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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).
%
% no sign   theorems included to exam questions
%
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%%% Chapter V
%
properties of the numerical radius % V.4 including V.3
structure of normal operators % V.5
characterization of orthogonal projections % V.6
spectrum of a self-adjoint operator % V.7
Hilbert-Schmidt theorem % V.9
Schmidt representation of compact operators % V.11 including V.8
on closed and closable operators % V.15
on the inverse of a closed operator % V.18
properties of the resolvent set, resolvent function and spectrum of an unbounded operator % V.19
on operators with empty spectrum % V.20
on kernel and range % V.23
on the graph of the adjoint operator % V.24
adjoint operator and closedness % V.26
properties of symmetric operators % V.28
spectrum of a self-adjoint operator % V.30, including V.29
characterization of self-adjoint operators among symmetric ones % V.31
properties of the Cayley transform % V.32
on the range of the Cayley transform % V.34
Cayley transform for self-adjoint operators % V.35
%
%%% Chapter VI
%
Lax-Milgram lemma % * VI.1
construction and properties of the measurable calculus % VI.4 including the construction
properties of a spectral measure % VI.2
integral of a bounded function with respect to a spectral measure % VI.8
integral of an unbounded function with respect to a spectral measure % VI.11
properties of  $\int f dE$  (for  $f$  possibly unbounded) % V.12
spectrum of  $\int f dE$  % VI.13
spectral decomposition of a bounded normal operator % VI.9 and VI.10
spectral decomposition of a self-adjoint operator % VI.15, VI.16 and VI.17
on  $T^*T$  % * VI.19
on normal unbounded operators % VI.20
spectral decomposition of an unbounded normal operator % * VI.21
diagonalization of a normal operator % * VI.24 and VI.25
%
%%% Chapter VII
%
dual to a supremum or infimum of a family of locally convex topologies % VII.3 including VII.2
on the topologies  $\sigma(X^*, X)$  and  $\sigma(X^\#, X)$  % VII.4
Mackey-Arens theorem % VII.6, including VII.5
Mackey topology of a metrizable LCS % VII.7 and VII.8

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description of the bw^* -topology % VII.11
Banach-Dieudonné theorem and its consequences % VII.12, VII.13 and VII.14
Embedding of a Banach space into a $C(K)$ space % VII.15
properties of faces % VII.17
Krein-Milman theorem % VII.18
Minkowski-Carathéodory theorem % VII.19
Milman theorem % VII.21
on the barycenter of a measure % VII.22
integral representation theorem % VII.23
angelicity of $(C(K), \tau_p)$ and (X, w) % * VII.26
on relatively countably compact subsets of $(C(K), \tau_p)$ % VII.27
Kaplansky theorem on tightness % VII.28
on separable compact subsets of $(C(K), \tau_p)$ % VII.29
Eberlein-Šmulyan theorem % * VII.30
weak compactness and τ_p -compactness % VII.31
properties of weakly compact operators % VII.32
Gantmacher theorem % VII.33
Krein theorem % VII.34
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