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%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% LIST OF THEOREMS FOR THE EXAM %%%%%%%%%%%%%%%%%%%%%%%
% Explanation:
%  the number at the end of line = the number of the theorem in the lecture notes
%  the sign before the number:
%        *   these theorems are not explicitly included into
%            the exam questions.  Anyway, the knowledge is assumed,
%            including the idea of a proof (in case the theorem
%            was proved during the lectures).
%        +   "difficult theorem" included with this status
%            to exam questions
%  no sign   "easy theorem" included with this status
%            to exam questions
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
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%
%%% Chapter V
%
description of the convex, balanced and absolutely convex hull % * V.2
generating a locally convex topology using a neighborhood base % + V.3 and V.4
generating topology using a family of seminorms % V.5 and V.10
on the Minkowski functional of a convex neighborhood of zero % + V.8 including V.7
properties of seminorms and Minkowski functionals % V.11
characterization of continuous linear mappings % V.12 and V.13
characterization of continuous linear functionals % V.14
characterization of bounded sets in LCS % * V.15
relationship of continuous and bounded linear mappings % V.16
properties of HLCS of finite dimension % V.17 and V.18
characterization of finite-dimensional HLCS % + V.20
metrizability of LCS % + V.22 including V.21
characterization of normable TVS % V.23
on equivalent metrics on a Fréchet space % * V.25
on absolutely convex hull of a compact set % V.26–V.28
Banach-Steinhaus theorem % V.29
open mapping theorem % + V.30
Hahn-Banach extension theorem and its applications % V.31–V.34
Hahn-Banach separation theorem and its applications % + V.35 and V.36
%
%%% Chapter VI
%
basic properties of abstract weak topologies % * VI.1
dual to an abstract weak topology % VI.3 and VI.4
Mazur theorem % VI.6 and VI.7
boundedness and weak boundedness % + VI.8
weak topology on a subspace % * VI.9
polar calculus % * VI.11
bipolar theorem % VI.12
Goldstine theorem % VI.14
Banach-Alaoglu theorem % + VI.15 and VI.16
reflexivity and weak compactness % VI.17 and VI.18
%

%%% Chapter VII
%
density of test functions % VII.1
test functions determine measures and locally integrable functions % VII.2
on functions with zero weak derivatives % * VII.3
properties of weak derivatives % VII.4 (proofs of (a),(b))
on the space of test functions % VII.5
characterizations of distributions % VII.6
examples of distributions % * VII.7
on operations on distributions % VII.8
on distributions with zero derivatives % * VII.9
on convergence of distributions % VII.10
Banach-Steinhaus theorem for distributions % * VII.11
on the support of a distribution % + VII.12 (proofs of (a)-(d))
on translates and directional derivatives of test functions % * VII.13
Fubini theorem for distributions % * VII.14
on convolution of a test function and a distribution % + VII.15
on convolution of two distributions % * VII.16 and the preceding constructions
properties of the Schwartz space % VII.17
characterization of tempered distributions % * VII.18
Banach-Steinhaus theorem for tempered distributions % * VII.19
examples of tempered distributions % * VII.20
continuity of operations on the Schwartz space % VII.21
operations with tempered distributions % VII.22
on convergence of tempered distributions % * VII.23
on the Fourier transform on the Schwartz space % VII.24
properties of the Fourier transform of tempered distributions % VII.25
on translates and directional derivatives of Schwartz functions % * VII.26
Fubini theorem for tempered distributions % * VII.27
on convolution of a Schwartz function and a tempered distribution % VII.28 (proofs of (b) and (d) only)
%
%
%%% Chapter VIII
%
Pettis measurability theorem % + VIII.3 including VIII.2 (and its variants VIII.5 and VIII.4)
construction and properties of the Bochner integral % VIII.7
characterization of Bochner integrability % VIII.8
dominated convergence theorem for Bochner integral % VIII.9
on the weak integral % VIII.11
Bochner integral and a bounded operator % VIII.12
definition and properties of Lebesgue-Bochner spaces % + VIII.14
separability of Lebesgue-Bochner spaces % + VIII.15
%
%
%%% Chapter IX
%
Krein-Milman theorem % IX.3 including IX.2
Minkowski-Carathéodory theorem % * IX.4
Milman theorem % IX.6
on the barycenter of a measure % * IX.7
integral representation theorem % * IX.8
extreme points of a metrizable compact convex set % * IX.9