Abstract: The talk will be based on Chapter 11 of the book Operator Ideals by A. Pietsch, though it will be independent of the first introductory review on the subject provided in İstanbul Analysis Seminars on November 20, 2009. Having presented an axiomatic theory of \( s \)-numbers, approximation numbers, Gelfand numbers, Kolmogorov numbers, and Hilbert numbers will be given as the main examples, and some special properties of them such as symmetry, injectivity, surjectivity and additivity will be defined. Furthermore, \( s \)-numbers of diagonal operators in classical sequence spaces will be determined and estimated.