



ELEMENTS OF COMPUTER SCIENCE

**S.K. SARKAR
A.K. GUPTA**

ELEMENTS OF COMPUTER SCIENCE

[For School Students, Section A (Diploma and non-Diploma) of IET, Polytechnics,
BCA, DCA, B.Sc., and other Professional Examinations]

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PREFACE TO THE REVISED EDITION

Computer is the most powerful tool man has ever created. It has made a great impact on our daily life. Its presence is felt at almost every workplace, viz, schools, colleges, offices, industries, banks, railways, research and development and so on. The rapid pace of change that has always characterised computer science continues with no let up. These changes cover all aspects of computer science. In spite of the variety and pace of change in the computer field, certain fundamental concepts apply consistently throughout. To be sure, the applications of these concepts depend on the current state of technology. The intent of this book is to provide a thorough discussion of the fundamentals of computer science and to relate these to practical applications.

This book is intended to meet the total requirement of Technician and Senior Technician members of the Institution of Engineers (India) for both Section A (Diploma) and Section A (non-diploma) examinations as per the prescribed syllabi. The book is expected to be equally useful for school students; first level course in computer science and engineering taught at various polytechnics, engineering colleges, Diploma in Computer Science and Applications; B.C.A. and B.Sc.; and for other professional examinations.

The entire contents are divided, in a logical order, in well-written 15 chapters, starting with computer basics followed by history and classification; number systems; data representation; Boolean algebra and logic circuits; memory unit; input/output units; classification of programming languages; operating systems; basic operational concepts; numerical analysis; algorithms and flow-charts; programming languages; and computer graphics; and virtual office. In each chapter, a number of solved examples are given to illustrate the text, followed by the problems – set for students. Umpteen solved and unsolved questions with their answers are included from recent question papers set for the Institution examinations. A large number of objective/short questions are given in the *Appendix*. The book is, however, meant for an independent study.

In a text of this kind, literature from other sources and from many related disciplines have been freely consulted. We express our gratitude to all such sources and authors; many of them have been listed in the bibliography. We are indeed indebted to our wives for enduring our preoccupation with this work for so long. We express our sincere thanks to Shri Ravindra Kumar Gupta, Director, S. Chand & Company Ltd., for his active support in publication of the book.

We look forward to receive constructive criticism and suggestions from our readers for improvement of the text.

S.K. Sarkar
A.K. Gupta

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