1 MA2321, Annual and Supplemental Examinations 2017–Guidance for Examination

Assignment Problems

The examination may contain questions similar in nature to those that were included on assignments for the module in 2015–16 and 2016–17.

In addition, listed below are listings of material that is potentially examinable at the annual and supplemental examinations in 2017. (These listings should not be regarded as guidance for what will be examinable in future years.)

Section 1—Examinable Material

No examinable material.

Section 2—Examinable Material

No examinable material.

Section 3—Examinable Material

Examinable Definitions:

Definition of a partition of an interval
Definition of upper and lower (Darboux) sums
Definition of upper and lower Riemann integral
Definition of Riemann-integrability and the Riemann integral
Definition of uniform convergence

Examinable Lemmas, Propositions, Theorems, Corollaries:

Lemma 3.1	result only
Lemma 3.2	*result and proof*
Lemma 3.3	result only
Lemma 3.4	result only
Proposition 3.5	result only
Proposition 3.6	*result and proof*
Proposition 3.10	result only
Proposition 3.14	result only
Proposition 3.15	*result and proof*
Theorem 3.17	*result and proof*
Theorem 3.18	*result and proof*
Corollary 3.19	*result and proof*
Corollary 3.20	*result and proof*
Corollary 3.21	*result and proof*
Proposition 3.22	*result and proof*
Theorem 3.23	*result and proof*

You may be examined on problems concerning Riemann-integrability similar to the examples found in Subsection 3.1.

Section 4—Examinable Material

Examinable Definitions:

Definition of Euclidean norm and distance
Definition of convergence and limit of a sequence in a Euclidean space
Definition of continuity for functions between subsets of Euclidean spaces
Definition of limits for functions between subsets of Euclidean spaces
Definition of open and closed sets in Euclidean spaces

Examinable Lemmas, Propositions, Theorems, Corollaries:

Proposition 4.1	result only
Corollary 4.2	result only
Lemma 4.3	*result and proof*
Lemma 4.4	*result and proof*
Lemma 4.5	*result and proof*
Proposition 4.6	*result and proof*
Lemma 4.7	*result and proof*
Proposition 4.8	*result and proof*
Lemma 4.9	*result and proof*
Lemma 4.10	*result and proof*
Lemma 4.11	*result and proof*
Proposition 4.12	*result and proof*
Proposition 4.13	*result and proof*
Lemma 4.14	*result and proof*
Proposition 4.15	*result and proof*
Lemma 4.16	*result and proof*
Proposition 4.17	*result and proof*
Lemma 4.18	*result and proof*
Proposition 4.19	*result and proof*
Proposition 4.20	*result and proof*
Proposition 4.21	*result and proof*
Proposition 4.22	*result and proof*
Proposition 4.23	*result and proof*
Proposition 4.24	*result and proof*
Proposition 4.25	*result and proof*
Proposition 4.26	*result and proof*
Proposition 4.27	*result and proof*
Proposition 4.28	*result and proof*
Lemma 4.29	*result and proof*

You may be examined on problems concerning sequences in Euclidean spaces, functions between subsets of Euclidean spaces and open and closed sets in Euclidean spaces that apply the theory developed in this section.

Section 5—Examinable Material

Examinable Definitions:

Definition of compactness

Definition of Lebesgue number

Examinable Lemmas, Propositions, Theorems, Corollaries:

Theorem 5.1	result only
Proposition 5.4	*result and proof*
Theorem 5.5	*result and proof*
Proposition 5.7	result only
Theorem 5.9	result only

You may also be examined on problems that apply basic notions and consequences of compactness, including consequences of the theorems and propositions listed above.

Section 6—Examinable Material

No examinable material.

(Much of the material generalizes that of Section 3, but with more complicated notation. Notwithstanding that the material in this section is non-examinable in 2017, it should be noted that Theorem 6.16 and Corollary 6.17 are significant results that go beyond the theory developed in Section 3.)

Section 7—Examinable Material

No examinable material.

(The material in this section overlaps with MA2223, and will not be examined in MA2321 in 2017.)

Section 8—Examinable Material

Examinable Definitions:

Definition of differentiability and derivatives for functions Definition of smoothness

Examinable Lemmas, Propositions, Theorems, Corollaries:

Lemma 8.2	*result and proof*
Lemma 8.3	*result and proof*
Lemma 8.8	*result and proof*
Lemma 8.9	*result and proof*
Proposition 8.10	*result and proof*
Proposition 8.11	result only
Proposition 8.12	result only
Lemma 8.13	*result and proof*
Proposition 8.14	*result and proof*
Corollary 8.15	*result and proof*
Theorem 8.16	result only

You may also be examined on examples identical with or similar to those examples in subsections 8.2 and 8.6.

Section 9—Examinable Material

Examinable Lemmas, Propositions, Theorems, Corollaries:

Theorem 9.5	result only
Theorem 9.6	result only

Section 10—Examinable Material

Examinable Lemmas, Propositions, Theorems, Corollaries:

Theorem 10.1	*result and proof*
Theorem 10.6	result only

You may also be examined on examples identical with or similar to those examples in subsection 10.1.

Section 11—Examinable Material

Examinable Definitions:

Definition of k-times continuously-differentiable functions
Definition of smoothness

Examinable Lemmas, Propositions, Theorems, Corollaries:

Lemma 11.11	*result and proof*
Theorem 11.12	*result and proof*