



Popular Lectures in Undergraduate Mathematics. Sadashiv G. Deo, Damodar Y. Kasture, H. V. Kumbhojkar and Vasant G. Tikekar. Universities Press (India) Private Limited, 3-6-747/1/A and 3-6-754/1 Himayatnagar, Hyderabad 500 029. 2009. xvii + 265 pp. Price not mentioned.

This is a well-written book addressing various topics that augment those usually learnt by undergraduate students in our country. The authors have drawn on their vast teaching experiences. The style of writing is stimulating and often amusing as well. The spectrum of topics ranges from constructive ways of teaching and learning mathematics at the undergraduate level to topics like satellite dynamics and mathematical economics. Chapters 2–4 deal with set theoretic aspects and the discussions here are particularly good. Although, number theory, combinatorics, geometry, coding theory, probability, fuzzy logic, rocket flights and mathematical economics are all discussed competently, one can sense that the authors are particularly at home with analysis, differential equations and related topics. There are a few errors of omission and commission, which could be addressed in the next edition. Most of these are not very serious but there are a few errors which are more consequential and could be sometimes misleading.

In Cantor's diagonalization argument (p. 35), the choice of b given by the authors could have all digits 0 which is not in $(0, 1)$. One can define b instead by choosing each b_i different from a_{ii} as well as different from 0 and 9. Also, this book is not the sort of platform for a remark like 'politics is probably the only profession where no formal qualification

is needed' (p. 37). Sometimes sentences start with 'I shall illustrate . . .' or 'me', etc. (pp. 57, 103); it should be kept in mind that this is a book written by four authors. It is stated (p. 99) that Ramanujan introduced his tau function in order to calculate the 'sum of powers of divisors' function. This is not so; the latter function is elementary to study, whereas the tau function appeared in Ramanujan's deep study of modular functions. While discussing twin primes (p. 122), it is mentioned that 'it has been proved that there is only one prime triplet (3, 5, 7)'. This is a trivial statement as one of the three must be a multiple of 3 and, saying that it has been 'proved' indicates as though this statement needs a non-trivial proof. More importantly, it is asserted (p. 130) that it is unknown whether there are arbitrarily long arithmetic progressions consisting of primes. In fact, Green and Tao have proved this a little while back and this was instrumental in Tao winning the Fields medal in 2006. A very good opportunity to discuss the Indian contribution by Brahmagupta and Bhaskara, the equations $x^2 - dy^2 = \pm 1$ was missed out; this is especially so on pages 137 and 147 where the relevant features of continued fractions are discussed. Similarly, even though it is true that no Indian has ever won the Fields medal, two had been shortlisted – Harish-Chandra and M. S. Raghunathan; this could have been mentioned. Similarly, at the end of Chapter 14, on p. 179 where various distance functions are discussed, the p-adic metric could have been discussed. Incidentally, the displayed chain of cardinalities on p. 38 needs correction.

There are also some minor – mostly typographical – errors, which should be corrected in a second printing. In particular, names are often spelt incorrectly.

Notwithstanding a few minor blemishes, the book performs a nice, useful service to the mathematics student and the teaching community in our country.

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Collected Works of Professor V. Ramalingaswami: A Saga of Seamless Journey between Lab–Clinic–Community (Published Papers), Vols 1–3. P. N. Tandon (ed.). Ranbaxy Science Foundation, 77-BIFFCO Road, Sector 18, Udyog Vihar Industrial Area, Gurgaon 122 015 and Indian National Science Academy, Bahadur Shah Zafar Marg, New Delhi 110 002. LII + 704 pp. Price not mentioned.

The Indian National Science Academy (INSA), in collaboration with Ranbaxy Science Foundation has recently brought out a three volume *Collected Works of Professor of V. Ramalingaswami: A Saga of Seamless Journey between Lab–Clinic–Community* edited by P. N. Tandon, past President of INSA. M. Vijayan, the present President of INSA has lauded the ongoing efforts in upgrading the archival and publication efforts in the platinum jubilee year of INSA. M. G. K. Menon has written the foreword for the set of these three volumes. The preface by P. N. Tandon gives an excellent account of the origin of this mammoth effort, why it was done, and the people who contributed to making it possible.

In the first volume, there is a full profile of the large body of work done by V. Ramalingaswami (1921–2001). Ramalingaswami was undoubtedly the most outstanding, multifaceted medical personality of independent India. He was known to his family and friends as Rama. While presenting the Leon Benard Foundation Award of WHO to him, Harold Walter, President of the 1976 World Health Assembly said, 'Rama was a "physician, scientist, teacher and humanist"'. Indeed, he was all of this and more, excelling in each of these facets and integrating them into a seamless vision. He was not only a research worker in his own right, but was also one who had a profound impact on institution building and medical education as a means to ensure continuity of research. At the All India Institute of Medical Sciences, New Delhi, an institution of the highest calibre, he was able to work out his ideas and innovations, first as a teacher and then as a Director. He was elected as a Fellow of the INSA in 1971, at a time when there were only a few medical scientists who had achieved the distinction. In recognition of his outstanding scientific contributions, he was awarded the J. C. Bose Medal of the

Academy in 1971, and in 1979 he was elected the President. His publications and writings in the field of medical education cover a range of areas: pre-medical, undergraduate and postgraduate medical education, continuing medical education and the role of universities and medical colleges in improving medical education and undertaking medical research. The Government of India recog-

nized his valuable contributions to the country and appointed him a National Professor in 1995 – a position he occupied till the end.

The first chapter is followed by chapters which focus on broad areas such as nutrition and diseases such as iodine deficiency and liver diseases. The second and third volumes are devoted to chapters on cardiology, anaemia, pulmonary

tuberculosis, bladder stone and public health in general including maternal and child health, HIV, infections, population and family welfare, medical research, medical education, and health for all. These three volumes speak of the current state of medical science in India and are truly an asset to any library.

SHANTHA NAIR
