses to Q2 were noted by the examiners as being more creative and diverse in comparison with Q1, with students prompted to reflect on social relations linking power and knowledge across a broader time period. While some essays were considered ‘episodic rather than synthetic’ by examiners, stronger essays offered interesting distinctions between military, economic and moral functions of natural sciences, with students prompted to reflect on social relations linking power and knowledge across a broader time period.

Philosophy of Science (HPS/2)

Section A

Q1. All scientific problems can be solved with sufficient data. Do you agree?

Students often explored this question by relating it to problems of value- and theory-ladenness, problems of induction, and underdetermination of theory by data. These were taken to show that data collection is, by its nature, oriented towards specific goals and were insufficient for making definitive claims. Often, what was at stake were ‘theories’, and

students often linked the question to concerns around Kuhnian paradigms. A scant few—but invariably more successful essays—noted the realist implications behind the question, and related the problem to that literature. Occasional, but prevalent, was a strategy that linked the question to the ‘problem of other minds’, but these tended to be less successful.

Q2. There is no scientific method, only scientific methods. Discuss.

This question allowed students to draw on attempts at describing and justifying epistemological and scientific methods. As is the case with a question like this, the essays tended to include discussions of Popper, Kuhn, Lakatos, and Feyerabend—often linking these to concerns with induction. This year’s scripts were noticeable for having greater engagement with Feyerabend, many of which engaged with his views with sophistication. Occasional, but also evident, was discussion of abduction or IBE, which were also better characterised and engaged with than in previous years. More generally, students tended to argue that there was no single scientific method, though their reasoning different. More sophisticated essays distinguished attempts at demarcation from attempts at characterising empirical fecundity; with many arguing that scientific institutions and mechanisms of peer-review were responsible for the latter.