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8. ——— : Topology of 4-manifolds. *Platinum Jubilee Session of Indian Science Congress Association*, Pune, 10 January, 1988.
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2. Sotara, A. (with Price, J.) : Some uncertainty principles in abstract harmonic analysis. *Prof. Mini Conference in Harmonic Analysis and related topics*, Centre for Mathematical Analysis, Australian National University, June, 1987.

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2. Mitra, S. K. : Optimal integration of PPS surveys. *International Conference on Combinatorics, Optimization and Statistics*, Srinagar, 17-21 August, 1987.
3. ——— (with Mohan, S. R.) : The maximum covariance of given marginal distributions. *IX Annual Conference of Indian Society for Probability and Statistics*, Delhi University, 10-13 November, 1987.
4. ——— : On the method of overlapping maps in survey sampling. *Presidential Address, 75th Session of the Indian Science Congress Association*, Pune, 7-12 January, 1988.

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10. ——— : Computer simulation of glucose homeostatic perturbation by oral glucose infusion. *International Conference on Fluid Mechanics*, Beijing, 1-4 June, 1987.
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- Sinha, M. (with Roy, S.): Stochastic space-time and the galactic origin of ultra-high energy cosmic ray. *Proc. 20th International Cosmic Ray Conference, Moscow*, 1987. OG 5.3.7.
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- : A knowledge—Based Approach of Pattern Recognition and Computer Vision for Application in Robotics and Industrial Inspection System. *7th Int. Congress of Cybernetics and Systems, London, U.K.* 7-11 September, 1987.

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10. ——— : Need for a Unified Theory of Pattern Recognition and Computer Vision (invited talk). *INDO-US Workshop on Syst. and Signal Processing, Bangalore, January, 1988.*
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Physics

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Biological Sciences

Anthropometry and Human Genetics

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Social Sciences

Economic Research

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3. Mukherjee, Robin : Guidelines for Access to Unpublished Data by Users. *Eighth Conference for Centre and State Statistical Organisations*, Delhi, 14-18 January, 1988.
4. ——— (with Roy, Bina) : Income and its Differential Among Workers in Small Enterprises in Calcutta : Some Survey Results. *Silver Jubilee Conference of the Indian Econometric Society*, Bangalore, 4-6 January, 1988.
5. Roy, Bina : Growth of National Income and Capital Formation in India during the period 1850-51 to 1900-01. *Twentieth General Conference of the International Association for Research in Income and Wealth*, Rome, Italy, 23-29 August, 1987.

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11. ——— : Women Land and Agricultural Employment Generation. *Southern Regional Workshop to search for innovative ways of linking women's studies with action*, Institute of Management in Government, 1987.
12. ——— : Women Labourers, Women Cultivators and contribution to Agriculture. *National Workshop on Women in Agriculture*, organized by the Department of Agriculture and Cooperation, Ministry of Agriculture, New Delhi, 1987.
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2. ——— (with Kameswara Rao) : A Nine Equation New Classical Model of the Indian Economy. *Silver Jubilee Conference of the Indian Econometric Society*, 4-6 January, 1988. *Volume of Papers*.
3. Iyenger, N. S. (with Gopalakrishna, Mallika) : About Poverty Line—An alternative Approach. *Silver Jubilee Conference of the Indian Econometric Society*, 4-6 January, 1988. *Programme and Abstracts of Papers*. (Ed. Iyenger, N. S.).

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2. Majumdar, P. K. : Health of the high risk groups : mothers, children and elderly. *Workshop on Planning and Management of Hospitals and Nursing Homes*, Madras, 3 November—5 December, 1987.
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Psychometry

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Sociology

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Statistical Quality Control and Operations Research

1. Handa, S. S. : Quantitative techniques and acid to improve operational efficiency in hospitals. *International Conference on Quality Control in Service Industries*, 1987, Seoul, Korea.
2. Lakshmi Kantan, P. R. : Check list for introduction and nurturing of QC Circles. *International Convention on QC Circles*, ICQCC, 1987, Bangkok.

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Library, Documentation and Information Sciences

DRTC (Bangalore)

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2. ——— : Computers in Library work and service. (Key-note address on the occasion of the Seminar on Minisis held in Bangalore on 13th October, 1987).
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7. ——— : Information for Food Research and Industry. (Presidential address on the occasion of a Symposium held during the Second International Food Convention at CFTRI, Mysore, 24 February, 1988).
8. ——— : On Modernisation of Libraries. (Director's introduction to the theme of the seminar held on the occasion of the 33rd All Library Conference at Trichy, 28-31 December, 1987).
9. ——— : Message of the seminar on Modernisation of Libraries. (Director's concluding remarks on the proceedings of the Seminar held on the occasion of the 33rd All India Library Conference at Trichy during 28-31 December, 1987).
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20. ——— : Bibliometric Models : Their origin, nature and application. *Workshop on Scientific Communication and Bibliometrics*, Calcutta, 15-26 February, 1988.
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23. ——— : Role of International Organisations in Library and Information Science Education Programmes. *National Seminar on Hundred Years of Library Education and its future*, Nagpur, 10-12, October, 1987.
24. ——— : Knowledge, skill and role of future information professionals : Implications of information Technology. *IASLIC Seminar*, Tirupati, 1987.
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26. ——— : Information Professionals and their skills for future information society. *44th FID Conference*, Helsinki, 28 August—2 September, 1988. (Communicated).

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PROJECT REPORT SUBMITTED

Applied Statistics, Surveys and Computing

Externally funded Project

Positive and negative effects of family Planning adoption in West Bengal (Project sponsored by Indian Council of Medical Research, New Delhi).

The project has been completed and the final report has been submitted to the Indian Council of Medical Research, New Delhi in April, 1987.

One of the most important findings of this study is the sampled respondents' low sensitivity in perceiving the health benefits of family planning. Although the adopters are aware of the consequences of too many pregnancies on the mother's health, not many of them could perceive the health of the mother as important benefits resulting from practicing contraception. The adopters seemed to perceive, on the other hand, some economic gains of family planning adoption more than non-adopters. They thought that family planning adoption would probably help in eschewing the expenditure on children and help in saving more money.

Another important finding of this study is the identification of fear and apprehension on the part of many sterilized cases so far as their personal health is concerned. The study clearly indicate that for the nonadopters, the public campaign with its great emphasis on the health benefits of family planning does not seem effective since the health reason for spacing and family limitation still appears to be obscure to most of them. It also seems doubtful if the perception of children's economic and practical utility has changed significantly in the expected direction.

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Calcutta

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3. ——— (with Bagchi, S.) (1987) : Designs from pairs of finite fields, I. A cyclic unital $V(6)$ and other regular Steiner 2-designs. Tech. No. 10/87, Cyclostyled.
4. ——— (with Sastry, N. S. N.) (1988) : Two characterisations of even order miquelian inversive planes. Tech. No. 1/88, Cyclostyled.
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8. --- (with Das Gupta, S.) (1987) : Multivariate majorization. Tech. No. 12/87, Cyclostyled.
9. Chandra, T. K. (1987) : Uniform integrability in Cesaro sense and WLLW. Tech. No. 13/87. Cyclostyled..
10. --- (1987) : Multidimensional Polya's theorem. Tech. No. 14/87, Cyclostyled.
11. --- (1987) : New proofs of some results of Bahadur's asymptotic of P-values. Tech. No. 15/87, Cyclostyled.
12. Datta, B. (with Subramanian, S.) (1987) : Non-existence of almost complex structures on product of even dimensional spheres. Tech. No. 11/87, Cyclostyled.
13. Goswami, Alok (with Gupta, J. C. and Rao, B. V.) (1987) : Markovian motions on the line with velocity zero or one. Tech. No. 24/87, Cyclostyled.
14. Maiti, P. (with Pal, M.) (1987) : A unified approach on the estimation of Lorenz ratio from a finite population. Tech.No. 6/87, Cyclostyled.
15. --- (with Tripathi, T. P.) (1987) : Use of information on two auxiliary variates in selecting the sampling units. Tech. No. 9/87, Cyclostyled.
16. Misra, G. (with Sastry, N. S. N.) (1987) : Hilbert modules, extremal problems and a curvature inequality. Tech. No. 7/87, Cyclostyled.
17. Purkayastha, S. (with Bhandari, S. K.) (1988) : Characterization of uniform distributions by inequalities of Chernoff-type. Tech. No. 3/88, Cyclostyled.
18. Raha, A. B. (1987) : An example of a regular space that is not completely regular. Tech. No. 18/87, Cyclostyled.
19. Rajeev, B. (1987) : On sojourn times of Martingales. Tech. No. 8/87, Cyclostyled.
20. Rao, T. J. (1987) : On certain alternative estimators for multiple characteristics in varying probability sampling. Tech. No. 21/87, Cyclostyled.
21. --- (1987) : Small area estimation. Tech. No. 22/87, Cyclostyled.
22. --- (1987) : Some aspects of recent trends in sampling surveys. Tech. No. 18/87, Cyclostyled.

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23. Tripathi, T. P. (with Sinha, H. P. and Upadhyaya, L. N.) (1987) : A general method of estimation and its application to estimation of coefficient of variation. Tech. No. 16/87, Cyclostyled.

Delhi

1. Mitra, S. K. (with Mohan, S. R.) : On the optimality of the northwest corner solution in some applications of the Transportation Theory. ISI Technical Report 8712.
2. Parthasarathy, K. R. : A continuous time version of Stinespring's theorem on completely positive maps.
3. ——— : Remarks on the quantum stochastic differential equation $dX = (c - 1) X d\Lambda + dQ$.

Applied Statistics, Surveys and Computing

1. Adhikary, Arun Kr. (with Chaudhuri, Arijit) : Double sampling strategies with varying probabilities. Technical Report No. ASC/87/7, August, 1987.
2. ——— (with Chaudhuri, Arijit) : On exact efficiency of the ratio estimator in simple random sampling. Technical Report No. ASC/87/9, August, 1987.
3. Arnab, Raghunath : Estimation of a finite population total in two-stage and stratified sampling under superpopulation models. Technical Report No. ASC/88/2.
4. Bagchi, Sunanda (with Bagchi Bhaskar and Mukhopadhyay, A. C.) : Covering morphism between nets. Technical Report No. ASC/87/3.
5. Basu, Anirban : Fault tolerance in distributed computing system. Technical Report No. ASC/88/3.
6. Basu, T. K. : Modelling intestinal glucose absorption in response to a bolus of oral glucose infusion. Technical Report No. ASC/88/1.
7. Bhattacharya, Atanu (with Sarkar, Samir, Basu Subrata and Ganguly Sukumar) : Lactate dehydrogenase study in different inland Indian major carps and exotic carp. Technical Report No. ASC/88/4.
8. Chaudhuri, Arijit (with Chandra Nimai Kr.) : Testing Equality of two exponential distributions with a known common coefficient of variation. Technical Report No. ASC/87/5.
9. ——— : Analysis of data with complex survey design : A review. Technical Report No. ASC/87/10.
10. ——— (with Arnab, R.) : Multi-stage sampling with varying probabilities. Technical Report No. ASC/87/8.

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11. Mukherjee, B. N. : A pilot study on positive and negative effects of family planning adoption in West Bengal. Technical Report No. ASC/87/4. April, 1987.
12. --- (with Maiti, S. S.) : On conditions for equality of OLSE, GLSE and MIE in covariance structure analysis. Technical Report No. ASC/87/6, July, 1987.
13. --- (with Maiti, S. S.) : Measures of goodness-of-fit in the analysis of covariance structures. Technical Report No. ASC/88/5, February, 1988.
14. Mukhopadhyay, P. (with Bhattacharya, S.) : On estimating the variance of a finite population under a super-population model. Technical Report No. ASC/87/12.
15. Roy, Bimal Kr. (with De, Anup Kr.) : Computer construction of some group divisible designs. Technical Report No. ASC/87/11.

Physical and Earth Sciences

Chemistry

1. Pal, Susmita (with Ghosal, D. N.) : Organic cation selectivity on slate.
2. --- (with Ghosal, D. N.) : Adsorption and desorption of surface active and non-surface active organic substances on feldspar.

Electronics

1. Bhattacharya, B. B. (with Seth, S. C.) : On fault simulation in combinational circuits. Tech. Report. Dept. of Computer Science, University of Nebraska-Lincoln, U.S.A., April, 1987.
2. --- (with Deogun, J. S. and Sherwani, A. N.) : A graph theoretic to single row routing problems. Tech. Report No. 57, University of Nebraska-Lincoln, U.S.A., 1987.
3. --- (with Deogun, J. S.) : Via-minimization in VLSI routing with movable terminals. Tech. Report No. 43, Dept. of Computer Science, University of Nebraska-Lincoln, U.S.A., March, 1987.
4. Seth, S. C. (with Einspar, K. and Bhattacharya, B. B.) : Two terminal decomposition of MOS switch level circuits with applications to testing. Tech. Report., University of Nebraska-Lincoln, U.S.A., 1988.

Electronics and Communication Sciences

1. Dutta Majumder, D. (with Das, J., De, A. K., Sen, A. K. and Basu Mallick, S.) : Statistical Studies on the Tropospheric Propagation for UHF/VHF and Microwave Links—(DST Project).

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Physics

1. Mukherjee, Soma : Studies in thermal and electrical properties of skin : An outline of a project. Tech. Rep. P. & E-Physics 1-87-88.

Biological Sciences

Leaf Protein

1. Chakraborti, S. (with Chanda, S. and Maitai, S.): Influence of different C-sources and N-sources on enzyme and biomass production by a soil streptomycete, I.S.I. Technical Report No. Leaf Pro/1/88.

Social Sciences

Economic Research

1. Chakraborty, Satya, R. : A Normative Characterisation of the Shannon Entropy Numbers Equivalent Index of Industrial Concentration. Tech. Rep. No. ERU/4/87.
2. ——— : On Optimum size Distribution of firms in the continuum. Tech. Rep. No. ERU/7/87.
3. ——— : On Quasi-orderings of Income Profiles. Tech. Rep. No. ERU/13/87.
4. Coondoo, Dipankar (with Maiti, Pradip) : Marketing Channel of Paddy and Rice : A case study in Bankura District of West Bengal. Tech. Rep. No. ERU/11/87.
5. ——— (with Saha, Somesh) : Between state differentials in rural consumer prices : An analysis of inter-temporal variations. Tech. Rep. No. ERU/14/87.
6. Dasgupta, D. : Procurement Price, Market Prices Employment and Effective Demand. Tech. Rep. No. ERU/8/87.
7. Pal, Padmaja (with Bhattacharya, N.) : Areal Distribution of Poverty in Rural India during 1973-74. Tech. Rep. No. ERU/6/87.
8. Pathak, Prasanta (with Saha, Vaskar) : The measurement of localisation performance and the industrial labour absorption function for regional plan NG of human resources in India. Tech. Rep. No. ERU/12/87.
9. Sarkar, Abhirup : Regional Inequality and Inter-Regional Co-operation. Tech. Rep. No. ERU/5/87.
10. ——— : A Keynesian Model of North-South Trade. Tech. Rep. No. ERU/10/87.

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11. Sarkar, Nityananda : Comparisons among some estimators in misspecified linear models with multicollinearity. Tech. Rep. No. ERU/15/87.
12. Rao Surekha K. (with Griffiths, W. E.) : Bayesian Estimation and Comparison of Expenditure Model with Additive or Multiplicative Heteroscedasticity. Tech. Rep. No. ERU/9/87.

Planning (Delhi)

1. Dutta, B. (with Esteban, J.) : Social Welfare and Equality. Tech. Rep. No. 8803/Feb., 1988.
2. Jain, L. R. : On a Relationship between the Real and the Nominal Relative Disparities : The Consumption of Cereal in Rural India. Tech. Report No. 8715/Aug., 1987.
3. Kansal, S. M. : Measurement of Poverty in India : An Evaluation. Tech. Rep. No. 8808/March, 1988.
4. Minhas, B. S. : The Planning Process and the Annual Budget : Some Reflections on Recent Indian Experiences. Tech. Rep. No. 8709/May, 1987.
5. --- : Leadership, Public Policy and Socio-Economic Change. Tech. Rep. No. 8804/March, 1988.
6. --- (with Jain, L. R., Kansal, S. M. and Saluja, M. R.) : Measurement of General Cost of Living for Urban India : All India and Different States. Tech. Rep. No. 8806/March, 1988.
7. Sen, Arunava. : The Approximate Implementation of Social Choice Functions by Social Choice Correspondences. Tech. Rep. No. 8802/Jan., 1988.

Sociology

1. Chakrabarti, P. (with Bhattacharjee, D.) : Expectations and reality : A study of continuity and change in rural Purulia.

Statistical Quality Control and Operations Research

1. Chakraborty, T. K. : Fuzzy goal programming approach to single sampling inspection. Tech. Rep. No. SQC-OR/1/8.
2. --- : A single sampling attribute plan of given strength based on Fuzzy goal programming. Tech. Rep. No. SQC-OR/2/88.
3. Date, K. M. (with Mohan, A.) : Course manual for the management programme on SQC for the Officers of Ammunition Factory, Khadki.

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4. ---- (with Mohan, A.) : Course manual for the in-plant programme on SQC for the staff of Ammunition Factory, Khadki.
5. ---- (with Mohan, A.) : Course manual for the in-plant course on SQC for the Engineers of Bajaj Auto Ltd., Aurangabad.
6. ---- (with Mohan, A.) : Course manual for the programme on Quality—A Top Management Perspective for the Senior Managers of Perfect Circle Victor Ltd., Nasik.
7. ---- (with Mohan, A.) : Course manual for the programme on Statistical Process Control for the engineers of middle management level of Perfect Circle Victor Ltd., Nasik.
8. Ghosh, D. T. : On the near optimal continuous sampling plan—CSP2 ($k = t$) that minimises the amount of inspection at its performance as compared to optimum CSPI plans. Tech. Rep. No. SQC-OR/4/88.
9. Manna, D. K. : Multiobjective Decision Analysis in purchase of machines.
10. Ramachandradu, B. : Course manual on SQC prepared for the project oriented training programme at Indo French Time Industries Ltd.
11. SQC Unit, Baroda : Course manual for training programme on 'Introduction to Quality Engineering' at Jyoti Ltd., (Part I).
12. ---- : Course manual on training programme on 'SQC' at Hindustan Brown Boveri Ltd., Baroda.
13. SQC-OR (T and P) Unit, Calcitta : Course manual for programme on 'Quality Circle' for 300 consulting engineers of MECON (I) Ltd. at Calcutta, Ranchi, Bokaro, Durgapur, Rourkela and Bhilai.
14. ---- : Quality Control at Polyethylene Record—Jacket Unit prepared for Indian Council of Small Industries and Women Entrepreneurs. (subsequently published in ICSI-HERALD : Special issue, December 1987).
15. ---- : 'A strategy for Statistical Quality Control in Small Scale Sector' prepared for Small Industries Development Organisation (SIDO) at the initiative of SISI and Regional Test Centre (E) Calcutta and subsequently published in their proceedings of symposium during March, 1988).
16. ---- : Technical literature abstract on 21 research and application papers prepared for Quality Control and Applied Statistics published by Executive Sciences Institute, USA.
17. SQC Unit, Hyderabad : Technical literature abstract on 8 research and application papers prepared by J Venketappiah for Quality Control and Applied Statistics published by Executive Sciences Institute, USA.

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18. SQC Unit, Pune : Course manual in Marathi for the in-plant training programme conducted at Hindustan Cocos Products Ltd.
19. --- : Course manual in Hindi for the in-plant training programme conducted at Perfect Circle Victor Ltd.
20. SQC Unit, Trivandrum : Course note in connection with the training programme on Quality Management of M/S, Kerala Agro Machinery Corporation, Alwaye.
21. --- : Course manual on QC Circles' Training Programme at Kerala Agro Machinery Corporation in local language.

Library, Documentation and Information Sciences

DRTC (Bangalore)

1. Seetharama, S. (with Venkatrao, K.) : Biological Diversity, Ecodevelopment, and Western Ghats : Depth Classification Schedule, 1987. Institute of Ecological Sciences, Bangalore.
2. --- (with Venkatrao, K.) : Information Infrastructure for the Institute of Ecological Sciences, Bangalore : A developmental Plan, 1987.

6. Ph.D./D.Sc. Degrees

A. *Ph.D./D.Sc. Degrees Awarded*

The following is the list of Ph.D./D.Sc. degrees obtained by the Research Fellows, Research Associates and Project Assistants of the Institute.

1. Bhabatosh Chanda : "On preprocessing techniques for image analysis", degree awarded by the University of Calcutta.
Supervisor : Professor D. Dutta Majumder.
2. Sm. Banarasi Basu : "Harmonic oscillation in $1 + 1$ dimension and phase transition phenomena", degree awarded by the University of Calcutta.
Supervisor : Professor P. Bandopadhyay.
3. Sm. Barnana Roy : "Application of dynamical groups and scaling variational methods in perturbation problems of Quantum Mechanics, degree awarded by the Jadavpur University.
Supervisor : Dr. R. K. Roychoudhury.

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4. Sm. Saswati Banerjee : "Dicynodont reptiles from the Triassic Yerrapalli Formation and their importance in stratigraphy and palaeontology", degree awarded by the University of Calcutta.
Supervisor : Professor T. Roy Chowdhury.
5. Debdas Bandyopadhyay : "A Multi-Sectoral Model of Income Distribution, Poverty and Growth: Some Policy Exercises for Indian Economy", degree awarded by the I.S.I.
Supervisor : Dr. K. C. Majumdar.
6. Gomatam Ravindran : "On global univalence and completely mixed games", degree awarded by the I.S.I.
Supervisor : Dr. T. Parthasarathy.
7. Rita Saharay : "Studies on optimality of some classes of designs", degree awarded by the I.S.I.
Supervisor : Professor Bikas Kumar Sinha

The following is the list of Ph.D./D.Sc. degree obtained by the members of the staff of the Institute.

Electronics and Communication Sciences

8. Kumar Sankar Roy : "Control laws for unknown and imprecise systems", degree awarded by the University of Calcutta.
Supervisor : Professor A. M. Ghosh.
- B. *Theses Submitted for Ph.D./D.Sc. Degrees*

The following is the list of Ph.D./D.Sc. theses submitted by the Research Fellows, Research Associates and Project Assistants of the Institute.

1. B. Dutta : "A study of mappings and manifolds of Fueter, hyper-complex and almost complex types", I.S.I.
Supervisor : Dr. S. Nag.
2. G. A. Murthy : "On consistent estimation of classes in R^n in the context of cluster analysis", I.S.I.
Supervisor : Professor D. Dutta Majumder.
3. P. C. Mali : "A study on a class of Transform Techniques in image processing", Jadavpur University.
Supervisor : Professor D. Dutta Majumder.

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4. Suranjan Ghosh : "Studies on network graphs—their design",
Tadavpur University.
Supervisor : Dr. B. P. Sinha.
5. Barun Mukhopadhyay : "Bioanthropology and its Sociocultural
Correlates among the Lepchas of Kalimpong
subdivision, Darjeeling district, West
Bengal", University of Calcutta.
Supervisor : Professor A. Basu.
6. B. K. Pradhan : "Public Policy and the Dynamics of
Development : A Macroeconomic Theory
for Developing Economies", I.S.I.
Supervisor : Professor V. K. Chetty.
7. P. V. Srinivasan : "General Equilibrium Analysis of Price and
Distribution Controls for Foodgrains and
Textiles in India". I.S.I.
Supervisor : Professor V. K. Chetty.
8. D. K. Ratha : "Planning and Resources Mobilisation in
Developing Economy", I.S.I.
Supervisor : Professor V. K. Chetty.
9. P. Gajapati : "The Economics of Ricardo—A Reworking"
I.S.I.
Supervisor : Dr. Sanjit Bose.
10. Rabindra Nath Mukhopadhyay : "An Analysis of Spatial Patterns and Growth
of Indian Agricultural Activities" I.S.I.
Supervisor : Dr. M. N. Pal.
11. Sagnik Sinha : "A contribution to the Theory of Stochastic
games", I.S.I.
Supervisor : Professor T. Parthasarathy.
12. V. Nayak : "Analysis of Household expenditure :
Treatment of Zero observations in Estimation"
Supervisor : Professor N. S. Iyengar.
13. Subhir Kumar Bhandari : "Some aspects of Majorisation and their
applications in Statistics", I.S.I.
Supervisor : Professor Somesh Dasgupta.
14. Sm. Atasi Basu : "On Sequential test procedures with appli-
cations in Identification and Selection". I.S.I.
Supervisor : Professor J. K. Ghosh

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15. Sm. Ratna Bhattacharya : "On the Invariants of an $(n \times n)$ matrix",
I.S.I.
Supervisor : Dr. K. Mukherjea.

The following is the list of Ph.D./D.Sc. theses submitted by the members of the Staff of the Institute.

Population Studies Unit

1. Samir Guha Roy : "Estimation of Demographic parameters for
India", I.S.I.
Supervisor : Professor J. Roy.

**Part II. Convocation, Visiting Scientists, Honours and Awards,
Scientific Tours and Assignments**

7. TWENTY-SECOND CONVOCATION

The Twenty-second Convocation of the Indian Statistical Institute was held on 14 January 1988. Shri Subimal Dutt, President of the Institute presided over the Convocation function. Shri P. N. Haksar, Chairman of the Council of the Institute welcomed the guests. Sir David Cox, F.R.S., Professor, Imperial College of Science and Technology, U.K. delivered the Convocation Address. Professor J. K. Ghosh, Director of the Institute, presented the annual review of research, teaching and training.

The number of candidates awarded Ph.D., M.Tech, M.Stat., B. Stat (Hons.) Degrees, Post-Graduate Diplomas in Applied Statistics, Associateship in Documentatoin and Information Science and Diplomas in Professional Examinations in Statistics is given below :

Degrees/Diplomas	Number of candidates
Doctor of Philosophy (Ph.D.)	4
Master of Technology in Computer Science (M.Tech.)	9
Master of Statistics (M.Stat.)	23
Bachelor of Statistics (Honours) (B.Stat. (Hons.))	12
Post-graduate Diplomas in Applied Statistics :	
(i) Statistical Quality Control and Operations Research, Calcutta	7
(ii) Statistical Quality Control and Operations Research, Delhi	5
(iii) Statistical Quality Control and Operations Research, Madras	7
Associateship in Documentation and Information Science, Bangalore	19
Professional Examinations in Statistics :	
(i) Junior Diploma in Statistics	1
(ii) Senior Diploma in Statistics	1
Total	88

8. VISITING SCIENTISTS

A number of distinguished scientists from abroad and India participated in the research, training and other scientific activities of the Institute during the year. Some of them came to the Institute on invitation and spent fairly long period at the Institute to assist in the regular research and teaching programme while others came for short periods and gave lectures and seminars. Most of them were available for consultations by the faculty members of the Institute.

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1. *The following scientists visited the Institution Invitation and worked for fairly long periods during the year.*

1. Professor P. S. Puri, Department of Statistics, Purdue University, Indiana, USA continues his visit to the Institute (Delhi Centre) since July 1986. He has been working on Statistical Inference in Stochastic Processes; Queueing Theory; Stochastic Modelling in Biology, etc. He has been collaborating with Dr. K. B. Sinha, Dr. James Robertson of U.C. Santa Barbara, USA (who visited ISI), Dr. Harshinder Singh of Punjab University and Professor Wolfgang Buhler of University at Mainz, West Germany (who also visited ISI). During October 1987 jointly with Professor Buhler as part of six lectures *Mini-Course* he gave a series of three talks: "On some statistical problems arising in stochastic modelling of natural phenomena". He has also been serving on the Quinquennial (1982-86) Review Team for the IASRI, New Delhi. During the period April 1987-March 1988 the following lectures were delivered by Professor Puri at various places: (i) June 22-26, 1987: University of Poona as part of a "Seminar on Statistical Inference", Lecture: "Some statistical problems arising in stochastic modeling of natural phenomena". (ii) August 17-21, 1987: International Conference on Combinatorics, Optimization and Statistics, Srinagar, Kashmir, Lecture: "Optimum replacement of a system subject to shocks: A Mathematical Lemma". (iii) October 20, 1987: Indian Institute of Technology, Kanpur, Lecture: "Problems of Non-identifiability of distribution arising in stochastic modeling". (iv) November 10-13, 1987: Delivered "P. V. Sukhatme Lecture" of the Indian Society of Probability and Statistics (ISPS) at University of Delhi, *Title*: On problems of Nonidentifiability of distribution arising in stochastic modeling. (v) November 14-16, 1987: Ramanujan Centenary Celebrations Conference sponsored by Allahabad Mathematical Society held at Allahabad University, Lecture: "Problems of Non-identifiability of distribution arising in stochastic modeling". (vi) November 19-21, 1987: Statistical Ecology Conference at Indian Agricultural Statistics Research Institute, New Delhi, Lecture: "Problems of Non-identifiability of distribution arising in stochastic modeling". (vii) December 16-19, 1987: Operation Research Seminar, Delhi University, Lecture: Optimum replacement of a system subject to shocks: A Mathematical Lemma. (viii) December 22-26, 1987: Conference on Stochastic Processes and Related Statistical Inference, Calcutta University, Lecture: "An optimal $C(\alpha)$ (d) Test of Poisson hypothesis against compound Poisson alternatives". (ix) January 7-12, 1988: 75th Session of the Indian Science Congress Association, Poona University, Lecture: "Threshold versus Nonthreshold Hypotheses Arising in Stochastic Modelling in Biology". (x) January 20, 1988: Delhi University, ISI Joint Statistics Seminar at Delhi University, Lecture: "On an optimal $c(\alpha)$. Test of Poisson hypothesis against compound Poisson alternatives".

During this period Professor Puri (under the joint authorship) has submitted four scientific papers for publication.

2. Dr. Radheshyam Bairagi has been continuing as a Visiting Scientist since October, 1986. Seminar given: Effect of son preference on fertility in Bangladesh.

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3. Dr. D. N. Naik, Old Dominion University, Norfolk, Virginia, USA, (June, 1987) visited ISI Bangalore Centre. Lecture : "Detection of Outliers and influential observations in regression models".
4. Dr. L. M. Lindsay, King's College, London is visiting the Institute (Delhi Centre) for a period of one year starting from 1st October 1987 under the INSA-Royal Society Exchange Programme. His activities consisted of : (i) preparation of the article "Cohomology of finite power sets and its applications in quantum probability" in collaboration with Dr. K. R. Parthasarathy. (ii) a course of lectures on kernel methods in quantum stochastic calculus. (iii) visit to the Bangalore Centre and discussion of problem in von Neumann algebras with Dr. V. S. Sundar, (iv) completion of the manuscript "The passage from random walk to diffusion in quantum probability II" and submission to Sankhyā in collaboration with Dr. K. R. Parthasarathy. (v) completion of the manuscript "On multidimensional Markovian cocycles" and submission to a quantum probability volume, Springer Lecture Note Volume (in collaboration with L. Accardi and L. Journe).
5. Dr. Bani Mitra, University of Delhi (15.5.87-30.6.87) . He had discussions with staff members of the Electronics Unit.
6. Professor Attilio Giordana, Dipartimento Di Informatics of the Università Delgi Studi Di Torino, Italy (6.7.87-8.7.87). Lecture : "Image Processing".
7. Dr. Neela Mukherjee, an ICSSR fellow, has been working in ERU from November, 1986.
8. Dr. D. K. Dutta Majumdar has been working as a Visiting Scientist in 1987.
9. Dr. Ira Gang, Rutgers University, visited ISI Delhi Centre during July-August, 1987.
10. Dr. Arunava Sen, Princeton University is at ISI Delhi Centre for one year beginning September 1, 1987.
11. Dr. Louis Wilde, California Institute of Technology, visited ISI Delhi Centre during September-October, 1987. He presented one seminar.
12. Dr. T. K. Askarov of Soviet Union is visiting the Economic Research Unit under the Indo-Soviet Cultural Exchange Programme to pursue a research program on "Problems of Evaluation of Uniformity-Social and Economic Process in India.
13. Dr. S. Biswas, Department of Mathematical Statistics, University of Delhi (October-November, 1987) : Seminars given : (i) Probability models for classifying causes of death, (ii) Mathematics of stable population. He also gave a series of five lectures of Stochastic models on population and related topics.
14. Professor Jan Pelant, Mathematical Institute of Czechoslovak Academy of Sciences, Czechoslovak (19.11.87-30.12.87). Lectures: "Classification of spaces of continuous functions". He also visited ISI Bangalore Centre and gave a talk on 'Lipschitz and Uniform embeddings into $C_0(K)$ '.

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15. Dr. Leo Egghe, Professor, Liburg Universitair Centrum, Belgium (11.12.87—10.1.88) was a Visiting Professor to DRTC. During his stay he delivered a series of lectures on 'Foundations of Bibliometrics'.
16. Dr. Ram Shanmugam, University of Colorado at Denver, USA was a visiting Scientist in the Stat.Math Unit, ISI Bangalore Centre during August, 1987—January, 1988. He taught a course of Linear Models in the M.Stat. Programme. He gave a lecture on "Intervened Poisson distribution and its application".
17. Professor Sankar Chatterjee, Texas Tech. University, USA (3.12.87—18.1.88) visited the Institute as a guest scientist. During his visit he gave a seminar on "Terminal Cretaceous Extinction" and paid a visit to areas of Paleontological interest in Central India.
18. Dr. Gillian M. King, St. Hilda's College, Oxford (29.12.87—28.1.88) visited the Institute under INSA-Royal Society, London, exchange of scientists programme. During her visit, besides having discussion with paleontologists of the Institute, Dr. King visited the field camp in Pranbha-Godavari Valley, Andhra Pradesh to have first hand knowledge about some fossil localities.
19. Mr. Jean Marie Beland, Faculte' des Sciences Economiques et Sociales, Namur, Belgium visited ISI Delhi Centre for four months starting November 1987 to February 1988.
20. Mr. Luc Leruth of CEMB, Universite Libre de Bruxelles, visited ISI Delhi Centre for 2½ months starting from November, 1987.
21. Dr. J. M. Esteban, Universided Autonoma de Barcelona, visited Planning Unit, ISI Delhi Centre for two months between December 15, 1987—February 15, 1988.
22. Professor J. Horowitz, Department of Mathematics, University of Massachusetts, Amherst, USA, visiting the ISI Delhi Centre since 15th January, 1988. His visit has been sponsored by the Council for the International Exchange of Scholars of the Indo-US Subcommission. His areas of interest are Probability Theory, Stochastic processes. He has given lectures on measure valued random processes and empirical central limit theorem for limits finite populations. He is collaborating with Dr. R. Karandikar on a martingale approach to Boltzman equation.
23. Professor L. DeHaan, Erasmus Universitat, Rotterdam, Netherlands (15.1.88—14.2.88) visited the ISI Delhi Centre. Professor DeHaan gave two seminar talks related to his area of specialization namely Extreme Value Theory. He collaborated with Dr. R. Karandikar, Stat.Math (Delhi) on the problem of imbedding a stochastic difference equation into a stochastic differential equation. He also visited ISI Calcutta.
24. Professor Ramesh Gangolli, University of Washington, Seattle, USA, was an NBHM Visiting Professor during February, 1988. Delivered a series of lectures on 'Harmonic Analysis on Symmetric Spaces'.

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25. Professor Tadeusz Radzik, Technical University, Wroclaw, Poland is visiting ISI for one month from 26 March, 1988. He is collaborating with Dr. G. Ravindran. They have constructed some nice counter examples for the non-existence of Nash equilibrium points which clarifies some statements made in Vorobev's excellent book on game theory and which also answers negatively a question raised by A. Nowak very recently.
26. Professor T. Ando, Research Institute of Applied Electricity, Hokkaido University, Sapporo, Japan visited ISI Delhi Centre from 1st December to 19th December 1987. His visit was sponsored by the Indian National Science Academy and the Japan Society for Promotion of Science under their Exchange Programme. He is well known for his work on several areas including functional analysis, operator theory, matrix analysis and inequalities. During his stay at Delhi Professor Ando held several discussions on research topics with Drs. R. B. Bapat, R. Bhatia, S. K. Mitra and V. S. Sunder. Professor Ando delivered two seminar talks in the Matrix-Operator Seminar.
- II. *The following are some of the visitors who came to the Institute for short periods on different assignments.*
1. Dr. A. Dewanji, National Institute of Health, Seattle, USA (8.4.87). Lecture : "Test for trend in binomial proportions using historical control information".
 2. Dr. Chandralekha Dutta Gupta, Cytology Research Centre, ICMR, New Delhi (13.4.87). Lectures : (i) "Nutrition and prevention of Cancer with special emphasis on Human uterine cervix", (ii) "Vitamins A and C related biochemical parameters in human uterine cervical dysplasias and cancer".
 3. Dr. K. Nagamma Reddy (30.3.87—10.4.87). She worked with the Scientific and Technical staff of the Linguistics Unit in the area of Acoustic Phonetics. Together with Dr. Alokanda Mitter, she conducted a Two-Day seminar on "Fundamentals of Articulatory and Acoustic Phonetics and their relevance to speech Pathology".
 4. Dr. R. L. Hudson, University of Nottingham, U.K. (14.4.87). Lecture : "Application of the Chevalley product".
 5. Dr. Ryszard Jarzecki, Institute of Fundamental Technological Research, Poland (24.4.87). Lecture : "Macroeconomy and energy modelling for Poland".
 6. Shri B. S. Ramananda, Deputy General Manager (Technical Information) HMT Ltd. (29.4.87—30.4.87) visited DRTC Bangalore. He led the Seminar on Design of Information Services : Products for Public Sector undertakings".
 7. Professor T. N. Rajan, Chief Coordinator, INSDOC, New Delhi (26.5.87) visited DRTC Bangalore. He led a Seminar on "Expanding Scope of Information Sciences".
 9. Dr. K. Vijayan, University of Western Australia, Australia (27.5.87). Lecture : "Estimating functions in sampling".

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9. Dr. S. Shiva Kumar, University of Madras, Madras (27.5.87). Lecture : "Poverty and income distribution in Tamil Nadu : A historical perspective from the 18th century to 1950s or 1960s".
10. Professor P. R. Brahmananda, ICSSR, Delhi (3.6.87). Lecture : "Gunnar Myrdal, Economist and Nobel Prize winner".
11. Dr. S. Sahi, Princeton University, USA (8.6.87). Lecture : "Some recent results in the theory of unitary representations of general linear groups over local fields".
12. Dr. Prem K. Goel, Ohio State University, USA (9.6.87) visited the Economic Analysis Unit for discussions as prelude to the forthcoming International Workshop on Bayesian Analysis in Statistics and Econometrics, 19-28 December, 1988.
13. Professor D. C. Rao, Director, Division of Biostatistics (12.6.87-16.6.87). He has been collaborating as advisor in the Project 'Genetic Epidemiology of Blood groups'.
14. Professor S. Mitra, Emory University, U.S.A., (16.6.87) : Seminar Given : "Age dependent models".
15. Dr. S. Bandyopadhyay, University of Windsor, Canada (17.6.87). Lecture : "PROLOG and expert systems".
16. Dr. S. Biswas, University of Delhi, Delhi (19.6.87). Lectures : (i) "On the estimation of the residual survival time following the failure of the first organ in a Bi-lateral parallel paired system", (ii) "Some problems on competing risk theory".
17. Dr. Sudipta Das Gupta, University of Southern California, USA (24.6.87). Lecture : "Procurement auctions".
18. Dr. N. Saha, National University, Singapore (26.6.87). Lecture : "Gene and heart disease".
19. Dr. Sagun Chanillo, Rutgers University, New Jersey, USA (29.6.87) visited ISI Bangalore Centre. Talk : "Unique continuation of Schrodinger and Direct Operators".
20. Professor Attilio Giordana, Dipartimento Di Informatica of the Università Delgi Studi Di Torino, Italy (6.7.87-8.7.87). Lecture : Image Processing.
21. Professor Lorenzo Seitta, Dipartimento Di Information of the University Delgi Studi Di Torino, Italy (6.7.87-8.7.87). Lecture : "Approximate Reasoning".
22. Dr. Dibyap Majumdar, University of Illinois, Chicago, USA (7.7.87). Lecture : "Designs for comparing test treatments with a control".

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23. Dr. S. Thomas, KFA, Julich, West Germany (15.7.87). Lecture : "Period n -tupling transition to chaos relation to ordinary differential equations".
24. Professor M. S. Raghunathan, Tata Institute of Fundamental Research, Bombay (17.7.87). Lecture : "Values of quadratic forms on lattice points". He also visited (24.2.88) ISI Bangalore Centre and gave a lecture on 'Central Extensions of Locally Compact groups'.
25. Dr. Gautam Bose, Wayne State University, USA (20.7.87). Lecture : "Interlocking in a model with investment".
26. Dr. S. K. Dey, University of Eastern Illinois, USA (27.7.87). Lecture : "D-matrix and its applications to non-linked models".
27. Professor A. R. Sastry, Tata Institute of Fundamental Research, Bombay (27.7.87). Lecture : "Fundamental group at infinity of affine surfaces".
28. Dr. R. Shanta Ram, University of Michigan, USA (27.7.87). Lecture : "Some problems in computational geometry".
29. Dr. R. K. Guha, University of Central Florida, USA (31.7.87). Lecture : "Software specification and design using petri nets and abstract petri nets".
30. Professor P. K. Bhattacharya, University of California, USA (7.8.87). Lecture : "Robust use of covariates in observational studies".
31. Dr. Steve Marron, University of North Carolina, USA (10.8.87). Lecture : "Pooling smoothing information in non-parametric regression".
32. Dr. Sanjoy Banerjee, New York University, USA (12.8.87). Lecture : "Foreign exchange constraint terms and trade and inflation".
33. Dr. Vijay Kumar Selgal, Hindu College, Delhi (12.8.87). Lecture : "Competing risk theory and some bio-applications".
34. Shri M. N. Seetharaman, National Aeronautical Laboratory, Bangalore, Shri N. V. Sathyanarayana, Informatics Indin, Ltd., Bangalore and Shri M. S. Sreedhar, ISRO, Bangalore (12.8.87) visited DRTC Bangalore. They led a Seminar on Current Trends in Information Systems Design.
35. Dr. Kaushik Basu, Delhi School of Economics, Delhi (25.8.87). Lecture : "Fragmented monopoly : Theory of application to backward agriculture".
36. Professor Anil K. Jain, Michigan State University (25.8.87). He visited the Institute under the U.S.—India Co-operative Science Program of NSF and had discussion with the research group of Electronics and Communication Sciences Unit
37. Dr. M. I. Beg, CSIR, Delhi (26.8.87). Lecture : "Characterizations of the Weibull distribution".

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38. Dr. Chetan Prakash, University of California, USA (27.8.87). Lecture : "Observer theory".
39. Dr. Rajiv Vohra, Brown University, USA (31.8.87). Lecture : "Pareto-optimal allocations of nonconvex economics in locally convex spaces".
40. Dr. T. M. G. Ahsanullah, Department of Mathematics, Dhaka University (7.9.87). Lecture : "Fuzzy Topology and Related Fields".
41. Dr. K. Sundaresan, Ohio State University, USA (8.9.87). Lecture : "Geometry of Banach spaces".
42. Dr. Satish Jain, Jawaharlal Nehru University, Delhi (14.9.87). Lecture : "Characterization of monotonicity and neutrality with quasi transitive individual preferences".
43. Professor K. J. Eidsvik of Norwegian Hydrodynamical Laboratory, Norway (15.9.87—17.9.87). Lectures : (i) "Oscillating turbulent boundary layer with suspended sediments", (ii) "On heavy gas dispersion".
44. Dr. S. Chatterji, Indian Institute of Astrophysics, Bangalore (23.9.87). Lecture : "Blurring of Stellar image by atmospheric turbulence".
45. Dr. S. E. Robertson, Chairman, Department of Information Sciences, City University, London (23.9.87—24.9.87) visited DRTC Bangalore. He led a Seminar on Information Retrieval System Models.
46. Shri N. K. Gopalkrishnan, Chief, Centre for Documentation on Public Sector, Institute of Public Enterprises, Hyderabad, (27.9.87) visited DRTC Bangalore. He led a seminar on Public Enterprises Information Systems.
47. Professor G. K. Bhattacharyya, University of Wisconsin-Madison, USA (5.10.87). Lecture : "Accelerated life testing—an overview and some recent advances".
48. Dr. Kusum Soni, University of Tennessee, Knoxville, USA (13.10.87) visited ISI Bangalore Centre. Talk : "A Survey of the asymptotic expansion of the Laplace and Fourier Integrals".
49. Dr. W. G. Lassman, Martin Luther University, GDR (14.10.87). Lecture : "Operations research and its application as a tool for planning and management".
50. Professor Prabirjit Sarkar, Rabindra Bharati University, Calcutta (14.10.87). Lectures : (i) "Visible trade between the developing and the developed regions : movements of different components of terms of trade since 1950"; (ii) "Labour surplus open economy—A simple macro-economic approach".
51. Dr. (Mrs.) Heidi Danker Hoppe, Dept. of Human Biology Anthropology, University of Bremen, West Germany (14.10.87—20.10.87). Lecture : "Differentiation processes among Assamese population".

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52. Dr. I. Seykova, Sofia University, Bulgaria (16.10.87). Lecture : "Some problems of statistical survey".
53. Professor Sugata Marjit, Jadavpur University, Calcutta (21.10.87). Lectures : (i) "A strategic model of technology transfer"; (ii) "The product hypothesis and the HOS theory of international trade".
54. Dr. Alak Ghosh, University of Calcutta, Dr. Vikas Chitre, Gokhale Institute of Politics and Economics, Pune; Dr. Antur S. Dhesi, Guru Nanak Dev University, Amritsar ; Dr. G. S. Kalyankar, Marathwada University, Aurangabad ; Dr. R. Sankararamalingam, Madurai Kamaraj University, Madurai ; Dr. Kanta Ahuja, University of Rajasthan, Jaipur ; Dr. K. L. Krishna, Delhi School of Economics, Delhi University, Delhi ; Dr. T. Krishnakumar, University of Hyderabad, Hyderabad ; Dr. M. Madaiah, University of Mysore, Mysore ; Dr. B. V. Mehta, South Gujarat University, Surat ; Dr. U. Sankar, University of Madras ; Dr. J. Mahender Reddy, Osmania University, Hyderabad ; Dr. Uma Devi, Kerala University, Trivandrum ; Dr. P. R. Brahmaanda, ICSSR National Fellow ; Dr. Ranganath Bharadwaj, University of Bombay and Convener, CDC ; Dr. (Mrs.) Shabbir Khan, Aligarh Muslim University, Aligarh (23.10.87-25.10.87) visited the Economic Analysis Unit at ISI Bangalore Centre, while participating in the CDC Committee meeting.
55. Professor Judith Denn, Bowdoin University, USA (26.10.87). Lecture : "Does the multifibre arrangement impede exports from developing countries An empirical investigation".
56. Dr. Isha Bagai, Punjab University, (28.10.87) Lecture : "Inference under competing risk model".
57. Dr. W. Kondracki, Polish Academy of Sciences, Poland (30.10.87). Lecture : "Renormalized infinite determinants".
58. Professor J. Sethuraman, Florida State University, USA (13.11.87). Lecture : "Local limit theorems and strong large deviation results". He also visited ISI Bangalore Centre and delivered lecture on the same topic.
59. Dr. Subhabrata Sen Gupta, Indian Institute of Chemical Biology, Calcutta (6.11.87). Lecture : "Utilization of Hemi-Cellulosic fraction of agro-residues by *Mushroom*".
60. Professor Dilip Mookherjee, Stanford University, USA (9.11.87-16.11.87). Lectures : (i) "Implementation via augmented revelation mechanisms", (ii) "Social norms and cooperation".
61. Dr. Andres Wieczorek, Institute of Mathematics, Polish Academy of Sciences, Warsaw, (13.11.87-19.11.87). Lecture : "An open problem in fixed point theory". He also visited ISI Bangalore Centre and gave a talk on "Continuous representations of binary relations with applications to game theory".

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62. Mr. Marvyn Joseph, Librarian, Leederville College of Tafe, Western Australia, (19.11.87) visited DRTC Bangalore. He led a Seminar on the Nature of College of Library Service in Australia.
63. Dr. M. A. Rahaman, Rajshahi University, Bangladesh (23.11.87). Symposium : "A new flow—colorimetric method for measuring heat of adsorption of organic substances by clay—Minerals".
64. Dr. Ramprasad Sen Gupta, Jawaharlal Nehru University and Planning Commission, New Delhi (24.11.87). Lecture : "Some aspects of energy modelling for India".
65. Dr. G. McMahon, Laurention University, Canada (24.11.87). Lectures : (i) "Computable general equilibrium modelling", (ii) "The construction and application of a computable general equilibrium model with an application to the two gap theory".
66. Professor Robert Kowalski of Imperial College, London (25.11.87). Talk : 'Logic Programming'.
67. Professor Takeo Kanade of Carnegie Mellon University, U.S.A. (26.11.87). Talk : 'Computer Vision'.
68. Professor (Mrs.) H. Z. Lopata, University of Chicago, USA (5.12.87—12.12.87). He discussed with the scientific staff of the Sociological Research Unit.
69. Professor David A. Lane, University of Minnesota, USA (8.12.87—16.12.87). Lectures : (i) "Generalised Urn processes", (ii) "Foundations of Statistics : Coherence and Conglomerability", (iii) "Bayesian biomedical applications-I", (iv) "Bayesian Biomedical applications-II".
70. Professor L. Barone, University of Lecce, Italy (11.12.87). Lecture : "Range of a bounded measure".
71. Dr. Carlo Arcelli, Istituto Di Cybernetica C.N.R., Italy (14.12.87). Lecture : "On Thinning Binary Pictures".
72. Dr. G. Sanniti Di Baja, Institute Di Cybernetica C.N.R., Italy (14.12.87). Lecture : "Current Research in Image Processing at the Institute of Cybernetics".
73. Professor P. Mele, University of Rome, Italy (14.12.87—15.12.87). Lectures : (i) Non-linear stability, (ii) Anemometry.
74. Professor John E. Hunter, Michigan State University, USA (16.12.87). Lecture : "Intelligence (cognitive ability), job experience, job, knowledge and job performance".
75. Professor Ian Foster, Imperial College, London (18.12.87). Lecture : "Parallel Logic Programming".

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76. Dr. D. Van Dulst, University of Amsterdam, Netherlands (19.12.87). Lecture : "On subspaces contained in L_1 spaces". He also visited ISI Bangalore Centre for a few days in February 1988 and gave a talk on "The Randon-Nikodym Theorem for Banach spaces and dentability".
77. Professor C. R. Rao, University of Pittsburgh, Pittsburgh (21.12.87—24.12.87). Lecture : "Principles amd strategies of data analysis".
78. Professor P. K. Sen, North Carolina University, USA (28.12.87). Lecture : "Funcional Jack-knifing : rationality and general asymptotic".
79. Dr. Sajal K. Das, Department of Computer Science, University of Central Florida, USA (6.1.88). He visited Electronics Unit and gave a seminar.
80. Dr. B. S. Rajpur of the University of Tennessee, Knoxville, USA (8.1.88—9.1.88) visited ISI Bangalore Centre. Talk : "The geometric structure of the support of stable index $\alpha \geq 1$ and other i.d. probability measures on Banach spaces".
81. Professor R. M. Needham, FRS, Head of the Department of Computer Laboratory, University of Cambridge, England (12.1.88). Talk : "Authentication Techniques in Computing Systems".
82. Professor Karen Spark Jone of the University of Cambridge, England (12.1.88). Talk : "Natural Language Processing".
83. Professor G. A. Harrison, Department of Biological Anthropology, University of Oxford, U.K. (21.2.88—24.2.88). Had detailed discussion on a proposed collaborative study on Calcutta slum dwellers. He also gave a seminar.
84. Dr. Catherine Panter-Brick, Post-Doctoral Fellow, Department of Biological Anthropology, University of Oxford, U.K. (21.1.88—25.2.88). Had detailed discussion on a proposed collaborative study on Calcutta slum dwellers. He also gave a seminar.
85. Dr. Yonitake Fujino, Technological University of Nagaoka, Japan visited SQC-OR Unit, Trivandrum on 4 March 1988 and SQC-OR Unit, Delhi during 14-19 March, 1988. He delivered 4 lectures on SQC-OR problems and gave a seminar at SQC-OR Unit, Delhi.
86. Dr. B. P. Agarwal, Professor, Institute of Human Genetics, Hamburg, West Germany (8.3.88—10.3.88).
87. Professor Warren C. Robinson of USAID (21.3.88).
88. Dr. Bidyut Chakraborty, State University of Iowa, USA (22.3.88). Lecture : "National democratic ideology and the 1928 Jamshedpur strike".
89. Mr. Edward a Reynolds, QA consultant from USA gave a seminar on 'Quality Scene in USA—recent development' at Delhi.

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9. HONOURS, AWARDS AND SPECIAL ASSIGNMENTS

Professor J. K. Ghosh served as a member of NBHM and various committees of the CSIR, UGC, INSA and the Governing Council of the JBNSTS. He also served as a Chairman, Quinquennial Review Team for the Indian Agricultural Statistical Research Institute.

Besides Professor Ghosh gave the inaugural address at the Silver Jubilee Conference of the Indian Econometric Society held at Bangalore during 4-6 January 1988.

Professor Ghosh delivered an invited lecture at the 75th Session of the Indian Science Congress held at Puna in January 1988.

Professor Ghosh was invited as Chief Guest by the Geological, Mining and Metallurgical Society of India for the Annual General Meeting held at Ballygunge Science College, Calcutta in October 1987.

Professor Ghosh was invited as Guest speaker by the Institute of Engineers and Bureau of Indian Standards for the World Standards Day Celebration, held at Calcutta in October 1987.

Professor Ghosh gave a Key Note address at a conference of the Society for Information Science, Indian Institute of Chemical Biology, Indrapur. Calcutta on 19 January 1988.

Professor S. Das Gupta (Stat-Math) has been elected a Member, National Expert Committee for Evaluation of National Technical Manpower Information System, Ministry of Human Resource Development, Government of India.

Professor Bikas Kumar Sinha (Stat-Math) has been elected Associate Editor, Calcutta Statistical Association Bulletin for the academic year 1988.

Professor S. K. Mitra (Stat-Math) presided over the Statistics Section of the 75th Session of the Indian Science Congress Association held at Pune in January 1988. He gave Presidential Address "On the method of overlapping maps in survey sampling".

Professor Mitra served as (a) Member, Bhatnagar Award Committee; (b) Council Member, International Statistical Institute; (c) Member, Sectional Committee-Mathematics, INSA; (d) Member, Editorial Board, Journal of Indian Society for Agricultural Statistics; and (e) Member, Mathematical Science Research Committee, C.S.I.R.

Professor K. R. Parthasarathy (Stat-Math) served as (a) Member, UGC Curriculum Development Committee; (b) Member, Executive Committee, International Association of Mathematical Physicists; (c) Member, Editorial Board of (i) *Advances in Applied Probability*; (ii) *Probability Theory and Related Fields*; (iii) *Proceedings of the Indian Academy of Sciences (Mathematical Sciences)* and (iv) *Journal of Theoretical Probability*.

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Professor T. Parthasarathy (Stat-Math) elected as Fellow of the Indian Academy of Sciences, Bangalore.

Dr. Anirban Basu (Applied Statistics, Surveys and Computing) was awarded the Computer Engineering Division Gold Medal 1986-87 at the Second Indian Engineering Congress by the Institution of Engineers (India) for the paper on Taxonomy of parallel processing systems. He was made a Member of the Computer Engineering Division Board of the Institution of Engineers (India). He was appointed organising Secretary of the Fourth National Convention of Computer Engineers to be held in Calcutta in December, 1988. He also served as a referee for IEEE Trans. on computers for their Special Issues on Super-Computing and Fault Tolerant Computing and for IEE Proceedings Part E, published from London (U.K.).

Dr. Arijit Chaudhuri (Applied Statistics, Surveys and Computing) has been appointed an editor-at Large for Marcel Dekker, Inc. N. Y. with an assignment to suggest book topics and potential authors for them.

Dr. A. C. Mukhopadhyay (Applied Statistics, Surveys and Computing) continued to serve in the steering committee of Central Road Research Institutes and served in the selection committee of a number of Universities.

Dr. A. Sengupta (Applied Statistics, Surveys and Computing) was invited to work as an associate editor of the Indian Society for Probability and Statistics Bulletin.

Dr. B. N. Mukherjee (Applied Statistics, Surveys and Computing) continued to serve as a member of (a) the Scientific Advisory Committee of the Institute for Research in Medical Statistics of both (i) New Delhi, and (ii) Madras Chapters, (b) the Project Screening Committee of ERIC, National Council of Educational Research and Training, New Delhi and (c) the Advisory Committee of the Centre for Applied Statistics of the North-Eastern Hill University, Shillong. Since January 1988, he has also been working as a nominated member of the Educational Research Innovation Committee of the NCERT, New Delhi.

Dr. J. Roy (Applied Statistics, Surveys and Computing) served as Chairman of the Group for sampling design of the Annual Survey of Industries conducted by the Industrial Statistics Wing of the Central Statistical Organisation, Government of India ; served as an expert member of the Group on replacement of the Burroughs 3845 Computer System of the Department of Statistics, Government of India ; also served as Chairman of the Working Group on Enterprise Survey 1988-89 as a follow up of the Economic Census conducted by the Central Statistical Organisation of the Government of India ; served the Union Public Service Commission in various committees for selection of computer professionals and worked as a member of the Advisory Committee for planning a survey of Foreign Tourists in India sponsored by the Ministry of Tourism, Government of India.

Dr. Parimal Mukhopadhyay (Applied Statistics, Surveys and Computing) was appointed a member of a working group for formulation of a feasible sampling strategy for Annual Survey of Industries as constituted by the CSO.

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Sri Sanjib Kumar Gupta (Applied Statistics, Surveys and Computing) was appointed a member in the Board of Councils in the Physiology and Pharmacological Societies in India.

Professor D. Dutta Majumder (Electronics and Communication Sciences) was awarded Fellowship of the Indian National Academy of Engineering (INAE). He continued to serve in the Sectional Committee of INSA.

Professor Dutta Majumder served as the Chairman of the Committee appointed by Government of India on "AI techniques in Thermal Power Systems".

Professor Dutta Majumder continued to serve in the Apex Committee of DOE, Government of India on Fifth Generation Computer Systems.

Professor Dutta Majumder has been elected member of the Board of Directors of the World Organisation of Cybernetics and Systems, (H.Q. Paris). He continued to serve as member of the Board of Governors of the International Association of Pattern Recognition (IAPR) and International Fuzzy Systems Association (IFSA).

Professor Dutta Majumder has been appointed member of the Research Council of the Central Fuel Research Institute, CSIR, and Center for Mathematical Modelling and Computer Simulation, at Bangalore, CSIR.

Dr. B. B. Chowdhury (Electronics and Communication Sciences) was elected Fellow of the Optical Society of India and Senior Member of the IEEE.

Dr. Chaudhury received J. C. Bose Memorial Award for best Engineering Science Oriented paper of the year 1987.

Dr. Kumar Sankar Roy (Electronics and Communication Sciences) served as a member of the Committee appointed by the Government of India on "AI in Thermal Power Systems".

Dr. M. K. Kundu (Electronics and Communication Sciences) received J. C. Bose Memorial Award for best Engineering Science Oriented paper of the year 1987.

Professor S. L. Jain (Geology) was invited to deliver the Fourth Professor M. R. Sahn Memorial Lecture by the Convener of the National Seminar on "Geology of the Indian Subcontinent" at the Centre of Advanced Study in Geology, Punjab University, Chandigarh, during 7-9 March 1988. He continued to serve as Chairman of the Working Group on Vertebrate Palaeontology, Sub-Commission on Gondwana Stratigraphy, International Union of Geological Sciences (UNESCO) for the eleventh consecutive year.

Dr. Dilip Saha (Geology) continued to work as Assistant Editor of the Indian Journal of Geology published by the Geological, Mining and Metallurgical Society of India. He delivered a series of lectures on Precambrian Stratigraphy as a Guest Lecturer in the Geology Department, Calcutta University.

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Dr. A. B. Gupta (Physics) has been admitted as a Life Member of the Indian Society of Human Genetics.

Dr. R. Gupta (Anthropometry and Human Genetics) has been appointed as a Guest Lecturer, Department of Anthropology, Vidyasagar University, Midnapore, on and from November 1987.

Dr. Robin Mukherjee (Economic Research) has been appointed member of the following two committees: (i) Governing Council, National Sample Survey Organisation, Government of India; and (ii) Technical Group for Recommending Methodology for Estimation of Income at District and Rural/Urban Levels, Government of India.

Dr. D. Dasgupta (Economic Research) has been appointed a member of the Ph.D/D.Sc. Committee of Calcutta University.

Professor N. S. Iyengar (Economic Analysis) was elected as the President of the Indian Econometric Society for 1988-89. Professor Iyengar also acted as Organising Secretary of the Silver Jubilee Conference of the Indian Econometric Society, January 4-6, 1988.

Shri S. Guha Roy (Population Studies) was reappointed convener of the Eastern Chapter of the Association to carry out population-related activities in the region.

Sm. Rama Deb Roy (Population Studies) has been serving as the honorary Joint Secretary of the Socio-economic Research Institute, Calcutta.

Dr. Suraj Bandyopadhyay (Sociology) was invited to work collaboratively with a team of researchers on "Co-operative and Rural Development in India", sponsored by the Department of Sociology, University of Delhi and the Department of Anthropology, McGill University, Montreal, Canada.

Miss Aruna Arora (Delhi Central Library) has been elected to the posts of Secretary of Indian Techno Science Librarians and Information Scientists Association.

Shri J. P. Srivastava (Delhi Central Library) has been elected to the posts of Assistant Secretary of Indian Techno Science Librarians and Information Scientists Association.

10. SCIENTIFIC TOURS AND ASSIGNMENTS ABROAD

Professor J. K. Ghosh visited University of California, Berkeley, University of Bloomington, University of Pittsburgh and University of Maryland, Baltimore for delivering invited lectures and joint research work during the period 21 July 1987—10 August 1987.

Professor Bikas Kumar Sinha (Stat-Math) visited (1) University of North Carolina at Chapel Hill, North Carolina, U.S.A.; (ii) University of South Florida

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at Tampa; (ii) University of Florida at Gainesville; (iv) Northern Illinois University, DeKalb and Washington State University at Pullman and delivered seminar talks and participated in research projects of Professors P. K. Sen, Malay Ghosh, S. C. Gupta, M. Jacroux among others during January—March 1988.

Professor S. B. Rao (Stat-Math) visited Mathematical Institute, Hungarian Academy of Sciences, Budapest under Indo-Hungarian cultural Exchange Programme from 8 July to 29 July 1987 and delivered lectures at the Mathematical Institute and prepared a research paper with P. Erdos, V. T. Sos and M. Simonovits.

Dr. Rabul Mukherjee (Stat-Math) visited (i) the International Centre for Pure and Applied Mathematics, Nice, France, during the period 21 June—10 July 1987, to participate in a Summer School on 'Data Analysis : Methods and Software'; (ii) the Department of Mathematical Sciences, Northern Illinois University, U.S.A., during the period 16 August 1987—15 May 1988. There he worked as a Visiting Associate Professor.

Dr. T. Parthasarathy (Stat-Math) participated in two game theory conferences held at (i) Columbus, Ohio during June 18-24, 1987 and gave a talk on completely mixed games and their applications, and (ii) Chicago, Illinois during 26-28 June 1987 and gave a talk on the existence of equilibria for discounted stochastic games.

Dr. Parthasarathy also visited the Technical University at Wroclaw, Poland during 3 May—8 June 1987 and exchanged ideas relating to Stochastic Games with Professor A. Nowak and Professor T. Radzik.

Dr. R. Bhatia (Stat-Math) visited University of Toronto from 17 January to 16 April 1988 to collaborate with mathematicians there. He also made brief visits to : (i) University of Bielefeld, West Germany, (11-13 January 1988); (ii) Czechoslovak Academy of Sciences, Prague, (14-16 January 1988); (iii) Waterloo University, Canada, (4 February 1988); (iv) University of Guelph, Canada (15-16 February 1988); (v) Dalhousie University, Halifax, Canada, (18-20 February 1988); (vi) University of California, Berkeley, (24-26 March 1988); (vii) University of California, Santa Barbara, (29-31 March 1988); (viii) The Johns Hopkins University, Baltimore, (7-8 April 1988) and (ix) Kuwait University, (11-14 April 1988).

Dr. Bhatia delivered the following lectures during his visits : (i) 'Inequalities associated with the Cartesian decomposition of an operator', University of Toronto (1.2.88); (ii) 'The powers-stormer inequality', Waterloo University (4.2.88); (iii) 'Perturbation of Eigenvalues', Dalhousie University, Halifax (19.2.88); (iv) 'Perturbation of Eigenvalues', University of Toronto (1.3.88); (v) 'The Powers-Stormer Inequality', University of California, Berkeley (25.3.88); (vi) 'Perturbation of Eigenvalues', University of California, Santa Barbara (29.3.88); (vii) 'An application of Fourier analysis to operator theory', University of California, Santa Barbara (30.3.88); (viii) 'The Clarkson-McCarthy inequalities', University of California, Santa Barbara (31.3.88); (ix) 'Perturbation of Eigenvalues', The John Hopkins University (7.4.88); (x) 'Perturbation of Eigenvalues', Kuwait University (12.4.88) and (xi) 'An application of Fourier analysis to operator theory', Kuwait University (13.4.88).

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Dr. R. Karandikar (Stat-Math) visited the Department of Statistics, University of North Carolina, Chapel Hill, U.S.A from 1 November 1987 to 31 December 1987.

Dr. N. K. Indira (Stat-Math) attended the Second International Conference on Combinational Mathematics and Computing held at the Australian National University during 24-28 August 1987 and presented a paper. Dr. Indira also visited the Division of Statistics and Mathematics of CSIRO at Sydney, Australia for two weeks during August 1987 and gave two lectures.

Dr. A. Sitaram (Stat-Math) visited the University of New South Wales, Sydney, Australia during June 1987. He presented a paper at the Mini Conference on Harmonic Analysis and related topics held at the Centre of Mathematical Analysis, Australian National University, Canberra during 17 June—20 June 1987. He visited the University of Western Australia, Perth, Australia for a few days in July 1987 and gave two talks.

Dr. V. S. Sunder (Stat-Math) was a visiting faculty member at the University of California, Los Angeles, U.S.A. during April 1987—June 1987. He took part in the UC Berkely—UCLA joint functional analysis seminar in May 1987. He visited California State University, Hayward, California in July 1987.

Dr. Shibdas Bandyopadhyay (Applied Statistics, Surveys and Computing) attended the ESCAP/SIAP Expert Group Meeting on Statistical Training and Education, Bangkok during 18-12 May 1987.

Dr. J. Roy (Applied Statistics, Surveys and Computing) directed a United Nations Advanced Course on Survey Methods in Tokyo, Japan from 19 August to 17 September 1987, a United Nations Course on Control of Errors in Censuses and Surveys for the Statistical Institute for Asia and Pacific at Kualampur, Malaysia during 12-30 October 1987 and Dhaka, Bangladesh from 12 November to 1 December 1987.

Dr. K. S. Vijayan (Applied Statistics, Surveys and Computing) was invited by the Hungarian Academy of Sciences to visit the Mathematical Institute, Budapest and took part in the 7th Hungarian Combinatorics Colloquium. He visited Hungary during July 1987 and visited University of Erlangen, Germany during August 1987.

Dr. Anirban Basu (Applied Statistics, Surveys and Computing) returned to India in May 1987 after completing studies for Master of Computer Science degree of Carleton University, Canada. The study was sponsored by the Government of India under the Commonwealth Fellowship Plan. He attended the Second International Conference on Super-computing at Santa Clara, U.S.A., in May 1987 to present a paper entitled "A Transputer Based Adoptable Pipeline".

Dr. Sunanda Bagchi (Applied Statistics, Surveys and Computing) visited the Department of Statistics, University of Waterloo, Canada for the period from 16th April to 31st May 1987 and the Department of Mathematics, University of Chicago, USA for the period from 1st June to 4th June 1987.

Shri Sisir Roy (Electronics) attended the 20th International Conference on Cosmic Rays held between 2 August and 14 August 1987 in Moscow. Two papers were read by him.

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Shri Roy visited the Department of Theoretical Physics, Moscow State University in August 1987. He also visited the Institut Henri Poincare, Paris for three weeks starting from 14 August 1987.

Shri Subrata Bhattacharyya (Electronics) attended the 20th International Conference on Cosmic Rays held between 2 August and 14 August 1987 in Moscow and presented a paper.

Shri K. Haldar (Electronics) visited the Institute of Mechanics and Biomechanics, Bulgarian Academy of Sciences, Sofia, Bulgaria, under Indo-Bulgaria Cultural Exchange of Scientists during November 1987 to December 1987 and gave a talk on blood circulation in a constricted artery.

Dr. Bhargab Bikram Bhattacharyya (Electronics) took up an assignment as a Visiting Assistant Professor with the University of Nebraska, Lincoln, U.S.A., from 4 June 1985 and rejoined Electronics Unit I.S.I., in September 1987.

Dr. Bhabani Prasad Sinha (Electronics) took up an assignment as a visiting Associate Professor with Southern Illinois University, Carbondale, U.S.A., from 20 May 1986 and rejoined Electronics Unit, I.S.I., in December 1987.

Dr. Himadri Pai Mazumdar (Electronics) visited Norway and worked at the Institute of Applied Mechanics, University of Trondheim as Visiting Professor during the period October 1986—September 1987. He conducted a course in Turbulence to advanced level students and performed experiment on turbulent jet in cross-flow.

Professor P. Bandyopadhyay (Electronics) visited, delivered lectures and took part in seminars and discussions in : (i) Harvard University, Cambridge, Massachusetts, Department of Physics and Department of Mathematics ; (ii) Massachusetts Institute of Technology, Cambridge, Massachusetts ; (iii) University of Maryland, Washington ; (iv) Howard University, Washington ; (v) Stanford Linear Accelerator Centre, Stanford University, California ; and (vi) University of Toronto, Department of Physics and Department of Mathematics, Toronto, Canada during the period 3 April—10 May 1988.

Dr. R. K. Roychoudhury (Electronics) visited Physics Department, University of Ottawa, Canada, during the period 4 May—21 July 1987 and did collaborative works with Professor Y. P. Varshni in '1/N shifted expansion method and supersymmetric Quantum Mechanics'.

Professor D. Dutta Majumder (Electronics and Communication Sciences) visited Italy during 12 May—10 June 1987. He visited (i) the Department of Mathematics and Application, University of Palermo and delivered a series of twelve (12) lectures on fuzzy Mathematics and its Applications in Pattern Recognition, Speech Recognition, Image Processing, Control Systems, Artificial Intelligence, Expert Systems and Management Applications ; (ii) the Institute for Cosmic Physics and Informatics at Palermo and delivered an invited talk on different aspects of FGCS ; (iii) the University of Torino and gave an invited talk on Computer Vision.

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During 5th July 1987—24th July 1987 Professor Dutta Majumder visited the United Kingdom in a delegation of the Government of India. The visit was sponsored by UNDP. The visit was made to various institutions in the U.K. where advanced research was being carried out in the field of Pattern Recognition, Artificial Intelligence, Computer Vision along with the next generation of Computer Systems research under the Alvey Programme.

Visits were at Imperial College, Rutherford Appleton Laboratory, Systems Design Pembroke House, Several Laboratories namely Silicon Device Modelling, Computer Vision, Pattern Recognition, Optical Transmission, ANSA Project, Plessey Research Roke Manor, Salford University, National Computing Centre at Manchester, Manchester University, Alvey Directorate, Douglass Corporation Image Processing Group.

Dr. B. B. Chaudhuri (Electronics and Communication Sciences) visited Institute of Theoretische Nachrichtentechnik at the University of Hannover during January 1988—February 1988 as a Guest Professor and worked on low bit rate colour video transmission. He delivered a seminar on—'Use of non-sinusoidal transforms in image processing'. He submitted a proposal to extend the cooperation that has been accepted by German Government and a scientist can visit Germany for one more year. Also, they will provide the Institute with an instrument worth Rs. 2,50,000/- as a gift.

Dr. S. Ray (Electronics and Communication Sciences) visited the South Eastern Massachusetts University, Mass., U.S.A. during September 1987 to January 1988 with a Fulbright Scholarship by the United States Education Foundation in India. The purpose of the visit was to do research in the field of Computer Science. He also visited the following U.S. Institutions and gave some invited talks : (i) University of Connecticut, 23 October 1987—'Evaluation of Features in Pattern Recognition'; (ii) University of Pittsburgh, 2 December 1987—'The Effectiveness of Features in Pattern Recognition'; (iii) University of Pittsburgh, 4 December 1987—'Experimental Comparison of Feature Evaluation Methods—A Study in Recognition of Handwritten Numerals'; (iv) Carnegie—Mellon University, 3 December 1987—'Mahalanobis Distance—Based new Feature Evaluation Criteria in Multiclass Pattern Recognition'; (v) University of Washington of Seattle, 11 December 1987—'Evaluation of Features in Pattern Recognition—Mahalanobis Distance—Based Two New Criteria'; (vi) State University of New Jersey, Rutgers, 14 December 1987—'Selection of Features in Pattern Recognition'; and (vii) South eastern Massachusetts University, 12 January 1988—'Texture Analysis for Image Classification—Pattern Recognition Approach.

In addition to those mentioned above, he also visited—(i) Aibal, Massachusetts Institute of Technology, Cambridge, Massachusetts, U.S.A. and (ii) Department of Electronic Engineering, Imperial College of Science and Technology, London, U.K.

Dr. Ray also attended a Conference on : Visual Communications and Image Processing II and Digital Image Processing and Visual Communications and Technologies in Meteorology, 26-29 October 1987, Hyatt Regence Cambridge, Cambridge Massachusetts, U.S.A. (sponsored by SPIE, The International Society for Optical Engineering).

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Dr. S. K. Parui (Electronics and Communication Sciences) visited the International Centre for Pure and Applied Mathematics (ICPAM) in Nice, France during June 22—July 10, 1987 to attend the Summer School—Data Analysis, Methods and Software, organised by the Centre. His visit was sponsored partially by ICPAM and partially by the department of Science and Technology (DST) of the Government of India.

Mr. C. A. Murthy (Electronics and Communication Sciences) visited the International Centre for Pure and Applied Mathematics (ICPAM) in Nice, France during June 22—July 10, 1987 to attend the Summer School—Data Analysis, Methods and Software, organised by the Centre. He gave a seminar on 'Estimation of Sets R^* ' in the Context of Cluster Analysis.

Dr. K. S. Rao (Economic Research) visited the Department of Mathematics, University of Lecce, Lecce, Italy, from 8th May to 10th July 1987 and addressed three seminars on "Methods in Econometrics" there in June 1987. Dr. Rao also addressed a seminar on "Random Coefficient Models" at the School of Economics, University of Trieste, Italy in June 1987. Now Dr. Rao is assisting with the "Teaching of Statistics" course at the University of Brunei, Darussalam, Gadons.

Dr. N. Bhattacharya (Economic Research) has been visiting on a scientific assignment the Statistical Institute for Asia and Pacific, Tokyo, Japan.

Dr. Bina Roy (Economic Research) attended and presented a paper at the "20th General Conference of the International Association for Research in Income and Wealth" held in Rome, Italy during 23-29 August 1987.

Dr. L. S. Bhat (Planning) on Invitation, visited the International Centre for Integrated Mountain Development, Kathmandu, Nepal in March 1988.

Dr. P. Chander (Planning) participated in a conference on "Cost Allocation Methods for Public Goods" held at Centro Ortega Gasset, Madrid during 1-4 June, 1987 and presented a paper.

Dr. Chander visited the C.O.R.E., Universite Catholique De Louvan, Belgium during 6-16 June, 1987 and attended a workshop on "Recent Advances in Increasing Returns". He also visited the Universitat Autònoma de Barcelona during May—June 1987.

Dr. B. Dutta (Planning) visited Cornell University as a visiting Professor during May—June, 1987.

Dr. Dutta also attended and gave seminar on (i) Far Eastern Meeting of Econometric Society, Tokyo during 10-11, October 1987; (ii) Conference on Normative Economics, Nara, Japan during 13-14 October 1987; and (iii) gave a seminar at University of British Columbia, Vancouver, during October 7, 1987

Dr. B. S. Minhas (Planning) visited Institute of Development Studies at the University of Sussex (U.K.), the Library of Congress and some other institutions in Washington D.C. (USA) and Oxford University (U.K.), during July 15—October 12, 1987.

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Dr. D. Ray (Planning) visited (i) People's University of China, Beijing, People's Republic of China, as a visiting Professor during June 1987. Delivered eight lectures on the topic : "Information and Coordination in the Enterprise"; (ii) Cornell University, USA, as a visiting Professor during May and July 1987. Presented a seminar entitled "Noncooperative coalitional bargaining".

Dr. (Mrs.) Alokandanda Mitter (Linguistic) was invited to attend a Workshop on "Speech and Language Habilitation of the Pre-School Age Child with Kostic Methodology and Instrumentation", organised by the Institute for Experimental Phonetics and Speech Pathology, Belgrade, Yugoslavia, during the months of June and July 1987. She gave a lecture entitled "Linguistic Research in the Indian Statistical Institute—A Comprehensive survey" on 6 July 1987.

Sm. Rama Deb Roy (Population Studies) attended the Second International Congress of Historical Demography held at Paris during 4-6 June 1987. She contributed a paper.

Dr. S. K. Mujumder and Shri S. P. Mukherjee (SQC) attended the International Conference on Quality Control at Tokyo, Japan during 20-23 October 1987. At this Conference Dr. Majumder presented the paper entitled 'Study on improving the functional performance of a selected model of ceiling fan' prepared joint with Shri K. K. Banerjee. Shri S. P. Mukherjee presented a paper entitled 'Control of incidence of defect categories in case of defect interface' and chaired a technical session of the above mentioned Conference.

Dr. I. K. Ravichandra Rao (DRTC) attended the 1st International Conference on "Bibliometrics and Theoretical aspects of Information Retrieval", held at Diepenbeek, Belgium, during 24-28 August 1987. He chaired the session on Citation Studies. In another session he presented a paper entitled "Probability Distribution and Inequality Measures for Analyses of Circulation Data". Dr. Ravichandra Rao was a member of the International Organizing Committee.

After the Conference, Dr. Ravichandra Rao went to London on British Council Fellowship for observational studies of the important Libraries and information centres in London specially to take note of the state of the art relating to the use of information technology for information work and services. He spent the period 1-4 September 1987 for visiting the Library Association, the British Library, Aslib, Department of Library and Information Science of the North London Polytechnic and the City University. Dr. Ravichandra Rao left India on 21 August 1987 and returned to India on 5 September 1987.

11. SCIENTIFIC ASSIGNMENTS IN INDIA

Dr. S. C. Bagchi (Stat-Math) attended the conference on Harmonic Analysis at the University of Bombay during January 23—January 25, 1988 and read a survey article entitled 'Weighted Norm Inequalities'.

Shri Basudev Datt (Stat-Math) attended the UGC National Conference on Algebraic and Differential Topology held at NEHU, Shillong during 6-26 July 1987

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and gave two talks on Differential Topology. He also attended the UGC National Conference on Algebraic and Differential Topology II held at Allahabad University during 8-28 February 1988.

Dr. Joseph Mathew (Stat-Math) attended the Conference in Harmonic Analysis held at Department of Mathematics, University of Bombay, during 23-25 January 1988 and presented a paper.

Dr. Pulakesh Majti (Stat-Math) visited the headquarter of ONGC at Dehradun to present some results on the research project between ISI and ONGC during the period 26 December 1987—January 21, 1988.

Dr. Amiya Mukherjee (Stat-Math) attended the UGC Instructional Conference on Algebraic and Differential Topology, Department of Mathematics, NEHU, Shillong during the period 6-11 July 1987 and presented a paper. He gave an invited talk in the Silver Jubilee Seminar, Department of Mathematics, Burdwan University on July 20, 1987. He also gave an invited talk in the Platinum Jubilee Session of Indian Science Congress held at Pune on January 10, 1988. Dr. Mukherjee attended the UGC National Conference on Algebraic and Differential Topology held at Allahabad University during 8-28 February 1988.

Professor T. J. Rao (Stat-Math) attended the symposium on 'Sample Surveys in Indian Agriculture—Problems and Prospects' held at IASRI, New Delhi, 19 September 1987 and presented a paper. He also presented a paper at the symposium on 'Small Area Statistics' held at CTRI, Rajahmundry in December 1987. He attended the 41st Annual Conference of the Indian Society of Agricultural Statistics in December 1987 and presented a paper.

Dr. Y. R. Sarma (Stat-Math) attended the International Conference on Inference in Stochastic Processes, held at Calcutta University in December 1987.

Dr. T. P. Tripathi (Stat-Math) attended the symposium on 'Sample Surveys in Indian Agriculture—Problems and Prospects' held at IASRI, New Delhi during 17-19 September 1987 and presented a paper.

Dr. K. H. Bhaskara and Dr. V. S. Sunder (Stat-Math) attended the NBHM Conference held in memory of Srinivasa Ramanujan at Madras during 22-25 December 1987.

Dr. V. S. Sunder and Dr. A. Sitaram (Stat-Math) took part on invitation in the Conference on Harmonic Analysis held at the Centre for Advanced Study in Mathematics, University of Bombay, Bombay during 23-25 January 1988.

Dr. G. Misra (Stat-Math) attended on invitation the Annual Conference of the Orissa Mathematical Society at Bhubaneswar during 13-14 February 1988.

Dr. R. Karandikar (Stat-Math) was an invited speaker in the symposium on 'Frontiers of Statistics', Indian Science Congress Association, Pune, 7-12 January, 1988.

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Dr. S. K. Mitra (Stat-Math) attended the International Conference on Combinatorics, Optimization and Statistics, Srinagar, during 17-21 August 1987 and presented a paper entitled "Optimal Integration of PPS Surveys". Dr. Mitra also attended the IXth Annual Conference of Indian Society for Probability and Statistics, during 10-13 November 1987 at Delhi University and presented a paper jointly with S. R. Mohan, entitled "The maximum covariance of given marginal distributions".

Dr. K. R. Parthasarathy (Stat-Math) delivered the inaugural lecture of the Allahabad Mathematical Society at Allahabad, on 14 November 1987. The lecture was entitled "Introduction to quantum probability". Dr. Parthasarathy gave an invited lecture at the Platinum Jubilee Session of the Indian Science Congress held at Pune during 7-12 January, 1988, entitled "Invitation to quantum probability". Dr. Parthasarathy also gave the colloquium lecture entitled "Wiener chaos algebras and associated quantum fields" at TIFR on 10 February, 1988.

Dr. T. Parthasarathy (Stat-Math) gave an invited talk "Mathematics applicable to social sciences" at the 75th Session of the Indian Science Congress, Pune, during 7-12 January, 1988.

Dr. Kalyan Mukherjee (Stat Math) participated and gave two lectures on "Spectral Sequences" at UGC sponsored International Conference on Algebraic and Differential Topology, Allahabad, during 15-19 February 1988.

Dr. J. Roy (Applied Statistics, Surveys and Computing), on invitation from the Reserve Bank of India, gave a course of lectures on Multivariate Analysis to Senior Statistical Officers of the RBI at Bombay during 14-24 December, 1987

Dr. A. Sengupta (Applied Statistics, Surveys and Computing) attended the ISPS conference, 1987 at Delhi as an invited speaker and attended the Indian Science Congress 1988 Pune.

Mr. S. Ganguly (Applied Statistics, Surveys and Computing) attended the 5th Annual Conference of Indian Society for Medical Statistics held at Srinagar during the period 24-26 September, 1987.

Dr. P. Mukhopadhyay (Applied Statistics, Surveys and Computing) visited the Department of statistics, University of Pune during 5-17, October 1987 under the UGC programme and delivered the following lectures : (i) On the robustness of some BLU predictors under model failures ; (ii) Asymptotic properties of a generalized predictor of finite population variance under probability sampling.

Dr. Mukhopadhyay presented an invited paper, "A sampling design for ASI" at a Seminar on Sampling Design for Annual Survey of Industries, June 1988, New Delhi, organised by the Central Statistical Organisation, Department of Statistics.

Dr. B. N. Mukherjee (Applied Statistics, Surveys and Computing), on receiving special invitation, participated in the following scientific conventions organized by the Department of Measurement, Evaluation and Survey of the NCERT : (a) High level Seminar on Scaling and Grading of Public Examination Marks (July, 22-23, 1987)

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(b) Workshop on the Development of a Glossary of Technical Terms in Educational Measurement and Evaluation (March 28-30, 1988).

Dr. Arijit Chaudhuri (Applied Statistics, Surveys and Computing) was invited to present a paper "On survey sampling for analytic as opposed to descriptive studies" to the Indian Society for probability and statistics for their Annual Conference held in Delhi University in November 1987.

Dr. Chaudhuri delivered a course of 10 lectures on invitation at the Institute for Applied Statistics and Development Studies in Lucknow for the ISS officers deputed by the CSO on topics including coverage errors, imperfect frames, non-response error, randomised response and IPNS, in November, 1987.

Dr. Arun Kr. Adhikary (Applied Statistics, Surveys and Computing) visited the Indian Agricultural Statistics Research Institute, New Delhi during 17-19 September 1987 and Pune University during 7-12 January, 1988.

Dr. Anirban Basu (Applied Statistics, Surveys and Computing) attended the Second Indian Engineering Congress, Hyderabad, January, 1988.

Sri Raghunath Banerjee (Applied Statistics, Surveys and Computing) participated in the National training programme in Electron Microscopy held at All India Institute of Medical Sciences, New Delhi, during 1-14 April, 1987.

Dr. T. Krishnan (Applied Statistics, Surveys and Computing) presented an invited paper at the All India Seminar on Statistical Modelling in Health and Disease in Jhansi on 4-5 December 1987, on 'computers and Models'. He gave a series of lectures for the officers of the Reserve Bank of India's Department of Statistical Analysis and Computer Services on 'Representation of Multivariate Data', in December 1987. Notes for these lectures were written and presented.

Professor P. Bandyopadhyay (Electronics) attended the National Symposium on Quantum Mechanics held in Indian Institute of Science, Bangalore in September, 1987 and delivered an invited lecture on 'Some problems of Stochastic Quantization'.

Sri Sisir Roy (Electronics) delivered one invited talk at NISTADS, New Delhi in March, 1987.

Sri S. Bhattacharyya (Electronics) attended the ICPA-QGP 1988 held in TIFR, Bombay during 8 February and 12 February, 1988.

Professor S. L. Jain (Geology), on invitation, participated in a Workshop on "Concepts Limits and Extension of the Indian Gondwanas" at Birbal Sahni Institute of Palaeobotany, during 14-18 November 1987.

Dr. A. B. Gupta (Physics) attended the XVIIth National Conference of the Indian Association of Dermatologists, Venereologists and Leprologists at Hotel Oberoi Grand, Calcutta during January 22-24, 1988. He was a member of the Organising Committee and presented, along with his research students, four papers on investigative dermatology. He also actively participated in the special seminars and workshops conducted as part of the Conference.

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Shri S. Das (Agricultural Science) attended the 75th Indian Science Congress, Pune, 1988 and presented a paper.

Shri S. Adhikary (Agricultural Science) attended the Conference on 'Horticultural Development in Tribal region' organized by Birsra Agricultural University, Ranchi during 12-14 February, 1988 and participated in the discussion on future collaborative work in Bihar plateau.

Professor A. Basu (Anthropometry and Human Genetics) attended (i) the Conference on Ethnic minorities in India : Problems of demographic and sociocultural survivals, organized by the University of Sambalpur, Sambalpur, Orissa in April 1987. (ii) the Annual Conference of the Indian Anthropological Society at Vidyasagar University, Midnapore in December 1987 and chaired a session. He also attended the Anthropology session of the XII Indian Social Science Congress, University of Mysore, Mysore in July 1987.

Dr. R. Gupta (Anthropometry and Human Genetics) attended the Annual Conference of the Indian Anthropological Society at Vidyasagar University, Midnapore in December 1987.

Professor B. N. Mukherjee (Anthropometry and Human Genetics) attended the Annual Conference of the Indian Society of Human Genetics at Madurai during 26-28 October 1987 and was a co-chair person in the Session of Population Genetics and presented a paper.

Dr. K. C. Malhotra (Anthropometry and Human Genetics) attended (i) the International Symposium on nature of genetic variation in Man, Institute of Genetics, Hyderabad, 25-27 February, 1988, delivered an invited lecture and chaired a session. (ii) the National Conference on Modern Trends of Anthropology in Health, Nutrition and Demographic strains of the Nation, Sagar University, Sagar during 18-20 March, 1988, sponsored by UGC, delivered an invited lecture and chaired a session. (iii) the Workshop on Ecological history of India, Centre for Ecological Sciences, Indian Institute of Science, Bangalore during 9-17 February, 1988. He was a Co-organizer and chaired a session. (iv) the National Down Syndrome Congress, Institute of Genetics, Hyderabad during 8-10 October, 1987, delivered an invited paper and chaired a session. (v) the Conference on Conservation in National Development, Department of Science and Technology and Environment, Government of Orissa, Bhubaneswar during 22-23 May 1987, and delivered an invited lecture. (vi) the Conference on Application of Science and Technology for Tribal Development, Tribal Research Institute, Assam, Guwahati, during 29-31 July, 1987, delivered an invited lecture and chaired a session. (vii) the XIII Annual Conference of the Indian Society of Human Genetics, Madurai University, Madurai, during 26-28 October 1987, delivered Presidential address, presented 2 papers and chaired 2 sessions. (viii) the IXth International Conference on Tropical Ecology, Banaras Hindu University, Varanasi during 11-16 December 1987. Professor Malhotra organized a special Session on Human Dimension in the Management of Tropical Ecosystems. (ix) Save the Western Ghats-March Conference, Bandora, Goa, during 1-3 February 1988 and presented results of the Survey undertaken during the 100 day long march. (x) the Workshop on Common property Resources, Development Alternatives, New Delhi, delivered a lecture, chaired

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a session and drafted recommendations. (xi) the 6th All India Workshop on "The role of state councils in rural development through application of science and technology", Science, Technology and Environment Department, Government of Orissa, Bhubaneswar, during 26-28 February 1988, and delivered an invited lecture on Health and Drinking water.

Dr. P. K. Tapaswi (Embryology) attended the International Conference on Nonlinear Analysis and its Application to Biomathematics, sponsored by International Centre for Theoretical Physics (Italy), Department of Science and Technology (India) and University Grants Commission (India) held in Andhra University during 24-28 August, 1987 and gave a talk on "A Multiple-Loop Biochemical Control Network Model of the Epigenetic system".

Dr. Tapaswi delivered a lecture in a seminar on Mathematical Biosciences/Ecology under UGC/DSA Programme in the Department of Mathematics, Jadavpur University, Calcutta during 19-20 February, 1987.

Dr. A. K. Sengupta (Economic Research) addressed a seminar on "Some Observations on Regional and Inter-regional Input-Output Analysis", organised by the Bureau of Applied Economics and Statistics, Government of West Bengal in June 1987.

Dr. Dipankar Dasgupta (Economic Research) attended a workshop of macroeconomics and a conference on Economic Analysis and Economic Policy for India, both organised at the Centre for Economic Studies, Presidency College, Calcutta. He also presented a paper at the Conference on Economic theory and Related Mathematical Methods held at the Indian Statistical Institute, Delhi Centre, in February 1988. He also addressed a seminar on Procurement Prices, organised at the Department of Economics, Visva Bharati, Santiniketan on 6 March, 1988.

Dr. Pradip Maiti (Economic Research) acted as a discussant for one of the papers presented at the Conference on Economic Analysis and Economic Policy for India organised at the Centre for Economic Studies, Presidency College, Calcutta in March 1988.

Dr. Robin Mukherjee (Economic Research) attended and presented a paper at the Silver Jubilee Conference of the Indian Econometric Society held in Bangalore, during 4-6 January, 1988. He also presented a paper at the Eighth Conference for Central and State Statistical Organisations" held in Delhi during 14-18 January, 1988.

Dr. Dipankar Coondoo (Economic Research) presented a paper and chaired a session on Poverty and Income Distributions at the Silver Jubilee Conference of the Indian Econometric Society held in Bangalore during 4-6 January 1988. He also addressed a seminar on Discovery Cost Model for Hydro-Carbon at ONGC, Dehra Dun in January 1988.

Dr. Sanjit Bose (Economic Research) gave a seminar on The Contribution of Kalecki at the Department of Economics, Visva Bharati, Santiniketan on 30 December, 1987.

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Dr. A. Sarkar (Economic Research) attended and presented a paper at the Conference on Economic Analysis and Economic Policy for India organised at the Centre for Economic Studies, Presidency College, Calcutta in March, 1988.

Shri Biswanath Roy (Economic Research) participated at the Seminar on Four Decades of Indian Independence held in Calcutta during 12-14 February, 1988. He also attended and presented a paper at the Eighth Annual Conference of the Bangiya Arthaniti Parishad held at North Bengal University of West Bengal during 25-27 March, 1988.

Dr. N. Sarkar (Economic Research) presented a paper at the Silver Jubilee Conference of the Indian Econometric Society at Bangalore during 4-6 January 1988.

Shri Chiranjib Neogi (Economic Research) participated in a workshop on Sectoral and Economywide Modeling organised by the Indira Gandhi Institute for Development Research, Bombay during 28th February—5th March, 1988.

Shri Kunal Chattopadhyay (Economic Research) attended the Symposium on Rural Development organised by the Centre for Human Resource Development, Department of Economics, Kalyani University during 22-24 April, 1987. He also participated in the workshop on Sectoral and Economy wide Modelling organised by the Indira Gandhi Institute for Development Research, Bombay during 28th February—5th March, 1988. He has been associated with a project on Environmental Impacts of Tourism on Himalayan Resort Destination Kulu-Manali, Himachal Pradesh" undertaken by International Centre for Integrated Mountain Development, Kathmandu, Nepal financed by UNESCO during 1987-88.

Dr. L. S. Dhat (Planning) participated (i) as Resource person in the Technical Workshop on Decentralised System of Educational Planning at the District Level organized by the National Institute of Educational Planning and Administration, New Delhi, during June 23-26, 1987. (ii) in the National Conference on Dynamics of Green Revolution—Geographical Perspectives organized by the Punjabi University, Patiala during October 5-7, 1987. (iii) in the Meeting of the Advisory Board constituted by the Government of Himachal Pradesh, Shimla on 11 November, 1987 on the preparation of a Planning Atlas of Himachal Pradesh. A note on the objectives, data requirements and analysis was prepared and discussed. (iv) in the Training programme on District Planning organized by the Haryana Institute of Public Administration at Chandigarh on 18 November 1987, and delivered two lectures on spatial dimensions in District Planning. (v) in the 9th Indian Geography Congress of the National Association of Geographers, India at Pune during 2-5 December 1987. (vi) in the National Seminar on Decentralised Planning organized by the State Institute, Lucknow, during 12-14 February, 1988. (vii) in the seminar on Data System for District Planning organized by the Department of Science and Technology, New Delhi at Lucknow during 23-24 February, 1988.

Shri S. M. Kansal (Planning) attended the General Conference of the Indian Association for Research in National Income and Wealth, during November 1987 at Madras. He also attended the Second Seminar on Social Statistics, during February 1988, jointly organized by the CSO and the UNICEF, Delhi.

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Dr. P. N. Mukherjee (Planning) attended the XVIII Indian Sociological Conference held at the North Eastern Hill University, Shillong, during May 1987.

Dr. K. Saradamoni (Planning) participated in the (i) Seminar on Jawaharlal and India's Quest for Secular Identity at Tin Murti Memorial Museum & Library, New Delhi during 9-12 April, 1987 ; (ii) New Educational Policy and Empowerment of Women, NCERT, New Delhi, April, 1987 ; (iii) CSO/ILO Workshop on measurement of Female Labour force on 27 April, 1987, at New Delhi ; (v) IAMR-ICNUM National Seminar on Development of Women as a Human Resource, 12-13 September, 1987, Institute of Manpower Research, New Delhi and was a discussant at the Session of Women and Health ; (v) Meeting of the Subgroup of the National Integration Council, Home Ministry, New Delhi on 18 September, 1987 ; (vi) National Consultation Workshop on Training for Women, The Institute of Management in Government (IMG), Trivandrum during 17-20 September, 1987 ; (vii) Southern Regional Workshop to search for innovative ways of linking women's studies with action, IMG, Trivandrum 21-22 September, 1987 (sponsored by ICSSR) ; (viii) All India Seminar on Health Needs, Self Reliance and Measures on Drug Policy, Indian Medical Association, during 10-11 September, 1987 ; (ix) National Workshop on Women in Agriculture, during 23-24 September, 1987, organised by the Department of Agriculture and Cooperation, Ministry of Agriculture, New Delhi ; and (x) North Western Regional Seminar on Land Reforms : Achievements, Problems and Prospects, Department of Sociology, Haryana Agriculture University, Hissar, during 17-19 February, 1988.

Dr. A. Sarma (Planning), delivered (i) a series of lectures on Centre-State Financial Relations and Macro-economics at the Department of Economics, Dibrugarh University under the U.G.C.'s invited lecture scheme during 2-29 June, 1987 ; (ii) a lecture on Financing the Plans : Issues in Resource mobilisation on 19 August, 1987 at the Training programme organized by the NIPFP ; (iii) a lecture on Terms of Reference of the Ninth Finance Commission and their Implications on Forecasting on 27 October, 1987 at NIEPA. Dr. Sarma also participated in the (i) Meeting of the Standing Advisory Committee on Petroleum and Natural Gas held on 22 April, 30 May and 22 September, 1987 ; (ii) Meeting of the committee on Employment Policy for Assam on 14 May, 1987 ; (iii) Meeting of the Steering Committee on the Research project on Perspective Planning Model for Economic Development of Assam upto 2000 A. D. on 14 June, 1987 and in project meetings during 11-13 June, 1987 ; (iv) Meetings of the Task Force on Economic Development of Assam held on 22 June, 14 August, 12-13 October and 13 November, 1987 ; (v) Meeting of the National Committee of the World Energy Conference held on 7 August, 1987 ; (vi) Meeting of Manipur State Planning Board on 30 October, 1987 ; (vii) Seminar on Ninth Finance Commission organised by CESS and Andhra Pradesh Government at Hyderabad, 25-26 September, 1987.

Dr. Sarma acted as Co-ordinator (jointly with Professor P. N. Mukherjee) of a Village Survey—A programme for I.A.S. Probationers under the sponsorship of Lal Bahadur Shastri National Academy, Mussoori, 1987.

Dr. N. S. Iyenger (Economic Analysis) attended the (i) Workshop on American Studies, organized by the US Educational Foundation in India, New Delhi, in Bangalore

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on 23 September 1987 and participated in discussions ; (ii) Indian National Science Congress, 8-10 January 1988 at Pune, (iii) National Workshop/Symposium on "Privatisation in Industry and Role of Government", organised by the Department of Economics, University of Hyderabad, Hyderabad on 21 January, 1988. Dr. Iyengar also delivered special invited lecture on "Robert Solow—Nobel Prize Winner and Economist" on 25 March, 1988, organised by the Department of Industrial Management, Indian Institute of Science, Bangalore.

Dr. N. S. S. Narayana (Economic Analysis) attended the Silver Jubilee Conference of the Indian Econometric Society, Bangalore, 4-6 January 1988 and participated in discussions. Dr. Narayana also visited the Indira Gandhi Institute of Development Studies, Bombay during May, October/December, 1987.

Shri M. H. Suryanarayana (Economic Analysis) attended the Workshop on Sectoral and Economywide Modelling, organised by the Indira Gandhi Institute of Development Research, Bombay, during 28 February—4 March, 1988.

Dr. C. R. Malaker (Population Studies) attended the meeting of the Advisory Committee of the Centre for Applied Statistics at Shillong in April 1987. It was sponsored by the North East Hill University.

Dr. Malaker was invited to attend the National Workshop on New Issues in Population Research for Planning and Policy Making at New Delhi during 10-11 February, 1988. It was sponsored by the Indian Association for the Study of Population. One paper entitled "A note on population projections for short-term and long-term planning" was presented by him.

Dr. P. K. Majumdar (Population Studies) participated in the Workshop on Planning and Management of Hospitals and Nursing Homes held at Madras during 30 November—5 December, 1987. It was sponsored by the Indian Society of Health Administration. He presented a paper.

Shri S. Guha Roy (Population Studies) was invited to attend the National Workshop on New Issues in Population Research for Planning and Policy Making at New Delhi during 10-11 February, 1988. It was sponsored by the Indian Association for the Study of Population. One paper entitled "Utilisation of demographic parameters for planning and policy formulation" was presented by him. Shri Guha Roy acted as the discussant of the session on Population Data Base.

Dr. R. Bairagi (Population Studies) participated in the Third Bangladesh Population Association Conference at Dhaka during 21-24 March, 1988.

Sm. Rama Deb Roy (Population Studies) attended 48th Session of the Indian History Congress at Goa during 5-7 November, 1987.

Professor S. Chatterji and Professor M. Mukherjee (Psychometry) attended and delivered lectures on : (i) Seminar on "Personnel Selection and Appraisal System" organised by the Department of Humanities and Social Sciences, Indian Institute of Technology, Madras on 15th and 16th May 1987 at Madras. (ii) "Psychometric

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Methods" in a programme organised by the Indian Society for Training and Development at Visakhapatnam on 6th July, 1987. (iii) "Psychometric Methods for Selection and Training of Personnel" in a programme organised by South Eastern Railway on 4th September 1987 at Calcutta. (iv) "Selection of Personnel— Use of Psychometric Test" in a workshop organised by State Productivity Council, Andhra Pradesh at Hyderabad on 7th and 8th December, 1987.

Sm. A. Ghosh (Psychometry) attended the National Seminar on the IQ Controversy at Jnana Probodhini at Pune, in January, 1988.

Shri S. N. Banerjee (Psychometry) attended a Seminar on Evils of Drug Addiction organised jointly by Lions Club, Calcutta, and Indian Psycho-analytical Society, Calcutta in August 1987.

Dr. S. Bandyopadhyay and Dr. A. K. Dasgupta (Sociology) attended the National Seminar on Encyclopaedia, sponsored by Netaji Institute for Asian Studies, during 30 October—1 November 1988 at State Youth Centre, Calcutta.

Shri J. Verghese (Central Library) participated in the (i) Seminar on 'Management and Application of Micrographics' held at Poona University from 29 to 30 August 1987 and presented a paper entitled 'Microfilm materials and their preservation'; (ii) A ten day workshop on Information Management Technology held at Indian Institute of Technology, Bombay from 1 to 12 June 1987; and (iii) Annual Conference of Micrographic Congress of India held at New Delhi in January 1988 and presented a paper entitled 'A close look at microfilms'.

Shri N. R. Nathan (Central Library) attended the Indian Library Association Conference at Tiruchirapalli from 28-31 December, 1987 and presented a paper entitled 'An introduction of new technology and its effects on Library and Information Science'.

Dr. S. Seetharama (DRTC) was invited by the Institute of Public Enterprise, Hyderabad to render Advisory Service in relation to Planning of their Information Centre, on 3 April, 1987.

Dr. Seetharama was consulted by the Rubber Research Institute of India, Kottayam for advisory service in relation to planning of their Library and Documentation Centre, on 7 August, 1987.

Dr. Seetharama visited the Nagpur University as a Visiting Fellow in its Department of Library and Information Science during the period 15 February—1 March, 1988. During this period, Dr. Seetharama delivered a series of special lectures on (1) Systems Analysis, and (2) Evaluation of Information Systems and Services.

Dr. Seetharama was invited by the Institute of Public Enterprise, Hyderabad, in relation to the organisation of a Regional Training Programme on Information Consolidation during 14-18 March, 1988. The programme was sponsored by UNESCO and DSIR, New Delhi and was organised by the Institute of Public Enterprise, Hyderabad. Dr. Seetharama was there for advisory service during 25 February—

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1 March, 1988. He also acted as a resource person for a Regional Training Course on Information Consolidation sponsored by UNESCO and DSIR, New Delhi. The course was held at Hyderabad during 14-18 March, 1988. The course material was prepared by Dr. Seetharama.

Dr. I. K. Ravichandra Rao (DRTC), in response to an invitation of the Institute of Engineers, Bangalore, delivered a lecture on 'Information Technology : Role of Standards for its use in Library and Information Field' at Kaveri Continental, Bangalore on 17 June, 1987.

Dr. Ravichandra Rao, as an invited resource person delivered a series of lectures covering Library Automation, Information Retrieval and Selection of Hardware/Software for Library applications, at the UGC Sponsored Advanced Institute for Library and Information Science held at the Department of Library and Information Science, Kerala University, Trivandrum during 8-10 June, 1987.

Dr. Ravichandra Rao delivered a lecture on Areas for Computerisation in Library and Information Fields at Windsor Manor in response to an invitation on 13 October 1987 from Messrs. Blue Star Ltd., Bangalore.

Dr. Ravichandra Rao attended the All India IASLIC Conference held at Tirupati during 23-26 December, 1987. He chaired the SIG Meeting on Computer applications to Library and Information Field. He presented a paper entitled 'Need for Computerisation in Libraries in India'.

As a resource person Dr. Ravichandra Rao delivered the series of Lectures on Bibliometric Models and Empirical Laws on 19 February 1988, at the NISSAT Sponsored Workshop on Scientific Communication and Bibliometrics held at the Indian Institute of Chemical Biology, Calcutta during 15-26 February 1988.

He also delivered the key note address entitled 'Information Technology : Its application in Libraries' in a seminar on 'Recent Trend in Library and Information Field' organised by Messrs. Hindustan Photo Films Ltd., on 28 March, 1988.

Dr. G. Bhattacharyya (DRTC) attended the seminar on 'Distributed Databases' organised by the Society for Information Sciences (New Delhi) at Mysore during 23-25 June, 1987. He acted as the Chairman of the session devoted to Developments in Storage Technology. He presented a paper entitled 'Microcomputers, Libraries and DRTC'.

Dr. Bhattacharyya delivered the key note address entitled 'Computers in Library Work and Service' on the occasion of a seminar on Minisis held in Bangalore on 13 October, 1987.

Dr. Bhattacharyya attended the Seminar on Information Support System for Small and Medium Scale Industries held at Bangalore on 21 December 1987. He presented a paper entitled 'General pattern of information support system for industrial units'.