

```

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% 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
%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%
%%% Chapter X
%
on closed and closable operators % X.4
on the inverse of a closed operator % X.7
properties of the resolvent set, resolvent function and spectrum of an unbounded operator % X.8
on operators with empty spectrum % X.9
on kernel and range % X.12
on the graph of the adjoint operator % X.13
adjoint operator and closedness % X.15
properties of symmetric operators % X.17
spectrum of a self-adjoint operator % X.19, including X.18
characterization of self-adjoint operators among symmetric ones % X.20
properties of the Cayley transform % X.21
on the range of the Cayley transform % X.23
Cayley transform for self-adjoint operators % X.24
properties of a spectral measure % X.25
integral of a bounded function with respect to a spectral measure % X.27
integral of an unbounded function with respect to a spectral measure % X.28
properties of  $\int f dE$  (for  $f$  possibly unbounded) % X.29
spectrum of  $\int f dE$  % X.30
spectral decomposition of a bounded normal operator % X.32 and X.33
spectral decomposition of a self-adjoint operator % X.34, X.35 and X.36
on  $T^*T$  % X.38
on normal unbounded operators % X.39
spectral decomposition of an unbounded normal operator % * X.40
diagonalization of a normal operator % * X.43 and X.44
%
%%% Chapter XI
%
dual to a supremum or infimum of a family of locally convex topologies % XI.3 including XI.2
on the topologies  $\sigma(X^*, X)$  and  $\sigma(X^\#, X)$  % XI.4
Mackey-Arens theorem % XI.6, including XI.5
Mackey topology of a metrizable LCS % XI.7 and XI.8
description of the  $bw^*$ -topology % XI.11
Banach-Dieudonné theorem and its consequences % XI.12, XI.13 and XI.14
Embedding of a Banach space into a  $C(K)$  space % XI.15
properties of faces % XI.17
Krein-Milman theorem % XI.18
Minkowski-Carathéodory theorem % XI.19
Milman theorem % XI.21
on the barycenter of a measure % XI.22
integral representation theorem % XI.23
angelicity of  $(C(K), \tau_p)$  and  $(X, w)$  % * XI.26
on relatively countably compact subsets of  $(C(K), \tau_p)$  % XI.27

```

Kaplansky theorem on tightness % XI.28
on separable compact subsets of $(C(K), \tau_p)$ % XI.29
Eberlein-Šmulyan theorem % * XI.30
weak compactness and τ_p -compactness % XI.31
properties of weakly compact operators % XI.32
Gantmacher theorem % XI.33
Krein theorem % XI.34
%