

Transmission of Information, by Robert M. Fano. Wiley, New York, 1961. x + 389 pages. \$ 7.50.

Based on graduate courses taught by the author at M. I. T. , this book will be more than welcome to those about to embark on courses of a similar nature. After a careful introduction to the concepts of entropy and other measures of information, the author devotes separate chapters to simple message ensembles, discrete sources, transmission channels, channel encoding and decoding, encoding for binary symmetric channels and also for discrete, constant channels (the latter consisting of recent, unpublished work). A chapter on multinomial distributions presents techniques useful in advanced work, but not readily available elsewhere. There are three appendices: one consists of problems for the various chapters (with only an occasional hint to their solution), the second is a table of the entropy function $H = - p \log_2 p - q \log_2 q$, and the third is a short table of the Gaussian distribution function. A fairly good background in probability theory is assumed.

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Error-Correcting Codes, by W. W. Peterson. Wiley, New York, 1961. x + 285 pages. \$ 7.75.

Since the appearance of Hamming's classical paper in 1950 on error-detecting and error-correcting codes, rapid advances in the theory and design of codes have produced a substantial technical literature. In presenting a unified treatment of this material the author has performed an extremely valuable service. The presentation is made reasonably self-contained by including two chapters on the bare essentials from abstract algebra. Topics covered include linear codes, linear switching circuits, cyclic codes, Bose-Chaudhuri codes, recurrent codes, and codes for checking arithmetic operations. One of the appendices contains a set of tables from which all irreducible polynomials of degree 16 or less over $GF(2)$ can be found. Problems are appended to most of the chapters, with some hints to solutions. The book can be strongly recommended not only as an up-to-date reference for the specialist, but also as a supplementary text for a course in information theory.

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