

NST Part IB History and Philosophy of Science  
Senior Examiner's Report  
June 20, 2018

### **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. Emma Perkins, Dr. Natalie Kaoukji, Dr. Matt Farr, Prof. Nick Hopwood, Prof. Tim Lewens, and Dr. Jacob Stegenga (Senior Examiner). There was no external examiner.

The History of Science (HPS/1) exam took place on Monday 4 June 2018, and Philosophy of Science (HPS/2) on Tuesday 5 June. 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.

Drs Perkins, Kaoukji, and Hopwood read the History of Science scripts, and Drs Farr, Lewens, and Stegenga read the Philosophy of Science scripts. Each script was blind double-marked. On each paper, any given examiner read 2/3 of the 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. Marks were not agreed question-by-question, though each examiner did make assessments of each answer and those assessments were discussed in some detail in some cases.

The HPS Part IB examiners' meeting was held on Tuesday 12 June, to agree all marks and discuss any issues. In preparation for this meeting, the three markers of each paper met together on Monday 11 June to discuss each script in detail. The examiners are to be commended for working to this tight timetable. Scripts from examinations that were taken at special locations were delivered quickly, which facilitated this turnaround.

As in previous years, there was some difficulty in deciphering the handwriting of a few candidates, requiring time and effort on the part of the examiners. In one case in the philosophy scripts, a candidate's handwriting was determined to be indecipherable and was sent for transcription.

In agreeing final marks, we followed the standard scaling regime in NST Part IB, requiring the following distribution (which applies unless an exemption is warranted by the 'cohort values' reflecting the group's performance level at Part IA): 20% of candidates in each subject to receive firsts in that subject, 40% to receive 2.1, and the remaining 40% to receive 2.2 or below.

### **2. The subject examiners' meeting**

The HPS subject examiners' meeting on 12 June was attended by all examiners. Marks on the individual papers, HPS/1 and HPS/2, had all been agreed at the meetings on 11 June, and were combined to provide an overall mark. Our agreed final grades met the distribution requirements of NST. Thus no scaling was required.

### **3. Summary of results**

A total of 71 candidates were entered for the examinations, of whom 2 withdrew from both exams, leaving 69. The mean grade was 62.7.

As was the case last year, the examiners noted significant clustering around particular questions, and wondered whether exams might be set differently in the future to encourage students to engage with the entire range of course material.

#### **4. Comments on performance on individual questions**

##### History of Science (HPS/1)

(number of responses for each question listed for each question).

General: While it is good practice to include an introduction that explains how a question will be approached, several candidates signposted so extensively and repetitively that it took valuable space away from argumentation.

Q1 The question, which might have been couched more historically and plurally (“What have been the roles ...?”), elicited a wide range of answers. The best discussed the changing and various roles of experiment across the history of the sciences, while recognizing the claims of other routes to knowledge. Too many candidates discussed early modern experiments only. 23

Q2. The best answers worked creatively with the ambiguity in the question between the contributions of science and medicine and of their historians to understandings of the categories of gender, race and class. Less good answers failed to tackle these categories as such, omitted one of them or explained how science and medicine had been shaped by gender, race and class. 13

Q3. The better answers to this popular question went beyond the conflict thesis to argue for tight and varied relations. The best recognized a distinction between personal beliefs and institutionalized religion. Many candidates could have done more to consider change versus continuity over the period. 15

Q4 Also popular, this question challenged candidates to go beyond listing and thus to synthesize much diverse material. Renaissance humanism tended to be discussed at the expense of magic and the occult. 15

Q5. 3

Q6. 4

Q7. 6

Q8. 1

Q9 was unsurprisingly the most popular question and produced a wide range of answers, with the best considering conditions of possibility from material to conceptual and from general preconditions to immediate stimuli, while keeping a tight focus on Darwin’s writing as what needed to be explained. 22

Q10. 3

The moderately popular Q11 might perhaps have referred to the decades around 1800 rather than the early nineteenth century. It produced some good answers, though few did justice to the reorganization (or otherwise) of knowledge as distinct from institutions and careers. 9

Q10. 3

Q11. 9

Q12. 0.

Many candidates attempted Q13, and while a few dumped prepared material on the Manhattan Project, most understood that some comparison between periods was required. 13

Q14, though fairly popular, often produced answers limited to the postwar migration of physicists into the life sciences. Some candidates, however, gave exemplary accounts of the role of the discovery of the structure of DNA. 12

Q15. 5

#### Philosophy of Science (HPS/2)

(number of responses for each question not now available)

#### General

As in previous years, the examiners felt that there was opportunity to repeat content on answers to multiple questions (for example, material on Popper could reappear in questions, 1, 2, 3, and 11).

Q1 Few students said what they took skepticism to mean. Students conflated skepticism and fallibilism.

Q2 There were some superficial answers to this question. Few students distinguished between philosophers making compelling claims about science versus in fact influencing science. There was a strong empirical element to this question which not many students adequately noted.

Q3 This was a popular question, and it was answered relatively well. Students mostly described Popper's falsificationism, and had some critical comments about it.

Q4 Not many students answered this question. Few students unpacked the ambiguity in the notion of 'approaching' science (eg doing science versus assessing science from a philosophical perspective).

Q5 Quite a few answered this question. Most answers drew on Hacking's notion of looping effects. Most answers were competent.

Q6 There were no answers to this question.

Q7 There were very few answers to this question.

Q8 Many students answered this question. Most answers adequately described Kuhn's theory of scientific change. There were some good appeals to scientific domains like biology. Also, the spread of examples in the scripts were diverse.

Q9 Not many students answered this question. The answers were adequate. There was rather a lot of rehashing of lecture material.

Q10 Too few answers to generalise.

Q11 The examiners found the answers to question 11 (on induction) to be, on average, mediocre. Many students did not adequately describe the precise nature of the problem (many students took the problem to be methodological rather than epistemological, for example). We noted that the material on induction is spread through various parts of the paper (in the 'What is Science' lectures, the 'Philosophy of Science in Practice' lectures, and various other places).

Q12 These were on the whole adequate answers (though few students precisely characterised Boorse's view).

Q13 Few students understood exactly what 'internal' means here. Many answers, naturally, drew on Douglas.

Q14 Too few answers to generalise.

Q15 Many answers followed the same basic structure, which involved presenting the main theories of causation adequately well. There was some lecture content re-hashing. It wasn't clear that many students understood the screening off condition.