

**PROFESSOR VINOD PRAKASH SAXENA (V.P. SAXENA) : A TOWERING AND LEADING MATHEMATICIAN**

By

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On behalf of **VIJÑĀNA PARISHAD OF INDIA** and **JÑĀNĀBHA** Family, we ourselves feel great honored to publish Special Issue of **JÑĀNĀBHA**, Vol.53(2) (2023) *(Dedicated to Professor V.P. Saxena on His 80<sup>th</sup> Birth Anniversary Celebrations)*

Professor Vinod Prakash Saxena is an amazing man towering and leading mathematician, well known topmost eminent figure of Biomathematics and allied topics of Applied Mathematics. He has credit to introduce *I*-function (1982) as final generalization of earlier sequence of functions including *H*-function due to Charle's Fox (1962) [first Indian formula of Mathematics applied in the index of *American Math. Society Reviewers*].

Professor Saxena is well associated with me since 1964. Both of us as top classmates got *M.Sc.* (Mathematics) in 1966 with distinction from Jiwaji University, Gwalior, Madhya Pradesh, India. Then both of us worked as regular Research Scholar under Research Training Scheme of Ministry of Education, Government of India in S.A. Technological Institute, Vidisha, Madhya Pradesh [August 01,1966 - July 31, 1969] under Professor P.M. Gupta, and both got Ph.D. from Vikram University, Ujjain, Madhya Pradesh, India in 1970.

Professor Saxena is well associated with JÑĀNĀBHA since very inception 1971 as an author. He has credit to be Hon'ble member of Executive Council of VPI in 1988.

He was honored by **DISTINGUISHED SERVICE AWARD** during 6<sup>th</sup> Annual Conference of VPI held at Bundelkhand Institute of Engineering and Technology, Jhansi, Uttar Pradesh, India (December 26-28,1996). Professor V.P. Saxena has credit to grace the chair of President of VPI (April 2005- March 2008). He was elected as Honorary Fellow of VPI and honored by title **FVPI** in 2007 during 12<sup>th</sup> Annual Conference of VPI held at JNV University, Jodhpur, Rajasthan, India [October 25-27, 2007]. Professor Saxena was also honored by Highest Prestigious Award **LIFE -LONG ACHIVEMENTS AWARD** of VPI during 2<sup>nd</sup> International Conference of VPI held at Bundelkhand University, Jhansi, Uttar Pradesh, India (March 09-11, 2018). Professor V.P. Saxena is recently honored by **VPI GOLDEN JUBILEE AWARD** during Fifth International Conference and Golden Jubilee Celebration of VPI held at Jawaharlal Nehru University, New Delhi (June 16-18, 2022). Professor Saxena is also active Hon'ble Senior Member on Editorial Board of JÑĀNĀBHA . On this great occasion of Professor Saxena's Birth Anniversary Celebrations, we wish him a happy, and long joyful life . May he continue to guide, encourage, and enlighten the global Mathematics community for decades to come.

**AT A GLANCE:****PROFESSOR VINOD PRAKASH SAXENA**, *FISMMCS, FRMS, FVPI*

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**1 PERSONAL DATA:**

Date of Birth : December 11, 1943

Place of Birth : Shivpuri (M.P.), India

## 2 EDUCATIONAL DATA:

### (A) *Basic*

<b>Ph.D.</b>	1970	Vikram University Ujjain	Faculty: Engineering Subject: Applied Mathematics Topic : Integral Transforms and Their Technical Applications
<b>M.Sc.</b>	1966	Jiwaji University Gwalior	Faculty: Science Subject: Mathematics Position : First Division with Distinction. Stood Second in the University Merit

### (B) *Post-Doctoral Fellowships/Visitor ship/Training*

#### POSTDOCTORAL

VISITING SCIENTIST 'Worked as CSIR Senior Research Fellow and Post Doctor Research Fellow at SATI, Vidisha and M.A. College of Technology Bhopal from May 1969 to July 1971. Did research and taught post-graduate classes during this period.

Worked at the University of Cambridge, England as visiting scientist in 1978 under British Council UGC (India) exchange of Young Scientists programme and worked under Sir James Light hill, (Lucasian Professor) of the University.

#### SHORT-TERM TRAININGS

Participated in several advanced short term courses on Management, Mathematics and Computer Science at leading Institutions like I.I.M., Ahmedabad; I.I.T., Delhi; I.I.T., Kanpur and MANIT, Bhopal

## 3 PROFESSIONAL AND ADMINISTRATIVE ASSIGNMENTS

### *Lecturer :*

Worked as Associate Lecturer/Lecturer of Mathematics at S.V. Regional College of Engineering and Technology, Surat during July 1971 to May 1980.

### *Associate Professor*

Worked as Associate Professor of Mathematics at P.A. University, Ludhiana during May 1980 to March 1984

### *Professor*

Professor of Mathematics at Jiwaji University, Gwalior during March 1984 to December, 2005.

### *Dean*

Dean Faculty of Science, Jiwaji University, Gwalior during 1984-86 and 1990-92.

### *Vice-chancellor*

Took over as emergency Vice-Chancellor, Jiwaji University under Section 52 during August 9, 2000.

### *Director/Principal*

- Worked as Director/Principal, Yagyavalkya Institute of Technology, Jaipur from August, 2007 to August 2008.
- Director, Sagar Institute of Research, Technology and Science, Bhopal, from August 2008 to January 2012.

### *Advisor*

- Appointed as Advisor, Research and Development, Sharda Group of Institutions (Anand Engineering College, Agra) in April, 2006.
- Appointed as Advisor and Coordinator (Research) Sagar Group of Institutions (SIRT, SIRT, and SIRTE) in January 2012.

### *Additional Assignments/Positions*

- Worked as the Head, School of Mathematics and Allied Sciences, Jiwaji University, Gwalior since March 1984 till August 2000.
- Worked as Director, Computer Centre, Jiwaji University, Gwalior during 1998-99.
- Worked as Coordinator, M.Sc. Computer Science Programme of Jiwaji University, Gwalior during 1992-2000.
- Founder Head of Computer Centre, Jiwaji University, Gwalior from 1987 to 1994.

- v) Appointed Proctor, Jiwaji University, Gwalior in 1994 for two years.
- vi) Coordinator, M.P. Council of Science and Technology (Gwalior) for two terms 1987-91.

**Supporting Positions:**

- i) Member, Executive Council, Jiwaji University, Gwalior, first during 1984-86 and second time in 1990-93.
- ii) Chairman, Board of Studies in Mathematics, Jiwaji University, Gwalior during 1984 to 2001.
- iii) Chairman, Board of Studies in Computer Science, Jiwaji University, Gwalior for two years.
- iv) Member, Board of Governors, Madhav Institute of Technology and Science, Gwalior since 1994.
- v) Member of several other University bodies like Academic Council, Standing Council Board of Studies of affiliated colleges etc.
- vi) Chairman, UGC-NAAC peer team since March 2002 and evaluated an accredited more than 75 Universities and Colleges.

**Academic Positions Held in Other Institutions:**

- i) Expert Member, Standing Committee, UGC COSIST program in Mathematics at Jodhpur University for two terms.
- ii) Expert Member of Board of Studies of several Universities like Rajasthan, Agra, Vikram, Bhopal etc.
- iii) Expert Member of Research Degree Committees of several Universities like Srinagar (Garhwal), Gurukul Kangri, Bhopal, Rewa, JAYPEE University etc.
- iv) Member, Advisory Board of UGC Centre on Mathematical Modelling in Jadavpur University, Calcutta.
- v) Advisor, Ansal Institute of Technology, Gurgaon.

**4 FOREIGN VISITS:**

- i) During 1978 visited Imperial College (London) (Prof. C.G. Caro), Brunel University (Uxbridge) (Prof. J.R. Whiteman), University of Glasgow (Prof. I.N. Sneddon) and University of Strathclyde (Glasgow) (Prof. R.M. Kennedy). These visits have helped to establish collaboration on long term basis with eminent British Scientists.
- ii) Also visited Xian-Jiaotong University, China in 1988 to deliver lecture and participate in International Conference on Biomathematics.
- iii) Visited National University of Singapore, Singapore in 1996 to participate in International Conference.
- iv) First ever Indian invited to deliver Plenary lecture in International Congress of Bio-mathematics, delivered three lectures in 8<sup>th</sup> International Congress Bio-mathematics at Panama in 1997.
- v) Delivered lectures in Argentina University and National Health Institute, Buenos Aires, Argentina in 1997.
- vi) Delivered lectures in Beykent University and other Universities of Istanbul, Turkey in 2001.
- vii) Visited Cyprus in 2001 to participate in Commonwealth Universities Vice-Chancellors' Conference.
- viii) Visited and delivered lecture in the University of Cambridge (U.K.) IN 2006.
- ix) Visited and delivered lecture at Fraunhofer Institute, Kaiserslautern, Germany in December 2007.
- x) Visited Isaac Newton Centre of applied mathematics at the University of Cambridge and also presented research tutorials at Second IASTED International conference in July 2011.
- xi) Delivered a plenary lecture at American University in the Emirates in the International conference on Transnational Education and Cultural Effects, organized by Eurasian Universities Union in 2014 at Dubai (UAE).

**5 TEACHING and RESEARCH:**

**Specializations in Teaching:**

Teaching : Analysis, Biomathematics, Numerical Methods, Mathematical Methods, Neural Networks, Simulation, Mathematical Modelling, Air Pollution and other areas of Mathematics and theoretical computer science.

**Research Areas:**

- i) Physiological Heat Transfer
- ii) Mathematical Ecology (including Population Modelling)
- iii) Atmospheric Pollution
- iv) Epidemiology
- v) Pharmaco-Kinetics
- vi) Theoretical Computer Science

- vii) Mathematical Finance
- viii) Higher Transcendental Functions

**Research Projects Completed:**

- i) “Temperature Distribution in Skin and Subcutaneous Tissues” supported by South Gujrat University, Surat under UGC unassigned grant (1974-76).
- ii) “Mathematical and Numerical Approach to Physiological heat Flow Problems” supported by UGC, New Delhi (1985-88).
- iii) “Quantitative Study of Effect of Growth of Population and Pollution on Rural Ecosystem” supported by M.P. Council of Science and Technology, Bhopal (1989-91).
- iv) “Mathematical Approach to the Thermal Studies of Abnormal Growths and Heat Injuries in a Human Body” supported by UGC, New Delhi (1995-1998)
- v) “Mathematical Modelling in the Study of Ecological Effects of Pollution on the Existence of Interacting Species Systems” supported by UGC, New Delhi (2002-onwards).
- vi) Mathematical study of Wild Life Population with Special Reference to Shivpuri District of M.P. Supported by M.P. Council of Science and Technology since 2002.
- vii) “A Study on the Ecological Determinants and Their Impact on Human Population in Industrial Complexes near Gwalior” supported by DST, New Delhi (1993-1996).

**Most Significant Contribution to Mathematical Sciences**

Introduced and Defined a New Formula/Function: “*I*-Function” (1982) which is final generalization of Hypergeometric functions in the sequence of *E*-Function (MacRobert, 1937), *G*-Function (Meijers, 1944) and *H*-Function (Fox, 1962) which is adopted as a research topic by many mathematicians throughout. First Indian’s formula of Mathematics appeared in the index of American Mathematical Society Reviewers.

**Prizes and Honours**

- (A) Won following prizes / honours for research work.
  - > Nominated fellow of Indian Society for Mathematical Modelling and Simulation in 2022.
  - > Nominated fellow of Vijnāna Prishad of India in 2003.
  - > President of India cash prize for presenting the best research paper in the sixteenth Congress of Indian Society of Theoretical and Applied Mechanics (Allahabad 1972).
  - > Hariom Ashram, Bhai Kaka Prerit prize for the best research publication during 1972-73.
  - > Nominated Fellow of Ramanujan Mathematical Society in its 10th Annual Conference (1995).
  - > Elected fellow of Vijnāna Parishad of India in 2008.
- (B) Won following prizes / honours for teaching.
  - > “Shikshak Samman” presented by Late Srimant Madhav Rao Ji Scindia (then Railway Minister) as ideal teacher on behalf of Sajag Nagrik Manch, Gwalior in 1989.
  - > “Adarsh Shikshak Samman” presented by Dr. P.S. Bisen (Former Vice-chancellor, Jiwaji University, Gwalior) on behalf of S.D.R. Shiksha Prasar Samiti, Gwalior
  - > Honoured by Ramanujan Mathematical Society in its 16th Annual Conference, 3-5 June, 2001 at Fergusson College, Pune
  - > “Rashtriya Shiksha Ratna Award - 2007” presented by National Education and Human Resource Development Organization, Pune.
  - > Honored by Chief Minister of Madhya Pradesh on the occasion of “Teachers’ day” on 4<sup>th</sup> Sept. 2011 amongst five senior Professors of Madhya Pradesh.
  - > “Teacher of the Year” award by Gwalior Vikas Samiti in 2006.
- (C) Won Following prizes/honours for others.
  - > Special felicitation and award by Hon’ble Governor of Madhya Pradesh for contribution in the development of Jiwaji University, Gwalior during Golden Jubilee celebration in 2014.
  - > First Asian invited to deliver Planery lecture in any International Congress of Biomathematics. The lecture was delivered in 8th Congress (Panama in Aug. 1997).
  - > Invited to deliver P.D. Verma Memorial Lecture by the University of Rajasthan, Jaipur in 2001.
  - > Only Indian invited in second IASTED International conference at Cambridge to present three hours research tutorial on Computational Physiology.
  - > Invited to deliver J.N. Kapur memorial lecture at Kanpur during 15<sup>th</sup> Annual conference of Vijnāna Parishad of India, 2011.

***Position in Research Bodies:***

- i) President, Vijnāna Parishad of India, 2004-2007.
- ii) President, Gwalior Academy of Mathematical Sciences 1994-98, 2001-2005; 2022 onwards.
- iii) President, Sagar Society of Interdisciplinary Research and Technology, Bhopal 2013-2014.
- iv) Vice-President of Indian Society of Theoretical and Applied Mechanics (1986-87).
- v) Chairman, Computer Society of India, Gwalior Chapter.
- vi) Vice President, Ramanujan Mathematical Society.
- vii) Academic Secretary of Ramanujan Mathematical Society.
- viii) General Secretary of “The Mathematics Consortium” since 01/01/2015
- ix) Executive Committee member of:
  - (a) Indian Society of Theo. and Appl. Mech.
  - (b) National Society of Biomechanics,
  - (c) Vijnāna Parisad of India
  - (d) Ramanujan Mathematical Society
  - (e) Indian Academy of Mathematics
  - (f) Indian Society of Industrial and Applied Mathematics.
- x) Member National Committee on Mathematics Educational Research DST

***Position in Research Journals***

- i) Executive Editor of GAMS Journal of Mathematics and Mathematical Biosciences.
- ii) Editor-In-Chief of SSIRT Journal of Engineering, Management and Pharmaceutical Science.
- iii) Member, Editorial Board of Indian Academy of Mathematics.
- iv) Publication Committee Member of Wurtz Publications Canada.
- v) Member of Editorial Board of ‘Jñānābha’ Published by VPI.
- vi) Member of Editorial Board of ‘Ganita Sandesh’ of Rajasthan Ganita Parishad.
- vii) Member, Editorial Advisory Board of JUET Research Journal of Science and Technology.

***Research and Educational Programmes Organized***

Following Research programmes have been organised as programme Director/Convener/Coordinator:

***International***

- > Organised IV<sup>th</sup> International Conference on Physiological Fluid Dynamics (1995)
- > Organised First International Conference of Gwalior Academy of Mathematical Science (2008)
- > Organised First International Conference of Sagar Society of Interdisciplinary Research and Technology (2014)
- > Organised Second International Conference of Sagar Society of Interdisciplinary Research and Technology (2015)
- > Organised Third International Conference of Sagar Society of Interdisciplinary Research and Technology (2016)
- > Organised Fourth International Conference of Sagar Society of Interdisciplinary Research and Technology (2017)
- > Organised Fifth International Conference of Sagar Society of Interdisciplinary Research and Technology (2018)

***National***

- i) All India Seminar on Finite Element Method and its Applications to Biology (1982), (sponsored by UGC, New Delhi).
- ii) All India Symposium on system Theory and its Application to Biology (1985), (sponsored by UGC, New Delhi).
- iii) Twenty Third Annual Congress of Indian Society of Theoretical and Applied Mechanics (1986).
- iv) Orientation Programme for College Teachers-1 (sponsored by M.P. UGC) (1986).
- v) Orientation Programme for College Teachers-11 (sponsored by M.P. UGC) (1987),
- vi) Silver Jubilee All India Workshop for College Teacher (1988) (sponsored by UGC)
- vii) Third M.P. Young Scientists Congress (1988) (sponsored by M.P. Council of Science and Technology).
- viii) All India Continuing Programme in Forecasting Methodologies (1990) (sponsored by DST, New Delhi).
- ix) Workshop and Camp on Future Studies and Human Population (1992) (sponsored by DST, New Delhi).
- x) Seventh Annual Conference of Ramanujan Mathematical Society and All India Symposium on Mathematical Biology (1992).

- xi) Instructional Conference on Mathematical Modelling in Biology and Medicine (1997).
- xii) Indian Science Congress Symposium on Mathematical Ecology and Biomechanics (1998).
- xiii) Thirteenth National Conference of Gwalior Academy of Mathematical Sciences (2008).
- xiv) National Workshop on "Mathematical Modelling and Computation" sponsored by The Mathematics Consortium India, during 2019.

**Research Talks/Lectures Delivered:**

Time to time invited lectures and talks delivered in several institutions and Research Conferences/ Seminars/ Symposia of International/ National Level, including the following important ones:

**(A) Institutions**

University of Buenos Aires, Argentina; University of Cambridge, England; Imperial College, London; Glasgow University, Scotland; Beykent University, Istanbul; Indian Institute of Science, Bangalore; I.I.T. Madras; I.I.T. Delhi; I.I.T. Mumbai; I.I.T. Kanpur; Kurukshetra University; South Gujarat University; REC, Surat; Osmania University; REC, Warangal; Udaipur University; Aligarh Muslim University; University of Rajasthan, Jaipur; Thapar University Patiala; MANIT Bhopal, Kashmir University J and K; Katmandu University, Nepal; Pune University, Pune; DAVV, Indore; Jiwaji University, Gwalior; Central university, Sagar; National College, Tiruchirappalli; Kerala University, Thiruanantpuram; Calcutta Mathematical Society, Kolkata; Department of Higher Education Goa.

**International Conferences**

- i) International Conference on Biomathematics, Xian, China, 1988.
- ii) Participated and Presented Paper in 9th International Symposium on Transport Phenomena in Thermal Fluids Engineering, Singapore, 1996.
- iii) Eighth International Congress of Biomathematics, Panama, 1997.
- iv) First International Congress on Physiological Fluid Dynamics, Madras.
- v) International Conference on Theory of Differential Equations and Application to Oceanography, Goa.
- vi) International Workshop on Approximation Theory and Applications, Aligarh.
- vii) Third International Conference on Physiological Fluid Dynamics, Madras.
- viii) Fourth International Conference on Physiological Fluid Dynamics, Gwalior.
- ix) International Conference on Mathematics at the University of Lucknow, Lucknow (India).
- x) First and Second International Conferences of Indian Society of Industrial and Applied Mathematics (New Delhi).
- xi) Third International conference of GAMS at SVNIT, Surat in 2014.
- xii) International conference on Mathematics, SRM University, Chennai, 2018.
- xiii) International conference of The Mathematics Consortium at BHU, Varanasi, 2019.
- xiv) International conference of VPI at JNU, New Delhi, 2022.

**(B) National and Regional Level Conferences / Symposia / Seminars etc.**

About sixty lectures have been delivered in almost all the conferences of National Societies concerning Mathematics and Allied subjects including those of:

- i) Indian Mathematical Society (Jaipur, Muzzaffarpur, Ahmednagar)
  - ii) Indian Society of Theoretical and Applied Mechanics (Pantnagar, Surat).
  - iii) Indian Science Congress (Madurai, Hyderabad, Chennai and Pune)
  - iv) Ramanujan Mathematical Society (Rajkot, Tirupati, Gwalior, Shimoga, Rishikesh Trivendrum).
  - v) Vijnāna Parishad of India (Hardwar, Gorakhpur, Jhansi, Lucknow).
  - vi) Banaras Mathematical Society (Varanasi).
  - vii) Rajasthan Ganita Parishad (Jodhpur, Kota)
  - viii) Indian Academy of Mathematics (Indore etc.)
  - ix) Bharat Ganita Parishad (Lucknow)
- and several others..

**Research Guidance:**

(A) Guided Ph.D. candidates on the following titles:

- i) Mathematical Study of Physiological Heat Transfer Problems (D. Arya).
- ii) A Mathematical Study of Heat Transfer Problems in Cutaneous and Subcutaneous In-vivo tissues (J.S. Bindra).
- iii) Mathematical Investigations on Human Physiological Heat Flow Problems with Special Relevance to

- Cancerous Tumours (K.R. Pardasani).
- iv) Mathematical Study of Diffusion Problems in In-vivo Human Skin and Other Peripheral Tissues (Praveen Miri).
  - v) Analytical Study of Physiological Heat Flow Problems with Special Relevance to Human limbs (M.P. Gupta).
  - vi) Computerised Solution of Bio-mathematical and Bio-statistical Problems Related to Dermatoglyphic and Genetic Studies in Sports (J. P. Verma).
  - vii) Finite Element Approach to Ecological Problems with Special Relevance to Environmental Pollution and Population Growth (Aishwarya Srivastava).
  - viii) Mathematical and Numerical Approach to Atmospheric Diffusion Problems with Application to Epidemics (A. Juneja)
  - ix) A Mathematical Study of Temperature Profiles in Human Dermal Parts with Burns and other Abnormalities (T. Varma).
  - x) Mathematical Study of Prey-Predator Population with Mutual Interaction (Poonam Sinha).
  - xi) Mathematical Study of Blood Flow Effect on Normal and Abnormal Heat Flow in Human Dermal Regions. (B.K. Tiwari).
  - xii) Mathematical Study of Heat Flow in Human Skin with Thermal Injury (Anoop Singh).
  - xiii) A Study of Hypergeometric Functions and its Application in Biology (Ram Kumar Gupta)
  - xiv) Mathematical Numerical Study of Diffusion Process in In-vivo Tissues (Vinod Kumar Gupta)
  - xv) Mathematical Study of Effect of Cold Environment on Temperature Distribution in Outer Parts of Human Body (Bharat Suman Gupta).
  - xvi) A study of Finite Element Method and Its Application to Pollution Problem (D.S. Kushwah).
  - xvii) Mathematical and Computational Study Environmental Pollution Problems (Hakim Singh).
  - xviii) The I-Function and Its Properties (Lily Agarwal).
  - xix) Mathematical Modeling of Analysis of Ecological Problems with Special Reference to Atmospheric Pollution Problems (Santosh Bharadwaj).
  - xx) Variational Finite Element Based Mathematical Study of Atmospheric Pollution Problems Based on Variable Diffusivity and Surface Deposition (Rajesh Deolia).
  - xxi) Mathematical Study of Thermal Injury in Human Subjects (D.B. Gurung).
  - xxii) Saxenas I-Function and Its Biological Applications (G.D. Vaishya).
  - xxiii) Mathematical and Numerical Study of Distribution and Diffusion of Wild Life Population (Shobha Agarwal).
  - xxiv) Data Mining and Artificial Neural Network Applications to Financial Management in the Indian Context (Nitin Merh).
  - xxv) Mathematical Study of Thermo regulation in Human Body Eposed to Cold Environment (Mukhtar Ahmad Khandey).
  - xxvi) Mathematical and Numerical Estimation of Financial Markets Using Black-Schole's Model (Jainendra Jain).
  - xxvii) Mathematical Study of Transdermal Drug Administration in Human Subjects (Archana Sharma).
  - xxviii) Mathematical Study of Air Pollution in Patchy Areas with Special Reference to Oil Refinery. (Amit Khandelwal)
  - xxix) Mathematical Investigations of Thermal Injuries in Protected and Unprotected Human Dermal Layers. (Arun Kumar Tripathi)
  - xxx) Certain Problems in Mathematical Ecology Pertaining to The Conservation and Migration of Animal Species. (Namreen Rasool)
  - xxxii) Mathematical And Numerical Study Of Solid Tumor (With or Without Malignancy) in Human Body. (Sushma Nema)
  - xxxiii) Mathematical Study of Single and Two Interacting Species with Special Reference to Protected Wild Life. (V. K. Chaturvedi)
  - xxxiiii) Mathematical Study of Migration of Different Animal Species with Special Reference to Marine Life. (Neeta Mazumdar)
  - xxxv) Mathematical Study of Thermo-Regulation in Human Dermal Region Under Variable Metabolic Conditions. (Manoj Kumar Sharma)
  - xxxvi) Mathematical and Numerical Study of Transdermal Drug Distribution in Human Body. (Vineeta

Gupta)

- xxxvi) Some New Properties and Inter-Relations of Saxena's I-function. (Pankaj Jain)
- xxxvii) Analytical Study of Saxenas I-function and Its Applications. (Vandana Jat)
- xxxviii) Mathematical Modelling and Numerical Study of Heat Regulation in Human Body. (Padam Sharma)
- xxxix) Study of Some Problems and Applications of I-Function. (Prachi Jain)
- xl) Mathematical Moedliing of Finite Age Structured Populations and It's Applications in Wild Life (Lalita Dhurve)

(B) Guided more than thirty M.Phil dissertations on various areas of Bio-mathematics.

## 6 PUBLICATIONS

### Research Papers:

Published more than hundred twenty research papers in reputed International and National Journals. Lists of selected papers and other papers are enclosed herewith (Enclosure-1).

\*Presented about one hundred and fifty research papers in various International and National Research Conferences / Seminars / Symposia.

### Research Articles Appeared in Books/Monographs:

Articles appeared in following advanced level books / monographs:-

- i) Numerical Methods in thermal Problems, Pineridge Press, U.K. (Ed. K. Mogan) 1979.
- ii) Bio-mechanics, Wiley Eastern Ltd. 1989 (Eds. K.B. Sabay and R.K. Saxena).
- iii) 'Physiological Fluid Dynamics-II', NAROSA 1991 (Ed. N.V. Swamy and M. Singh).
- iv) Physiological Fluid Dynamics-1 (Eds. M. Singh),
- v) 'Theory of Differential Equations and Applctions to Oceanography' - EWP 1992 (Eds S.G. Deo and Y.S. Prahalad).
- vi) "Lecture Notes on Research Methodology" Indra Pub. House, Bhopal (2013)

\*Many other articles have been included partially in several other research books.

### General Scientific Articles

Ten general articles on scientific topics of teaching and research have also appeared in standard journals.

### Books

Published following books:

- I) *The I-Function*, Anamaya, New Delhi, 2008.
- II) *Advances in Physiological Fluid Dynamics*, NAROSA, (Jt. eds.), Narosa Publishing House, New Delhi, 1995.
- III) *Mathematical Modelling of Real Life Problems*, Anamaya, 2006.
- IV) *Real Analysis* (Joint Authorship), Allied Publishers, New Delhi, 2003.
- V) *Introductory Topics in Biomathematics* (Hindi) Wiley Eastern Ltd., New Delhi, 1987.
- VI) *Calculus of Two and More Variables* (in Joint Authorship), Wiley Eastern Ltd., New Delhi, 1986.
- VII) *Calculus of one Variable* (Joint Authorship), Wiley Eastern Ltd., New Delhi (1987).
- VIII) *Introduction to Biomathematics* (Hindi) M.P. Hindi Granth Rachna Academy, Bhopal, 1988.
- IX) *Engineering Mathematics-I* (with Shishir Bhaskar), Deepak Prakashan, 2000.
- X) *Engineering Mathematics-II* (with Praveen Miri and Shishir Bhaskar) 2001, Deepak Prakashan, 2001.
- XI) *Engineering Mathematics-III* (with Praveen Miri), Deepak Prakashan, 2001.
- XII) *Lecture Notes on Research Methodology*, Indra Publication, Bhopal, 2013.

## 7 PARTICIPATION IN SOCIAL ACTIVITIES:

Member Board of Governors/Advisory Boards/Executive Committee of L.I.C. (Central Zone), Family Planning Association of India, Rama Krishna Ashram and nominated as Vice-chairman of Red Cross Society, President Anjuman Tarrakki E' Urdu and Patron Bazme E' Urdu, Gwalior.

## 8 PUBLISHED FOLLOWING HINDI LITERATURE BOOKS:

- (i) "SHAHILON KE BEECH" Indra Publication, Bhopal, 2018.
- (ii) "SATH HOTE TUM AGAR" AISECT Publication, Bhopal, 2022.
- (iii) "PROFESSOR DHOTI PANDEY" AISECT Publication, Bhopal, 2023.

## Enclosure-1

### LIST OF SELECTED RESEARCH PUBLICATIONS OF PROFESSOR VINOD P. SAXENA (EX V. C. JIWAJI UNIVERSITY)

1. V. P. Saxena, Mathematical modelling of biological populations with and without dispersion, *Research in Statistics, Taylor & Francis*, **1**(1) (2023), <https://doi.org/10.1080/27684520.2023.2215638>.
2. Padam Sharma, V. P. Saxena, Mathematical Study of Blood Circulation and Bio-Chemical Reaction Based Heat Distribution Problem in Human Dermal Region, *Jñānābha*, **53**(1) (2023), 308-314.
3. Padam Sharma, N.S. Lodhi and V.P. Saxena, Yoga Therapy and Heat Regulatory and Cardiovascular Systems of a Human Body. *International Journal on Emerging Technologies* **12**(2) (2021), 282-289.
4. Prachi Jain, Arvind Gupta and V. P. Saxena, On Integrals Involving a Product of Extended Bessel Maitland Function and  $I^*$ -Function, *Jñānābha*, **50**(2) (2020), 59-62.
5. Lalita Dhurve and V.P. Saxena, Mathematical Modelling of Food Management for Wild Life Population Mild Environmental Effect, *Jñānābha*, **50**(2) (2020), 223-228.
6. Lalita Dhurve, R.D. Dehriya and V.P. Saxena, Mathematical Modelling of Discrete Age Structured Prey Populations with Fluctuating Death Rate, *International Journal of Bhopal*, **3** (2020),
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