

UNIVERSITY OF ESSEX

Graduate Examinations 2017

NONLINEAR PROGRAMMING

Time allowed: 2 hours.

The paper consists of four questions. Candidates may attempt any number of questions. Your best three answers will be used for assessment.

Each question is marked out of 100. Part (a) of each question allows for up to 45 marks to be obtained. However marks for Part (a) will be capped at 40. The remaining Part(s) have a total of 60 marks available for them, and are not capped.

Candidates are permitted to bring into the examination room:

Scientific calculator – one of the following models **only**:

- Casio FX-83GT PLUS
- Casio FX-85GT PLUS

Please do not leave your seat unless you are given permission by an Invigilator. Do not communicate in any way with any other candidate in the examination room. Do not open the question paper until told to do so. All answers must be written in the answer book(s) provided. All rough work must be written in the answer book(s) provided. A line should be drawn through any rough work to indicate to the examiner that it is not part of the work to be marked. At the end of the examination, remain seated until your answer book(s) have been collected and you have been told you may leave.

UNIVERSITY OF ESSEX

Graduate Examinations 2017

COMBINATORIAL OPTIMISATION

Time allowed: 2 hours.

The following items are provided:

Graph Paper

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MATHEMATICS OF PORTFOLIOS

Time allowed: 2 hours.

The paper consists of **SIX** questions.

Candidates must answer **ALL** questions.

The questions are not of equal weight.

Candidates are permitted to bring into the examination room:

Scientific calculator – one of the following models **only**:

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- Casio FX-85GT PLUS

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GRAPH THEORY

Time allowed: 2 hours.

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Candidates may attempt any number of questions.

Your best three answers will be used for assessment.

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CRYPTOGRAPHY AND CODES

Time allowed: 2 hours.

The paper consists of four questions.

Candidates may attempt any number of questions.

Your best three answers will be used for assessment.

Each question is marked out of 100. Part (a) of each question allows for up to 45 marks to be obtained. However marks for Part (a) will be capped at 40. The remaining part(s) have a total of 60 marks available for them, and are not capped.

Candidates are permitted to bring into the examination room:

Scientific calculator – one of the following models **only**:

- Casio FX-83GT PLUS
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MODELLING EXPERIMENTAL DATA

Time allowed: 3 hours

The paper consists of 6 questions.

Candidates must answer all questions.

The questions are not equally weighted.

Formulae and tables are provided at the end of the question paper.

Candidates are permitted to bring into the examination room:

Scientific calculator – one of the following models **only**:

- Casio FX-83GT PLUS
- Casio FX-85GT PLUS

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STATISTICAL METHODS

Time allowed: 3 hours

The paper consists of TEN questions.

Candidates must answer ALL questions.

The questions are NOT of equal weight.

The total marks are 100.

Useful distribution densities are provided at the end of the question paper.

Candidates are permitted to bring into the examination room:

Scientific calculator – one of the following models **only**:

- Casio FX-83GT PLUS
- Casio FX-85GT PLUS

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STOCHASTIC PROCESSES

Time allowed: 3 hours

The following items are provided:

Graph paper

The paper consists of ten questions.
Candidates must answer ALL questions.
The questions are not all of equal weight.

Candidates are permitted to bring into the examination room:

Scientific calculator – one of the following models **only**:

- Casio FX-83GT PLUS
- Casio FX-85GT PLUS

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FINANCIAL DERIVATIVES

Time allowed: 2 hours

The following items are provided:

Gaussian Tables (at the end of the question paper)

The paper consists of NINE questions.

Candidates must answer ALL questions.

The questions are NOT of equal weight.

The marks in brackets provide an indication of the proportion of the total marks for the paper which will be allocated.

Candidates are permitted to bring into the examination room:

Scientific calculator – one of the following models **only**:

- Casio FX-83GT PLUS
- Casio FX-85GT PLUS

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APPLIED STATISTICS

Time allowed: 3 hours

The following items are provided:

Formulae and tables (at the end of the question paper)

The paper consists of FIVE questions.

Candidates must answer all questions.

The questions are equally weighted.

Candidates are permitted to bring into the examination room:

Scientific calculator – one of the following models **only**:

- Casio FX-83GT PLUS
- Casio FX-85GT PLUS

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BAYESIAN COMPUTATIONAL STATISTICS

Time allowed: 3 hours

The paper consists of ELEVEN questions.

Candidates must answer ALL questions.

The questions are NOT of equal weight.

The total marks are 100.

Candidates are permitted to bring into the examination room:

Scientific calculator – one of the following models **only**:

- Casio FX-83GT PLUS
- Casio FX-85GT PLUS

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PARTIAL DIFFERENTIAL EQUATIONS

Time allowed: 2 hours

The following items are provided:

Useful formulae (at the end of the question paper)

The paper consists of 5 questions.

Candidates must answer all questions.

Each question is marked out of 20.

Candidates are permitted to bring into the examination room:

Scientific calculator – one of the following models **only**:

- Casio FX-83GT PLUS
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