POST GRADUATE DIPLOMA IN POPULATION STUDIES

Course I: Demographic Techniques

UNIT-1

Components of Population Change, Fertility Levels, Trends and differentials in developing and developed countries, Proximate and socio-economic determinants of fertility, Sources of data and measures of fertility, Birth order parity, Parity progression ratio, Measures of reproductivity, Indirect methods of estimation of fertility, Reverse survival method, Rele method, The P/F ratio method and the own children method.

UNIT-II

Mortality: Levels and trends in developing and developed countries, Causes of mortality, Sources of data and measures of mortality, Maternal mortality rate, concepts and construction of life tables, abridged life table and construction of life table from incomplete data, Age-sex composition of population and its determinants, Nuptiality: concepts and sources of data, measures of nuptiality, estimates of nuptiality, Mean age at marriage from census data, Estimation of singulate mean age at marriage from the census data by using Hejnal's method and by Agarwal's method.

UNIT-III

Estimation of migration: Levels and trends of migration in developing and developed countries, Determinants and consequences of migration. Lifetime and internal migration from place of birth data from duration of residence data, from place of last residence data and from residence at a time prior date data, Indirect measures of Net Internal Migration: National growth rate method, Vital statistic method and survival ratio method, Problems of base population in estimation of migration.

UNIT-IV

Urbanisation: Growth and components of population, Degree and tempo of urbanisation, Distribution of urban population by urban locality, size, class, concentration of urban population, Labour force: concepts (dependency, gainful work and labour force or current activity concepts), Sources of data and measures of labour force and its unemployment, Estimation of supply and demand for manpower.

UNIT-V

Population projections: Need and uses of population estimates, Methods of obtaining population estimation, Component method of population estimation, (Mathematical methods, Arithmetic, geometric; second degree, exponential, modified exponential, Gompertz and Logistic methods).

Notes:

- All proofs in to be avoided, Questions should be application-oriented;
- Student shall be allowed the use of their own calculators with six simple functions;
- Where ever statistical tables are required for reference by the student, the examiner is requested to provide 3 or 4 statistical values.
- The examination in this course shall be of three hours duration. Ten questions in all, with two questions from each unit shall be set in the examination. The examiners shall be required to attempt five questions in all selecting one question from each unit.

SUGGESTED READINGS

1. Shryok, H. and J.S. Siegel, (1976). Methods and Material of Demography, Academic Press, New York,
2. Rogue, D. J. (1971). Principles of Demography, John Wiley, New York.
3. Barday, G.W. (1958). Techniques of Population Analysis, John Wiley & Sons, New York.
4. Pathak, K.B. and F. Ram. Techniques of Demographic Analysis, Himalaya Publishing House, Bombay.
5. United Nations. Indirect Techniques for Demographic Estimation, U.N. Publications, New York.
6. Agarwal, S.P. (1969), Manpower Supply-Concepts and Methodology, Meenakshi Prakashan, Meerut, India.
7. Agarwal, S.P. (1970), Manpower Demand-Concepts and Methodology, Meenakshi Prakashan, Meerut, India.
8. Bhende, A. and T. Kanitkar. Principles of Population Studies, Himalaya Publishing House, Bombay.

Course II: Economic of Population

(Common with M.A. Economics)

Unit – I

Early theories of population (Malthus, Ricardo, Marx, J.M. Keynes and others). Effect of Pre- industrial technological and institutional changes on population. Demographic transition. The concept of optimum population.

Unit – II

Economic determinants of fertility: new household economics (Leibenstein theory and Gary Becker's Theory). Alternative economic approaches to fertility theory (Easterlin's and Caldwel's theories).

Unit – III

Cost and values of children and their effects on fertility, Supply of children and elements of uncertainty for the parents. economic determinants of Nuptiality (marriages and divorce), Gary Becker's model. Economic determinants of mortality.

Unit – IV

economic determinants of migration (Regenstein's, Lee's and Todaro's Model). Economic consequences of population growth (General views of Malthus, Marx, Simon Kuznets). Economic consequences of population growth (Dual sector models of Lewis, Renis Fei and Jorgonson's).

Unit – V

Effects of population growth on Savings and investment, population growth and Labour supply, population growth and distribution of income. Effects of population growth on educational and human capital input facilities. Economic consequences of slowing population growth and population decline. Policy issues related to population and economic growth.

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Note:

The Examination in this course shall be of three hours duration. Ten questions in all, with two questions from each unit, shall be set in the examination. The examiners shall be required to attempt five questions in all, selecting one question from each unit.

Suggested Readings

1. United Nations, the Determinants and Consequences of Population Trends, Vol. I, 1973, part of chapter 2, Population Theory, pp. 33-48.
2. Thomas Malthus, A Summary View of the Principles of Population, in D.V. Glass, ed., An Introduction to Malthus, Watts and Co., London, 1953, pp. 117-181.

3. Simon Kuznets, Modern Economic Growth (Yale University Press, New Haven, 1966), Chapter 2, Growth of Population and Product, pp. 34-85.
4. John C. Caldwell, Towards a Restatement of Demographic Transition Theory, Population and Development Review, Vol. 2, Nos. 3-4, September and December 1976, pp. 321-366.
5. Gary Becker, an Economic Analysis of Fertility, in National Bureau of Economic Research, Demographic and Economic Change in Developed Countries, (Princeton University Press, 1960), pp. 209-240.
6. Fred Arnold, et. al., The Value of Children, A Cross-National Study, Vol. 1 (East-West Population Institute, 1975).
7. Thomas P. Espenshade, The Value and Cost of Children, Population Bulletin, Vol. 32, No. 1, 1977, pp. 3-32 only.
8. Gary S. Becker, A Theory of Marriage, in T.W. Schultz, ed., Economics of the Family (University of Chicago, 1974), pp. 299-344.
9. Everett S. Lee, A Theory of Migration Demography, February 1996.
10. Books
11. Agarwala, S. N. (1972). India's Population Problem, Tata McGraw – Hill, Bombay.
12. Bhende, A.A. and T. Kanitkar. Principles of Population Studies, Himalaya Publishing House, Bombay.
13. Boque, D. J. (1971). Principles of Demography, John Willey, New York.
14. Registrar General of India, Census of India, Government of India, New Delhi.
15. Coale, A. J., and F.M. Hoover, (1958). Population Growth and Economic Development in Low Income Countries: A Case Study of India's Prospectus, Princeton University Press, Princeton.
16. Davis, K. (1972). World Urbanization: 1950-70. Vol. II, Population Monograph Series, No. 9. University of California, Barkely.
17. Shrivastava, O.S. (1983). A Textbook of Demography, Vikas Publishing House, New Delhi.
18. Smith, P.C. (1983). Trends and differentials in Nuptality in the Population of the Philippines, Country Monograph Series No. 5 UNESCAP, Bengkok.
19. Shryok, H. Siegel, J.S. and Associates (1976). The Methods and Material of Demography, Academic Press, New York.
20. United Nations, (1973). The Determinants and Consequences of Population Trends, Vol. I, UN Publications, New York.
21. Weeks, J.R. (1978). Population: An Introduction to Concept and Issues. Wadsworth Publishing Co., Belmont, Californie.

22. Shrivastava, O.S. (1996). Demography and Population Studies, Vikas Publishing House Pvt. Ltd., 2nd Edition.
23. Misra, B.D. (1996). An Introduction to Study of Population.
24. Pathak, K. B. & Ram F. Techniques of Demographic Analysis, Himalaya Publishing House, Bombay.

Course Code III: Basic Statistics
(Common with M.A. Economics)

UNIT- I

Measure of Central Tendency, Dispersion, Skewness and Kurtosis. Correlation; Meaning and methods of measuring correlation, Karl Pearson's method, Spearman's Rank Correlation coefficient, Limitations of Correlation analysis. Linear Regression; relation between correlation coefficient and regression coefficients, Fitting of regression equations, Standard error of estimates.

UNIT- II

The General Linear Regression Model

An Introduction to the matrix formulation and solution of the general linear regression Model. Solution for a model with one dependent and two independent variables. Prediction for simple regression models of demand, supply, production and cost. Multiple and partial correlations and regressions. Relationship between the measures of multiple correlation and measures of partial correlation, Beta coefficients.

UNIT- III

Elements of Probability Theory

The Concept of Probability Distribution and a Density function. Mathematical expectation, Binomial distribution, the Normal distribution, Some properties of the normal distribution. Sampling and sample designs: simple random sampling, stratified random sampling, systematic sampling and cluster sampling. Large samples. Tests of significance. Limitation of sampling; procedure of testing hypothesis: Region of acceptance and rejection, two tailed and one tailed tests, Type I and Type II errors. Non Parametric Tests: The sign test, rank sum test, the Mann-Whitney U test, advantages and limitations of non parametric tests.

UNIT- IV

Tests of Significance

Standard error of the mean, Student's "t" distribution and it's properties, Use of the "t" distribution to test hypothesis of the population means. Chi Square: general features of Chi Square (χ^2), chi square as a test of goodness of fit, chi square as a test of independence. Contingency table and Yate's correction for continuity, testing homogeneity of several independent estimates of population

variance. Analysis of variance; meaning, assumptions and techniques of analysis of variance, one way and two way analysis of variance problem. Inter relationship between "t", Chi square and F tests.

UNIT- V

Analysis of Time Series

Meaning and components of time series, Methods of estimating trend – the semi average method, the moving average method and the least squares method. Fitting of straight line, second and third degree equations. Fitting of the modified exponential curve, Gompertz curve and the logistic curve. Measurement of Seasonal, Cyclical and irregular variations.

Index numbers: Meaning, problems in construction of index numbers. Classification of index numbers, unweighted price index numbers, relative of aggregate method and average of price relatives, Weighted price index numbers: Laspeyre's, Paasche's and Fisher's ideal index numbers. Time reversal test and factor reversal test and chain based index numbers. Uses and limitations of index numbers.

SUGGESTED READINGS

1. Taro Yamane. Statistics, Harper International.
2. M.R. Spiegel. Theory and Practice of Probability and Statistics, Schaum's outline ser es, McGraw Hill.
3. A.L. Nagar and R.K. Das. Basic Statistics, Oxford University Press, New Delhi.
4. George Snedecar and W.G. Chockrane. Statistical Methods. Oxford & IBH, New Delhi.
5. F.E. Croxton, D.J. Cowden and Sidney Klein. Applied General Statistics, Prentice Hall of Indian, New Delhi.
6. S.P. Gupta. Statistical Methods, Sultan Chand & Sons, New Delhi.
7. S.P. Singh. (1996). Statistics. S. Chand & Company, New Delhi.
8. B.L. Agarwal, (1977). Basic Statistics, New Age International Limited, New Delhi.
9. H.M. Walker and J. Lev. (1953) . Statistical Inference, Holt, Rimehart and Winston, Oxford and IBH Publishing Company, Calcutta.
10. Damodar Gujarati. Basic Econometrics, Second Edition, L.R. Klein.

Course IV: Population and Development

UNIT-I

Indicators and determinants of development, Components of population growth, Measures of population change (i.e., growth, structure and distribution). History of World Population Growth, Population trends during ancient to modern times, Regional variations in rates of growth of population by broad regions of the world, Population density in different regimes.

UNIT-II

Population Theory: The classical and neo-classical schools of economics and population theory, Socialist and Marxist writings on population, Optimum Population Theory, The theory of demographic transition.

Modernisation and demographic change: Fertility transition, Mortality transition, Modernisation and migration, Inter-relationship between population and development: Effects of economic development on demographic parameters (effect on mortality, fertility and migration), Population growth and development: effect of population growth on development.

UNIT-III

Resources and Population: Natural resources: Classification, factors affecting supply of and demand for natural resources, Population and land use, Population and environment, Demographic aspects of saving and investment, technology and development of human resources, Rapid population growth and education and health services, Population growth and productivity, Age – distribution and productivity, Demographic and economic determinants of labour supply, Work participation rate and development, Growth and Structure of labour force with development.

UNIT-IV

Population and Development Planning: Concepts and objectives of planning, need to view population planning as an integral part of overall development planning, Strategy for planning, Demographic considerations in Planning: Problem, policies and requirements of housing, food production, education, rural development, health, poverty eradiation, urban development and employment.

UNIT-V

Population Policies: Concepts and issues, indicators and principal features of population policy, fertility, mortality and migration influencing policies, World population plan of actions, Family Welfare Programme, Population policies and programme in India.

SUGGESTED READINGS

1. Faster Boserup, The Conditions of Agriculture Growth, Aldine-Atherton, New York, 1965.
2. Easter Boserup, "Environment, Population, and Technology in Primitive Societies", Population and Development Review, Vol. 2, No. 1, 1976.
3. Simon Kuznets, Modern Economic Growth, Yale University Press, New Haven, 1966 (Chapter 2, "Growth of Population and Product").
4. Todaro, M. 1981, Economic Development in the Third World, Longman, London.
5. Mishra R.S. (1990), Economic of Growth and Developing, Somaiya Publication Pvt. Ltd.
6. Yaukey, David, Demography: The Study of Human Population, St. Matin's Press, New York.
7. Bain John, (1990), Demographic Change and Asian Labour Markets in the (1990's) Population and Development Review, Vol. 1(4): 615-645.
8. United Nations, (1993), Population Policies and Programmes, Department of Economics & Social Informal & Policy Analysis, New York.
9. Ray T. K. and G. Rama Rao (1984), Introduction in Evaluation of Demographic Impact of Family Planning Programme, Himalaya Publishing House, Bombay
10. United Nations (1979), The Methodology of Measuring the Impact of Family Planning Programme on Fertility, Manual IX, Population Study, No. 66, New York.