REVIEWS AND DESCRIPTIONS OF TABLES AND BOOKS

The numbers in braces are assigned according to the indexing system printed in Volume 22, Number 101, January 1968, page 212.

57[1, 12].—W. W. YOUDEN, *Computer Literature Bibliography*, Vol. 2, 1964–1967, National Bureau of Standards, Special Publication 309, 1968, 381 pages, 29 cm. Price $5.00. Order from Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.

This is an extension of [1] and does for the years 1964–1967 what [1] did for the years 1946–1963. It is very similar in general format to [1]; the reader is referred to the longer review of this earlier volume for details. The literature listed is not all the literature on these subjects in those years, but that contained in 17 journals, 20 books, and 43 conference proceedings. In all, there are about 5200 references. This is a valuable reference book for libraries.

D.S.

1. W. W. YOUDEN, *Computer Literature Bibliography* 1946–1963, National Bureau of Standards, 1965. Reviewed in *Math. Comp.*, v. 19, 1965, p. 704, RMT **140**.

58[2.05, 2.10, 2.15, 2.20, 3, 4, 5, 6, 7, 8, 13.15].—LOUIS G. KELLY, *Handbook of Numerical Methods and Applications*, Addison-Wesley Publishing Co., Inc., Reading, Mass., 1967, xiv + 354 pp., 24 cm. Price $14.50.

A compilation of numerical methods and selected topics of interest to scientists and engineers, the book is addressed to a wide computing clientele and should be useful to some for general orientation and references to source material. List of chapter headings: 1. Introduction, 2. Finite and divided differences, 3. Basic interpolating and approximating polynomials, 4. Differentiation and integration, 5. Curve fitting and data smoothing, 6. Nonlinear algebraic equations, 7. Matrix algebra and operations, 8. Linear algebraic equations, 9. Eigenvalues and eigenvectors, 10. Scaling of matrices, 11. Introduction to complex variables, 12. Introduction to the Laplace transform, 13. Difference equations, 14. Ordinary differential equations, 15. Transfer function computations, 16. Partial differential equations, 17. Harmonic analysis, 18. Special functions and integrals, 19. Sampled data and digital filtering, 20. Numerical solution of integral equations, 21. Numerical solution of vibration problems, 22. Padé approximation to a function, 23. Gram-Schmidt orthogonalization procedure, 24. Computer methods of function minimization, 25. Elementary Statistics.

W. G.

59[2.05, 3, 4, 5, 6, 7, 9, 10].—L. COLLATZ, G. MEINARDUS & H. UNGER, Editors, *Funktionalanalysis, Approximationstheorie, Numerische Mathematik*, Birkhäuser Verlag, Basel, 1967, 232 pp., 25 cm. Price: *sF* 29.00.

Nestled on a picturesque hillside near Oberwolfach, in the Black Forest, is the Mathematical Research Institute, which serves the German mathematical com-

munity, and its guests, as a meeting place and retreat. Frequent symposia are held in this congenial spot, and the present volume consists of summaries of the lectures delivered at two such gatherings in 1965.

The topic of the first collection is numerical problems in Approximation Theory, and it consists of 11 fairly full presentations, most of which deal with some aspect of Chebyshev approximation. The second symposium is entitled "Methods of Functional Analysis in Numerical Mathematics," and 16 talks are represented, some by brief abstracts.

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60[2.10].—BRUCE S. BERGER, ROBERT DANSON & ROBERT CARPENTER, **A.** *Tables of Zeros and Weights for Gauss-Laguerre Quadrature to* 24S *for* $N = 400, 500,$ *and* 600, ms. of 4 typewritten pp. + 12 computer sheets (reduced), 28 cm. **B.** *Tables of Zeros and Weights for Gauss-Laguerre Quadrature to* 23S *for* $N = 700, 800,$ *and* 900, ms. of 4 typewritten pp. + 18 computer sheets (reduced), 28 cm. Copies deposited in the UMT file; additional copies obtainable from Professor Berger, Department of Mechanical Engineering, The University of Maryland, College Park, Md. 20742.

These two manuscript tables (prepared in November 1968 and January 1969, respectively) represent an impressive extension of the authors' 24S table [1] of zeros and weights for Gauss-Laguerre quadrature corresponding to $N = 100, 150, 200,$ and 300.

As in the preparation of the earlier table, the present tables were calculated on a CDC 6600 system, using double-precision floating-point operations accurate to approximately 30S. Moreover, the same over-all checks have been applied to the computed values.

The senior author has recently applied these extensive tables to calculations relating to a problem in acoustics [2].

J. W. W.

1. BRUCE S. BERGER & ROBERT DANSON, *Tables of Zeros and Weights for Gauss-Laguerre Quadrature*, ms. deposited in the UMT file. (See *Math. Comp.*, v. 22, 1968, pp. 458–459, RMT **40.**)
2. BRUCE S. BERGER, "Dynamic response of an infinite cylindrical shell in an acoustic medium," *J. Appl. Mech.*, v. 36, 1969, pp. 342–345.

61[2.10].—LEE M. HUBBELL and RALPH E. CHRISTOFFERSEN, *Tabulation of a New Set of Orthogonal Polynomials for Numerical Integration*, ms. of 8 typewritten pages & 18 typewritten pages of tables & 5 pages of figures, deposited in the UMT file.

The authors consider the orthogonal polynomials associated with the quadrature problem

$$\int_1^\infty \frac{e^{-x}}{x^k} f(x)dx = \sum_{i=0}^{j} w_{i,j}^{(k)} f(x_{i,j}^{(k)}) + R_j^{(k)} f\,, \tag{1}$$

where $R_j^{(k)} f = 0$ if $f(x)$ is a polynomial of degree $2j + 1$ or less. The abscissas $x_{i,m}^{(k)}$ are the zeros of a polynomial