# AL-FARABI KAZAKH NATIONAL UNIVERSITY

# Variation Calculus and methods of optimization

Textbook

S.A. Aisagaliev Zh.Kh. Zhunussova



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# VARIATION CALCULUS AND METHODS OF OPTIMIZATION

Textbook

Almaty «Kazakh university»

2016

Educational-manual

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Recommended by Educational and Methodical Union of the Humanities and Natural sciences specialties of the Republican Educational and Methodical Council of higher and postgraduate education of the Ministry of Education and Science of the Republic of Kazakhstan on the base of Al-Farabi Kazakh National University (Protocol № 1, October 7, 2015)

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Doctor of Physical and Mathematical Sciences, Professor M.I. Tleubergenov Candidate of Physical and Mathematical Sciences, Ass. professor A.U. Kalizhanova Doctor of Physical and Mathematical Sciences, Professor S.Ya. Serovaijsky

### Aisagaliev S.A., Zhunussova Zh.Kh.

Variation calculus and methods of optimization: textbook / S.A.Aisagaliev, Zh.Kh. Zhunussova. – Almaty: Kazakh university, 2015. – 320 p. ISBN 978-601-04-1694-9

Some theoretical foundations of optimal control problem are expounded in the textbook: methods of variation calculus, maximum principle, dynamical programming for solving of topical problems of economic macromodels.

The tasks for independent work with solving of concrete examples, brief theory and solution algorithms of the problems, term tasks on sections of optimal control and variation calculus are presented in the appendix.

It is intended as a textbook for students of the high schools training on specialties «mathematics», «mechanics», «mathematical and computer modeling» and «informatics». It will be useful for the post-graduate students and scientific workers of the economic, mathematical and naturally-technical specialties.

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<sup>1</sup> M. Karawa, E. M. Takara, and G. M. Takara, C.K. Opeleral common scale for the UCP (1994) marker II (4) Weither and a first state of approximation of the Common scale of the Com-Dimension Act, Dr. Phys. Rep. 199 (1997) and comparing states are provided by Phys. Rep. Vanishes F. F. Neuhara and and a set of the Combination provided by Phys. Rep. Vanishes F. L. Neuhara and an analysis of approximation of the States and St

Educational issue

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Textbook

Computer page makeup: K. Umirbekova Cover designer: K. Umirbekova

www.maths.york.ac.uk

#### IB No

Signed for publishing 04.02.16. Format 60x84 1/16. Off set paper. Digital printing. Volume 26,83 printer's sheet. Edition: . Order No . Publishing house "Qazaq university" AI-Farabi Kazakh National University KazNU, 71 AI-Farabi, 050040, Almaty Printed in the printing office of the "Kazakh Universitety" publishing house