Examiners' Report: FHS Mathematics and Philosophy Part A; Trinity Term 2013

November 13, 2013

Part I

A Statistics

- **Numbers and percentages in each class.**

  See Table 1, page 1.

Table 1: Numbers in each class

Range	Numbers				Percentages %			
	2013	2012	2011	2010	2013	2012	2011	2010
70–100	6	5	7	5	37.5	27.78	31.81	20.83
60–69	4	6	11	14	25	33.33	50	58.33
50–59	3	6	4	4	18.75	33.33	18.19	16.67
40–49	3	1	0	1	18.75	5.56	0	4.17
30–39	0	0	0	0	0	0	0	0
0–29	0	0	0	0	0	0	0	0
Total	16	18	22	24	(100)	(100)	(100)	(100)

- **Numbers of vivas and effects of vivas on classes of result.**
  Not applicable.
- **Marking of scripts.**
  The same system of checking was used as in all parts of FHS Mathematics. There are no Philosophy papers in FHS Part A in Mathematics & Philosophy.
- **Numbers taking each paper.**
  The whole cohort of 16 candidates took all 4 papers.

B. New examining methods and procedures

None

C. Changes in examining methods and procedures currently under discussion or contemplated for the future

A review of the structure in Part A is underway. This will be implemented in 2013/14.

D. Notice of examination conventions for candidates

The first Notice to Candidates was issued on 22nd November 2012 and the second notice on the 1st May 2013.

These can be found at https://www.maths.ox.ac.uk/notices/undergrad/2012-13/part-a, and contain details of the examinations and assessments. The course Handbook contains the full examination conventions and all candidates are issued with this at Induction in their first year. All notices and examination conventions are on-line at http://www.maths.ox.ac.uk/notices/undergrad.

1 Part II

A. General Comments on the Examination

The examiners would like to express their gratitude to

- Nia Roderick for overseeing Part A examinations during 2012/13.
- Also Waldemar Schlackow for continuing to develop the examinations database, responding to examiner requests and providing such a good framework for the examinations data.
- We would also like to thank Charlotte Turner-Smith, Sandy Patel, Vicky Archibald and Jessica Sheard for all their sterling work in keeping track of the scripts and marks and everything else they do during the busy examination period.
- We also thank those assessors who set their questions promptly, took care in checking and marking them, and met their deadlines. This is invaluable help for the work of the examiners.
- All the assessors and the internal examiners would like to thank the external examiner Dr Mark Wildon for his careful reading of the draft papers, scrutiny of the examination scripts and insightful comments throughout the year.

Timetable

The examinations began on Monday 17th June at 9.30am and ended on Thursday 20th June at 11.00am.

Medical certificates and other special circumstances

See Section E.

Determination of University Standardised Marks

The examiners followed the standard procedure for converting raw marks to University Standardized Marks (USM), as applied for candidates in mathematics. The examiners chose the values of the parameters as listed in Table 5 guided by the advice from the Teaching Committee and by examining individuals on each paper around the borderlines. These are the same as those for the mathematics candidates: the examiners judged the questions on the three core topics to be closer in difficulty this year as compared to last year, when questions on Differential Equations recorded higher averages than the other two sections.

Table 2: Parameter Values

Paper	C1	C2	C3
AC1(P)	43	27	13
AC2(P)	60	40	18
AO1(P)	34	21	10
AO2(P)	42	30	14

B. Equal opportunities issues and breakdown of the results by gender

Table 3, page 4 shows the performances of candidates broken down by gender.

Table 3: Breakdown of results by gender

Range	Total		Male		Female	
	Number	%	Number	%	Number	%
70 –100	6	37.5	6	50	0	0
60–69	4	25	2	16.67	2	50
50–59	3	18.75	2	16.67	1	25
40–49	3	18.75	2	16.67	1	25
30–39	0	0	0	0	0	0
0–29	0	0	0	0	0	0
Total	16	100	12	100	4	100

C. Detailed numbers on candidates' performance in each part of the exam

Tables 4 to 8 on pages 4 to 5 give the statistics for each paper of the examination.

Table 4: Overall statistics for each paper

Paper	average Raw	sdRaw	average USM	sdUSM
AC1(P)	35.88	10.61	65.19	12.35
AC2(P)	46.25	18.02	62.94	17.12
AO1(P)	25.56	6.67	62.62	10.86
AO2(P)	30.69	9.36	59.69	14.92

Table 5: Question Statistics for AC1(P)

Subject	Question	rawAve	rawSD	Attempts	Unused
Algebra	1	6.13	2.00	16	0
	2	5.56	2.03	16	0
	3	5.69	2.39	16	0
Analysis	4	7.13	2.25	16	0
	5	5.56	2.50	16	0
	6	5.81	2.54	16	0

Table 6: Question Statistics for AC2(P)

Subject	Question	rawAve	rawSD	Attempts	Unused
Algebra	1	14.33	8.29	11	1
	2	13.5	6.36	2	0
	3	16.29	6.31	14	0
Analysis	4	11.67	7.23	2	1
	5	16.11	4.48	9	0
	6	14.2	6.81	10	0

Table 7: Question Statistics for AO1(P)

Subject	Question	rawAve	rawSD	Used Attempts	Unused
Introduction to Fields	A1	6.33	2.31	12	0
Group Theory	B1	7.5	2.07	6	0
Number Theory	C1	5.8	3.52	9	1
Integration	D1	6.25	2.75	4	0
	D2	6	2.65	3	0
Topology	E1	5.93	1.79	15	0
	E2	6.15	2.91	12	1
Prelims Probability	N1	7	1	3	0

Table 8: Question Statistics for AO2(P)

Subject	Question	rawAve	rawSD	Used Attempts	Unused
Introduction to Fields	A2	12	5.34	5	0
Group Theory	B2	16	12.73	1	1
Number Theory	C2	16.78	5.83	9	0
Integration	D3	12	7.07	2	0
	D4	6		0	1
Topology	E3	19.4	4.62	5	0
	E4	12.1	6.03	8	1
Prelims Probability	N2	14.33	3.21	2	1

D. Comments on papers and individual questions

Below are comments on the questions that were specific to Mathematics and Philosophy. Comments on other questions are made in the report on the Mathematics Part A examination.

Question N1 was done by only three candidates. It consisted mostly of bookwork except for one calculation to be performed, and was generally well done, with no mark lower than 6/10. The final part on the weak law of large numbers was correctly done only by the top-scoring candidate.

Question N2 was done by only three candidates. There was one good attempt and two middling ones. The latter both lost a significant number marks on the probability generating function of a sum of a random number of independent random variables (which is a fairly standard bit of bookwork, although presented here in an unfamilar context). The more basic bookwork, however, was generally done well. Part (e)(i) was perhaps harder than I had anticipated and was only correctly done by one candidate.

E. Comments on performance of identifiable individuals

Removed from public version.

F. Names of members of the Board of Examiners

Prof. K. P. Tod (Chairman), Dr Y. Capdeboscq, Dr K. Erdmann, Prof. F. Kirwan, Dr M. Wildon (external examiner).

Assessors for Paper AO1(P) and AO2(P): Dr P. M. Neumann, Dr B. Szendroi, Prof. U. Tillmann, Prof. C. Batty, Prof. M. Lackenby, Prof J. Sparks, Dr. C. Goldschmidt.