Department of Mathematics: Examination Conventions 2021–22

Final Honour Schools of Mathematics – Part C

1 Introduction

This document sets out the examination conventions for the **Part C Examination** in Mathematics. Examination conventions are the formal record of the specific assessment standards for the course or courses to which they apply. The first part of this document is written explicitly for candidates and explains how your work will be marked and how these marks will be used to derive your final classification for Part C. The second part of the document contains additional information for assessors and examiners but some will also be of interest to candidates. So if you want to know the criteria used in deciding the marking scheme for each examination question, then see appendix D.2. Similarly the criteria used to decide how many marks your dissertation or mini-project should receive are given in appendices A and B. The qualitative class descriptors tell you what level of performance is required in order to get a particular class and can be found in appendix K. You might also find the checklist used by question setters useful, see appendix J.

The Mathematics Teaching Committee directs that the Part C Examination be in accordance with these conventions. The Board of Examiners may only make minor deviations from these conventions in exceptional circumstances and only after the consent of the Mathematics Teaching Committee or the Proctors. This document is in all ways subsidiary to the current:

- *Examination Regulations,*

- *Examinations and Assessment Framework.*

2 Progression through University Examinations

To qualify for your BA or MMath in Mathematics you must pass a First and Second Public Examination. The First Public Examination in Mathematics is currently called the Preliminary Examination in Mathematics and is taken at the end of the first year. You must pass the Preliminary Examination before you can be admitted to the Second Public Examination.

The Second Public Examination has three parts: Part A taken at the end of the second year, Part B taken at the end of the third year and Part C taken at the end of the fourth year. You cannot enter for Part B until you have completed Part A of the examination and only candidates who, at the end of their third year, obtain an upper second class classification or higher, together with a weighted Part B average of 59.5 or higher qualify to proceed to Part C. Candidates who satisfy the examiners in Part A and Part B only, qualify for the award of BA in Mathematics; candidates who satisfy the examiners for all three parts qualify for the award of MMath in Mathematics, with two associated classifications.

3 Part C Examination Papers

Students are assessed on the equivalent of 8 (this is the minimum number of units required), 9 or 10 units (2 of these units will include the dissertation). Further, you are required to offer at least 3 units which are assessed by written invigilated examination.

3.1 Mathematics Department Units

Written Examinations
C1.1–C3.8, C3.10–C5.2, C5.5–C6.4, C7.4–C8.6
Each mathematics paper will examine one unit. Most mathematics units will be assessed by a partially open book exam. These will consist of three questions, each worth 25 marks. You may submit answers to as many questions as you wish, but only the best two answers will count towards the final mark for the paper. You will be able to take one double sided summary sheet of notes that you have prepared into the written examination. More details of these summary sheets are available online at `https://www.maths.ox.ac.uk/members/students/undergraduate-courses/examinations-assessments/ugomms-examinations-2021-22`.

In all papers the questions set should, as a whole, be fairly spread across the syllabus.

Questions will be broadly similar in style to previous Part C questions - though take note of point 16 under section D.1 - with an easy start examining material explicitly covered in the course, followed by a part which tests understanding. Each question will be set so that a sound student can produce a complete answer within 35- 40 minutes.

Each question should be divided into two to four parts and an indication of the raw marks available for each part of each question should be given on the question paper.

C7.1
Please see the Physics Part C examination conventions at `https://weblearn.ox.ac.uk/portal/hierarchy/mpls/physics/teaching/undergrads/exammatters`.

Coursework
Dissertation

Dissertations are compulsory for Part C students and will have a weighting of two units. The word limit for dissertations is 7,500 words.

USM marks will be assigned to dissertations with the same meaning as regards class boundaries as in the mathematics papers. In arriving at these marks, the relative weights attached to content, mathematics and presentation will be 25%, 50% and 25%, respectively.

Mini-projects: C3.9, C5.4 and C6.5
All have a weighting of one unit. USM marks will be assigned to mini-projects with the same meaning as regards class boundaries as in the mathematics papers and with reference to the qualitative descriptor in Appendix I.

3.2 Statistics Department Units: SC1–SC5, SC7–SC10

Please see the Mathematics and Statistics Part C examination conventions at `http://www.stats.ox.ac.uk/current_students/bammath/examinations`.

3.3 Computer Science Department Units: CCS1–CCS4

Please see the Mathematics and Computer Science Part C examination conventions at `http://www.cs.ox.ac.uk/teaching/examconventions/mcs.html`.

4   Examination Conduct

You will receive advice from the examiners before each part of your finals examination. These notices provide information on the conduct of the examinations including the use of calculators and how to complete and submit answer booklets. Notices from examiners from previous years can be found on the Mathematical Institute's website.

4.1   Penalties for Non-attendance

Rules governing non-attendance at examinations and any consequent penalties are set out in full in the Examination Regulations (Regulations for the Conduct of University Examinations, Part 14).

If you are prevented by illness or other urgent cause from attending one of your examinations you should contact your college office or college tutor as soon as possible.

In cases where the Proctors do not believe there are satisfactory reasons for non-attendance or an application to the Proctors has not been submitted, this will result in failure of the whole of Part C. In such a case, the examiners will award a fail for each of the Part C assessments.

Please note that the non-attendance policy applies to all units, including those in excess of the minimum 8 units required. If you wish to drop an optional unit, you must submit a change of option request online here `https://www.oxforduniversitystores.co.uk/product-catalogue/academic-records-office-exam-schools/examination-entry-fees/aro-change-of-option-fee`.

5   Penalties for Late Submission of coursework

The Examination Regulations stipulate specific dates for submission of coursework to the examiners, this includes the Part C dissertations, mini-projects and any coursework you need to complete if you take a course taught by another department. Rules governing late submission and any consequent penalties are set out in full in the Examination Regulations (Regulations for the Conduct of University Examinations, Part 14).

If you will be prevented by illness or other urgent cause from submitting your coursework on time you should contact your college office or college tutor as soon as possible. Your college is able to submit an application for an extension of time to the Proctors on your behalf.

The scale of penalties agreed by the board of examiners in relation to late submissions of assessed items, without an accepted reason, is set out below.

Lateness	Penalty, % point reduction
Up to 4 hours	1 %
4–24 hours	10%
24–48 hours	20%
48–72 hours	30%
72 hours – 14 days	35%
More than 14 days late	Fail

Table 1: Late Submission Table for Coursework

Note: The penalty will be a percentage reduction of the maximum total mark available for the work. For example, if a 10% penalty is applied to an assessment given a USM out of 100 then 10 marks would be deducted. The final mark awarded after application of the penalty cannot be below 0.

Failure to submit a required element of assessment, without an accepted reason, will result in the failure of the whole of Part C. In such a case, the examiners will award a fail for each of the Part C assessments.

6 Plagiarism

You are reminded of the importance of avoiding any plagiarism, please see `http://www.ox.ac.uk/students/academic/guidance/skills/plagiarism` for further guidance. Depending on their severity, cases of suspected plagiarism may be referred to the Proctors for investigation or may be dealt with by the board of examiners. If dealt with by the board of examiners as a case of poor academic practice, the examiners may deduct marks (for lack of adequate referencing, poor use of citation conventions etc) of up to 10% of the marks available for the assessment. Where the consequence of the marks deduction would result in both the failure of the assessment and of the programme, the case must be referred to the Proctors.

We will reserve the right to conduct follow-up viva voce exams to check candidates' understanding of the examined material, even where these are not currently specified in the Examination Regulations.

7 Marking of Mathematics Examinations

All mathematics examinations are marked by a single assessor or examiner according to a pre-agreed mark scheme which is strictly adhered to. The examination scripts are then checked by an independent checker to ensure that all work has been marked, and that the marks have been correctly totalled and recorded.

The Part C dissertations are independently double-marked, normally by the dissertation supervisor and one other assessor. The two marks are then reconciled to give the overall mark awarded. The reconciliation of marks is overseen by the examiners and follows the department's reconciliation procedure (see `https://www.maths.ox.ac.uk/members/students/undergraduate-courses/teaching-and-learning/projects`).

Part C mini-projects are independently double-marked, normally by the course lecturer and one other assessor. The two marks are then reconciled to give the overall mark awarded for the mini-project. The reconciliation of marks follows the department's reconciliation procedure (see `http://www.maths.ox.ac.uk/members/students/undergraduate-courses/teaching-and-learning/projects`) and is overseen by the examiners. The exception to this is that mini-projects which have pre-agreed model solutions and marking scheme are marked by a single assessor. The mini-projects are then checked by an independent checker to ensure that all work has been marked, and that the marks have been correctly totalled and recorded.

Please see the appendices for the qualitative descriptors of the bands of marks awarded to examination answers (appendix D.2), mini-projects (appendix I) and dissertations (appendix H).

8 University Standardised Marks

Marks for each individual assessment will be reported as University Standardised Marks (USMs). The object of the USMs is to allow direct comparison between the results of examinations in different subjects. Raw marks may be turned into USMs by scaling (see Section 9 for further details), sometimes necessary to ensure that all papers are fairly and equally rewarded. The correspondence between the USM ranges and classes is as follows:

- 70-100: Distinction

- 65-69: Merit

- 50-64: Pass

- 0-49: Fail

These marks reflect the qualitative descriptors given in appendix K.

9   Analysis of marks

The Board of Examiners for Part C will assign USMs for each paper taken in Part C and may scale the raw marks to arrive at the USMs reported to candidates. The scaling algorithm used by the mathematics examiners is explained in detail in the 2020 examiners' report which can be found at `https://www.maths.ox.ac.uk/members/students/undergraduate-courses/examinations-assessments/examiners-reports`.

The examiners may choose to scale marks where in their academic judgement:

- a paper was more difficult or easier than in previous years, and/or

- an optional paper was more or less difficult than other optional papers taken by students in a particular year, and/or

- a paper has generated a spread of marks which are not a fair reflection of student performance on the University's standard scale for the expression of agreed final marks, i.e. the marks do not reflect the qualitative marks descriptors.

Such scaling is used to ensure that all papers are fairly and equally rewarded.

When scaling the raw marks on a paper the examiners will consider the following:

- the relative difficulty of the paper compared to the other Part C papers;

- information on candidates' performances on the earlier parts of the Examinations;

- the report submitted by the assessor who set and marked the paper.

Examiners will use their academic judgement to ensure that appropriate USMs are awarded and may use further statistics to check that the marks assigned fairly reflect the students' performances on a paper. Examiners may also review a sample of papers either side of the classification borderlines to ensure that the outcome of scaling is consistent with the qualitative marks descriptors.

Part C Classification Conventions

Let $AvUSM$ denote the weighted average of the dissertation plus the 6 other best USMs achieved (symmetrically rounded, 62.49 will be rounded down and 62.50 will be rounded up), at least 3 of which will have been assessed by written examination. Where a student has taken a double-unit course in addition to the dissertation, this will be counted as two separate USMs when calculating the $AvUSM$.

The classification criteria agreed by the Mathematics Teaching Committee are as follows.

- Distinction: $AvUSM \geqslant 70$;

- Merit: $70 > AvUSM \geqslant 65$;

- Pass: $65 > AvUSM \geqslant 50$;

- Fail: $50 > AvUSM$.

Note: Students who fail one paper or more contributing to AvUSM will not be eligible for a distinction or a merit.

Candidates so classified may supplicate for the MMath degree with the above associated classification for Part C; additionally their transcript will show the classification for Parts A and B previously assigned by the Part B examiners.

Candidates failing Part C should be eligible to supplicate. Candidates achieving:

$$AvUSM < 50,$$

should be eligible to supplicate for the BA and be awarded the appropriate class as determined by performance on Parts A and B.

10 Resits

A candidate who fails to satisfy the examiners at Part C ($AvUSM < 50$) may retake Part C on at most one subsequent occasion. The Part C assessments would be retaken the following Trinity term.

11 Alternative Examination Arrangements and Mitigating Circumstances Notices to Examiners

A candidate in any University Examination with specific learning difficulties or disability/illness may apply through the Senior Tutor of their college for alternative examination arrangements relating to their condition. Please see `http://www.ox.ac.uk/students/academic/exams/arrangements` for further information on the process.

Candidates who would like the examiners to be aware of any mitigating circumstances that may have affected their performance before or during an examination are advised to discuss their circumstances with their college and consult the Examination Regulations (Part 13). The candidate's college will submit the Mitigating Circumstances Notice to Examiners for forwarding to the relevant chair of examiners.

A candidate's final outcome will first be considered using the classification rules/final outcome rules as described above in section 4. The exam board will then consider any further information they have on individual circumstances.

Where a candidate or candidates have made a submission, under Part 13 of the Regulations for Conduct of University Examinations, that unforeseen circumstances may have had an impact on their performance in an examination, a subset of the board (the 'Mitigating Circumstances Panel') will meet to discuss the individual applications and band the seriousness of each application on a scale of 1-3 with 1 indicating minor impact, 2 indicating moderate impact, and 3 indicating very serious impact. The Panel will evaluate, on the basis of the information provided to it, the relevance of the circumstances to examinations and assessment, and the strength of the evidence provided in support. Examiners will also note whether all or a subset of papers were affected, being aware that it is possible for circumstances to have different levels of impact on different papers. The banding information will be used at the final board of examiners meeting to decide whether and how to adjust a candidate's results. Further information on the procedure is provided in the *Examinations and Assessments Framework*, Policy and Guidance for examiners, Annex C and information for students is provided at www.ox.ac.uk/students/academic/exams/guidance.

12 Declared to have Deserved Honours (DDH)

Candidates who have indicated they wish to be considered for DDH will first be considered for a classified degree, taking into account any individual MCE. If that is not possible and they meet the DDH eligibility criteria, they will be awarded DDH. Further details can be found here: `https://www.ox.ac.uk/students/academic/declared-awards`

13 Examiners for 2021-22

The internal examiners are: Prof. Eamonn Gaffney (Chair),
Prof. Victor Flynn (Chair),
Prof. Dominic Joyce,
Prof. Jason Lotay,
Prof. Qian Wang.

The external examiners are:
Prof. Alan Champneys, University of Bristol,
Prof. James Robinson, University of Warwick.

It must be stressed that to preserve the independence of the examiners, you should not make contact directly with them about matters relating to the content or marking of papers. Any communication must be via the Senior Tutor of your college, who will, if they deem the matter of importance, contact the Proctors. The Proctors in turn communicate with the Chair of Examiners.

Appendices

Further Information for Examiners

A Chair of Examiners

'Regulations for the conduct of examinations, Part 6', in the *Examination Regulations* covers the appointment of the Chair. The Committee for the Nomination of Examiners will usually appoint a Chair in Trinity Term of the preceding year.

B Paperwork

The internal examiners should ensure that they are equipped with the following documents which will be provided by the Maths Institute's administration, either in hard copy or in electronic copy.

- The *Examination Regulations*.
- The *Examinations and Assessment Framework*.
- The *Aims and Objectives* of the mathematics courses, as agreed by the Teaching Committee.
- The *Course Handbook* and the *Lecture Synopses*.
- The examination papers from the preceding two years.

- The Examiners' Reports on these examinations.

- The External Examiners' reports for the previous year.

- Any responses to these agreed by the Teaching Committee on behalf of the Faculty, and any additional decisions of the Teaching Committee.

- Reports to the Teaching Committee on individual papers where appropriate.

- Class Percentage Figures for the last two years as published in the Examiners' Reports and Teaching Committee's *Guidance for Examiners on percentage in each class.*

In the instance of new examinations, material from previous years will not be applicable, but there may be specimen examination papers produced by the Teaching Committee.

The Director of Undergraduate Studies will ensure that the external examiners are (where appropriate) also provided with copies of these documents.

C   Protocol for Setting Examination Papers

Each paper should be drafted by the appropriate lecturer, and checked by the lecturer of the complementary course if appropriate, or some other qualified person nominated by the examiners. Examiners and assessors are reminded that throughout the examination process security is very important. Examination papers must be submitted via the secure Sharepoint Online site.

D   Form of Questions

Each question will be marked out of 25 and should be divided into two to four parts. An indication of the raw marks available for each part of each question should be given on the question paper.

D.1   Checklist for Setters and Checkers

The examiners should provide those who are asked to supply draft questions with a checklist of important considerations.

1. Is the question on the syllabus (as in the Examination Regulations or Course Handbook including the lecture course synopsis)?

2. Is the mathematics correct?

3. Is the notation and terminology standard/obvious/defined? (Standard usage from the course is acceptable without explanation but phrases such as 'as in the lectures' should be avoided.)

4. Is the question unambiguous? Is it clear what may be assumed, what detail is required, and what would constitute a complete answer?

5. Is the form of presentation familiar/inviting/readable?

6. Does each question have an easy start, worth around 10 marks, which might be readily and routinely completed? This should not wholly be testing memory of previous material explicitly seen.

7. Is there material designed to differentiate at the class borderlines? (i) To achieve a USM of 60, is there a part that tests understanding of standard concepts/techniques (whilst still being rather straightforward) which tests whether a candidate can do any more than merely reproduce the bookwork verbatim? (ii) To achieve a USM of 60, is there is there a part for which a full solution requires truly excellent understanding and skill?

8. Would a candidate with a USM of 60 on average achieve around 13/25 marks for the question? Is a mark of 20+ unlikely to be achieved by a significant number of candidates who are not of first-class standard?

9. Is it the case that only exceptional first-class students are capable of gaining full marks? Note that a USM of under 50 on a paper means an academic fail of that paper at Part C. This alone will not entail overall failure at Part C but a student who fails one paper may not be awarded a distinction or merit overall.

10. Is each question overall of a straightforward character?

11. Are the questions as a whole fairly spread across the syllabus?

12. Are the questions of comparable difficulty to one another?

13. Are the questions sufficiently different from those set in recent years?

14. Is the question formatted using the oxmathexam.cls file?

15. Does the question, adequately spaced, fit on a single page?

16. Is the question suitable for an examination to which students can bring one sheet of A4 (with writing on both sides) with summary notes? In particular, candidates should not be able to obtain significant numbers of marks simply by reproducing material from lecture notes or problems sheets. However, as in (6) above, each question should include one or more parts, worth around 10 marks, that will be found straightforward and accessible by students who have conscientiously studied and understood the course material (including lecture notes and problems sheets), which might include producing arguments similar to those in the notes or problems sheets.

D.2 Marking Schemes and Model Solutions

Assessors setting questions should be asked to provide complete model solutions indicating everything that a candidate would be expected to write to answer the question fully. The model solutions and marking scheme need to be sufficiently clear and comprehensive to be meaningful to an external examiner. Those setting questions should be aware that solutions may be released to students in the future.

The model solution for each question should be accompanied by a marking scheme out of 25. The marking scheme should aim to ensure that the following qualitative criteria hold (see also the class descriptors given in appendix K):

20–25 marks A completely, or almost completely, correct answer, showing excellent understanding of the concepts and skill in carrying through the arguments and/or calculations; minor slips or omissions only.

13–19 marks A good though not complete answer, showing understanding of the concepts and competence in handling the arguments and/or calculations, and some evidence of problem-solving ability. Such an answer might consist of an excellent answer to a substantial part of the question, or a good answer to the whole question which nevertheless shows some flaws in calculation or in understanding or in both..

7–12 marks Standard material has been substantially and correctly answered with some possible minor progress on to other parts of the question.

0–6 marks Some progress has been made with elementary, accessible material.

Assessors should classify the parts of each question under the headings:

B1: bookwork material: explicitly seen before;
B2: routine material: easily synthesized from material explicitly seen before;
S: similar to material seen before;
N: new rider, demanding good command of concepts and/or methods.

D.3   Approval of Papers and Marking Schemes

The papers and marking schemes are reviewed by the whole examination board, including the external examiners (see further below). Minor edits may be made to a paper in consultation with the assessor. Once approved a camera ready copy of the paper should be produced. Assessors should be asked to check carefully and 'sign-off' the camera ready copy of their paper.

D.4   Review by External Examiners

The external examiners should be consulted according to the agreed timetable, and provided with stable draft papers; full annotated solutions indicating what is bookwork and standard material, and with the proposed marking scheme. Comments from the external examiners on each paper will be sent to each respective setter. The examiners should not finalise any paper without taking into account the comments of the external examiners. External examiners should be informed of action taken in response to their comments.

E   Attendance at Examinations

Attendance of Assessors will not be possible in the examination. If a candidate believes there is an error in the examination paper, they should state their assumption of the exam question within their exam script. This will then enable the Exam Board to investigate and if necessary take the error into consideration in the normal way.

F   Marking and Checking

F.1   Marking

The examiners should provide each assessor with the marking scheme approved by the Examining Board. Letters to assessors and markers in previous years are commended; the following points must be made:

Marking Schemes It is the responsibility of assessors to use the final approved marking scheme. Marking schemes should be applied consistently. However, should it become clear while marking that the allocation of marks should be changed, please ensure that this is done consistently, and advise the examiners of this change.

Mark Ranges in FHS papers All questions are to be marked out of 25.

Marking The examiners will want to review at least some of the scripts during the classification process. They will not want to re-mark (since they cannot do so consistently across all candidates). They will want to be able to see quickly where marks have been gained. They will also want to be sure that all of a candidate's work has been taken into consideration. Markers are therefore asked to observe the following.

- indicate on the mark sheets, using whole numbers, the available marks awarded for each part of a question.
- Include the total mark awarded for each questions in the highlighted sections of the marksheet, enter the integral numerical mark for each question, taking care to distinguish between an attempt scoring zero marks (enter "0") and a non-attempt (enter "-").
- not write comments in the questions section, but, if necessary write on the second tab of the mark sheets provided.

Mark sheets will be supplied.

In entering into the electronic mark sheets the integral numerical mark for each question care must be taken to distinguish between 0 marks for an attempt and − for a non-attempt.

Assessors are asked to compute the check-sum for each candidate, which is the last two digits of the candidate number(taken as a two digit number) plus the sum of raw marks.

Assessors will be asked to return the marksheet electronically through the marking site on SharePoint Online.

Reports Assessors will provide the examiners with a brief report on the performance of the candidates on each paper (or part-paper) to assist them in their deliberation on calibration; in particular assessors are invited to suggest where class boundaries (Distinction, Merit and Pass) could be drawn. Model examples of helpful reports are available.

G   Checking the Marks

The examiners should ensure that their procedures allow for:

- an independent arithmetic check of the correctness of the addition of the partial marks for each question;
- an independent check of the marks entered into the marks database for each candidate;
- an audit trail for these checks.

Graduate research students are employed to carry out such checks. The standard document 'Instructions for Graduate Checkers' is kept in the Academic Office, and gives details.

G.1   Logging Scripts

The examiners should ensure that a central log is kept of the whereabouts of all scripts; and should instruct all markers to return 'sporadic' scripts or answers to the central contact with a note of explanation.

G.2   Availability of Assessors

The Chair must ensure that those appointed as assessors are informed of the examiners' timetables, and are made aware that they must be available for consultation by the examiners until the signing of the Class List, and in particular during the input and checking of the marks.

H Dissertations

The examiners should pay careful attention to what candidates have been told about the assessment of these in the *Examination Regulations* and the *Course Handbook*. All dissertations are independently marked by at least two assessors. The examiner responsible for dissertations will oversee the reconciliation of marks, following the department's reconciliation procedure (`http://www.maths.ox.ac.uk/members/teaching-staff/information-supervisors-undergraduate-projects`). If reconciliation is not possible, an additional marker should be appointed.

Dissertations will be assessed with reference to the following qualitative descriptors.

For CD Dissertations

90–100 Work of potentially publishable standard, as evidenced by originality or insight. The work should show depth and accuracy, and should have a clear focus. It is likely to go beyond the normal level for part C. The standard one sees in winners of one of the examination prizes.

80–89 Work in this range will be at the level of a strong candidate for a DPhil applicant. The project will be an easy choice as a winner of a college essay prize. It will have depth, accuracy and a clear focus. It will show a strong command of material at least at the level of part C. It is likely to contain original material, which may take the form of new mathematical propositions, new examples, or new calculations, for example.

70–79 The work submitted is of a generally high order, with depth, clarity and accuracy, but may have minor errors in content and/or deficiencies in presentation. It may contain original material, at least in the sense of new examples or calculations.

60–69 The candidate shows a good grasp of their subject, but without the command and clarity required for first class marks. Presentation, referencing and bibliography should be good, and the mathematics should have no more than minor errors.

50–59 The work shows an adequate grasp of the subject, but is likely to be marred by having material at too low a level, by serious or frequent errors, a high proportion of indiscriminate information, or poor presentation and references.

40–49 The candidate shows reasonable understanding of parts of the basic material, but reveals an inadequate competence with others. The material may be at too low a level. There are likely to be high levels of error or irrelevance, muddled or superficial ideas, or very poor writing style.

30–39 The candidate shows some limited grasp of at least part of the material.

0–29 Little evidence of understanding of the topic. The work is likely to show major misunderstanding and confusion.

For OD Dissertations

70–100 The candidate shows clear focus on the question, with precise and accurate details (mathematical and other), imaginative selection of examples and appropriate selection and quality (rather than quantity) of sources, and cogent argument, supported by evidence.

Within this band the following finer gradations may be helpful:

90–100 Work of publishable quality.

80–89 Demonstrates originality of content or insight. Work at the upper end of this range could be publishable after minor improvements. Would be an appropriate entry for a national or university prize.

70–79 Work of high or very high quality, but perhaps lacking the originality that would be expected of publishable work. Might be a good candidate, for example, for a college prize.

60–69 Work that addresses the given topic, with solid command of factual content, reasonable range of examples and sources, coherent argument and analysis, and correct referencing and bibliography.

(Essays at the lower end of this range may lack some of these qualities or show them only intermittently.)

50–59 Work with some use of facts, sources, and arguments, but marred by one of more of a failure to address the topic, serious or frequent errors of fact, a high proportion of indiscriminate information, speculation or unsupported argument, and incomplete or inaccurate referencing.

40–49 The candidate shows some knowledge of the topic but the work is marred by several of the following:- high levels of error or irrelevance, muddled or superficial ideas, incoherent or non-existent argument, incompetent use of sources, or very poor writing style.

30–39 The work demonstrates a little knowledge of the topic but no coherent argument.

0–29 The work demonstrates almost no knowledge of the topic.

I   Mini-Projects

Mini-projects will be assessed with reference to the following qualitative descriptors.

70–100 The candidate has demonstrated an excellent understanding of almost all of the material covered with a commensurate quality of presentation and has completed almost all of the assignment satisfactorily, further subdivided by:

90–100 The candidate has shown considerable originality and insight going well beyond the straightforward completion of the task set.

80–89 The work submitted shows a near-perfect completion of the task at hand, but does not meet the additional requirements above, or does but has some defects in presentation.

70–79 The work submitted is of a generally high order, but may have minor errors in content and/or deficiencies in presentation.

60–69 The candidate has demonstrated a good or very good understanding of much of the material, and has completed most of the assignment satisfactorily, without showing the level of excellence expected of the above USM range.

50–59 The candidate has demonstrated an adequate understanding of the material and an adequate ability to apply their understanding, without showing the level of understanding expected of the above USM range.

40–49 The work submitted, while sufficient in quantity, suffers from sufficient defects to show a lack of adequate understanding or ability to apply results.

30–39 The candidate, while attempting a significant part of the mini-project, has displayed a very limited knowledge or understanding at the level required.

0–29 The candidate has either attempted only a fragment of a mini-project or has shown an inadequate grasp of basic material.

J Recalibration of Marks

Examination marks will be reported to candidates in the form of University Standardised Marks. The object of the USM is to allow direct comparison between the results of examination in different subjects. Examiners may recalibrate raw marks to arrive at the USMs reported to candidates. On each paper, any recalibration of marks should be done without disturbing the order of candidates. In order to ensure fair treatment examiners are reminded that they may exercise individual consideration in assigning USMs for candidates whose marks lie outside the standard pattern.

Examiners should take note of the distribution of USMs above 65 and above 70 in the Examination in a normal year and not depart from it without good reason. Information about the distribution of USMs in the Examination for recent matriculation years will be provided by the Teaching Committee.

The USMs reported to candidates for each paper should be symmetrically rounded.

K Classification of Candidates

The average USM ranges used in the classifications reflect the following general **Qualitative Class Descriptors** agreed by the Teaching Committee:

- **Distinction**: High quality work throughout the course. The candidate shows excellent knowledge of the material over a wide range of topics. The criteria for USMs in the distinction band are:

  - 90-100: The candidate shows remarkable ability and true insights. Dissertations in this band will be potentially worthy of publication.
  - 80-89: The candidate shows outstanding problem-solving skills and outstanding knowledge of the material over a wide range of topics, and is able to use that knowledge innovatively and/or in unfamiliar contexts.
  - 70-79: The candidate shows excellent problem-solving skills and excellent knowledge of the material over a wide range of topics, and is able to use that knowledge innovatively and/or in unfamiliar contexts.

- **Merit**: The merit covers very good quality of work through out the course. The criteria for USMs in the merit band are:

  - 65-69: The candidate shows very good problem-solving skills, very good knowledge over a wide range of topics, or excellent command of some material and good or very good command of the rest.

- **Pass**: The pass covers a wide range of results from candidates who show adequate knowledge of most of the material, to candidates who show good knowledge of much of the material over a wide range of topics. The criteria for USMs in the pass band are:

  - 60-64: The candidate shows good or very good problem-solving skills, and good or very good knowledge of much of the material over a wide range of topics.
  - 50-59: The candidate shows basic problem solving skills and adequate knowledge of most of the material.

- **Fail**: The candidate shows an inadequate grasp of the basic material. Candidates may have shown some understanding but the majority of work is likely to show major misunderstanding and confusion, and/or inaccurate calculations.

  - 40-49: The candidate shows reasonable understanding of at least part of the basic material and some problem solving skills. Although there may be some good work, the majority

of work will contain errors in calculations and/or show incomplete understanding of the topics.

- 30-39: The candidate shows some limited grasp of basic material over a restricted range of topics, but with large gaps in understanding. There need not be any good quality work, but there will be indications of some competence.
- 0-29: The candidate shows an inadequate grasp of the basic material. The work is likely to show major misunderstanding and confusion, and/or inaccurate calculations.

[Note that the aggregation rules in some circumstances allow a stronger performance on some papers to compensate for a weaker performance on others.]

L Mitigating Circumstances Notices to Examiners

The University's policy on the use of medical and other certificates is available at `https://academic.web.ox.ac.uk/examiners`

M   Post Examination

Examiners should ensure that the following are deposited with the Head of Academic Administration (or Undergraduate Studies Officer), Mathematical Institute:

- a definitive record of individual USMs, signed off by one of the examiners (to be kept on file at the Institute for reference and for use in later examinations);

- all records of the Examination not otherwise destroyed and declarations relating to the destruction of examination material (as requested by the Proctors);

- full marking schemes, including any subsequent amendments;

- LaTeX source files for the papers incorporating any corrections.

Chair
on behalf of the Teaching Committee.