

## **9.ECONOMICS**

Max. Marks : 80

Internal Assessment : 20

Time : 3 Hours

**Note :** The question paper will carry a maximum of 80 Marks and it will consist of nine questions out of which the candidates would be required to attempt five questions. Each question will carry 16 marks. The First question will be compulsory and it will include objective-type questions (10 Marks) and short-definitional type questions (6 Marks) uniformly spread over both parts of the syllabus. The remaining 8 questions will include 2 questions from each of the four units and candidates would be required to attempt one question from each unit.

### **Preamble**

The Part-A of this paper entitled "Development and Environmental Economics" is intended to enable the students to know about theories of growth and development. This part also deals with issues relating to sustainable development, environmental protection and pollution control.

The Part-B of this paper entitled "International Economics" is designed to provide the students thorough understanding and deep knowledge about the basic principles that tend to govern the free of trade in goods and services at the global level. It also lays stress both on theory and applied nature of the subject that have registered rapid changes during the last decade

### **Part-A**

#### **Development and Environmental Economics**

#### **Unit-I**

**Economic growth and development;** Determinants and measurement of development; Vicious circle of poverty, Development with unlimited supply of labour, Balanced and Unbalanced growth, Critical Minimum Effort Thesis (Harvey Leibenstein).

## **Unit-II**

Environment as a necessity and luxury, Population-environment linkage; Market Failure in case of environmental goods; Environment as a public good; Prevention and control of Pollution; Environmental legislation, Meaning, importance and indicators of sustainable development.

## **Part - B**

### **International Economics**

## **Unit-III**

Inter-regional and international trade, Comparative advantage theory; Heckcherohlin theory; Gains from trade-their measurement and distribution: Trade as an engine of economic growth.

## **Unit-IV**

Meaning of balance of payments equilibrium; Causes and efforts of BOP disequilibrium and corrective measures; Foreign trade multiplier, Functions of IMF, World Bank and WTO; Changes in the composition and direction of foreign trade of India since 1991; Causes of Persistent deficit in India's BOP and corrective measures; Trade reforms in India.

### **Reading List**

1. Adelmnan, I. (1961): Theories of Economic Growth and Development, Stanford University Press, Stanford.
2. Behraman, S. and T.N. Srinivasan (1995) : Handbook of Development Economics, Vol. 1 to 3, Elsevier, Amsterdam.
3. Ghatak, S. (1986): and Introduction to Development Economics, Allen and Unwin, London.
4. Hayami, Y. (1997) : Development Economics, Oxford University Press, New York.
5. Higgins B. (1959) : Economic Development, Norton, New York.
6. Kindleberger, C.P. (1977) : Economic Development, McGraw Hill, New York.
7. Meier, G.M. (1995) : Leading issues in Economic Development, Oxford University Press, New Delhi
8. Myint, Hla (1971) : Economic Theory and Under-developed Countries.

Oxford University Press, New York

9. Thirwal, A.P. (1999) : 6th Edition, Growth and Development, Macmillan, London.
10. Kenanr, P.B. (1994) : The International Economy, Cambridge University Press, London.
11. Kindleberger, C.P. (1973) : International Economics, R.D. Irwin, Homewood.
12. Krugman, P.R. and M. Obstgeld (1994) : International Economics : Theory and Policy, Glenview, Foresman.
13. Salvatore, D.L. (1997) : International Economics, Prentice-Hall, Upper Saddle River, N.J.
14. Sodersten, Bo (1991) : International Economics, Macmillan Press Ltd., London.



## **10. POLITICAL SCIENCE**

Paper Opt. (i) Comparative Government and Politics  
(Government and Politics of U.K. U.S.A., China Switzerland)

Maximum Marks : 80

Internal Assessment : 20

Time : 3 Hours

**Note :** Total 10 questions to be set : four each from Part-A and B and two from Part-C. Candidates will have to attempt five questions in all selecting at least one question from each part.

### **Part-A**

Approaches to the Study of Comparative Politics

Constitutions and Constitutionalism

Historical Legacy and Political Traditions

Constitutional Structure : Executive, Legislature and Judiciary Political Culture.

### **Part-B**

Political Parties and Party Systems

Interest Groups and Pressure Groups

State and Local Governments

Socio-economics bases of the Constitution

Women and the Political Process

### **Part-C**

Short-answer questions, at least four spread over the entire syllabus. Objective type (Multiple Choice) questions spread over the whole syllabus.

### **Readings :**

1. G. Almond et al., Comparative Politics Today: A World View, 7<sup>th</sup> ed, New York London, Harper/Collins, 2000.
2. W. Bagehot, The English Constitution, London, Fontana, 1963.
3. A.H. Birch, British System of Government, 4th ed, London Weidenfeld and Nicolson, 1969
4. J. Blondel, An Introduction to Comparative Government, London, Weidenfeld and Nicolson, 1969.

5. J. Blondel, *Comparative Legislatures*, Englewood Cliffs, NJ, Prentice Hall, 1973.
6. J. Bryce, *Modern Democracies*, Vol. 2, New York, Macmillan, 1921.
7. I. Derbyshire, *Politics in China*, London, Chambers, 1991.
8. H. Finer, *Theory and Practice of Modern Government*, London, Methuen, 1969.
9. S.E. Finer, *Comparative Government*, Harmondsworth, Penguin, 1974.
10. J. Gittings, *China changes Face : The Road from Revolution 1949-89* London, Oxford University Press, 1989.
11. E.S. Griffith, *The American System of Government*, 6th ed, London. Methuen, 1983.
12. H. Harding, *China's Second Revolution : Reform after Mao*, Washington DC, Brookings Institution, 1987.
13. Inter-Parliamentary Union, *Women in National Parliaments*, 2000.
14. D. Kavangh, *British Politics : Continuity and Change*, Oxford, Oxford University Press, 1985.
15. H.J. Laski, *American Democracy : A Commentary and an Interpretation*, London, Unwin, 1948.
16. A. Lijphart, *Electoral Systems and Party System*, New Haven CT, Yale, University Press, 1994.
17. A. Lijphart, (ed.), *Parliamentary Versus Presidential government* , Oxford and New York, Oxford University Press, 1992.
18. A. Lijphart, *Democracies : Patterns of Majoritarian and Consensual Government in Twenty-one Countries*, New Haven CT, and London, Yale University Press, 1992.
19. KC. Macridis and R.E. Ward, *Modern Political Systems : Europe, and Asia*, 2nd ed. Englewood Cliffs, NJ, Prentice Hall, 1968.
20. P. Maddex, *Constitutions of the World*, 2nd edn., Washington DC and London, CQ Press, 2000.
21. P. Mair, *The West European Party System*, Oxford, Oxford University Press, 1990.
22. T. Munro, *The Governments of Europe*, New York, Macmillan, 1963.

23. B. Nelson and N. Chowdhary (ed.) *Women and Politics Worldwide*, Delhi, Oxford University Press, 1997.
24. D. Olson, *Legislative Institutions : A Comparative view*, Armonk NY, M.E.Sharpe, 1994.
25. V. Randall, *Women and Politics : An International Perspective*, 2nd ed. Chicago, University of Chicago Press, 1987.
26. M. Rhodes, P. Heywood and V. Wright, *Development in West European Politics*, Basingstoke, Macmillan, 1997.
27. KC. Wheare, *Federal Government*, 4th ed. Oxford and New York, Oxford University Press, 1963.
28. J. Wilson, *American Government*, 4th ed, Boston Massachusetts, Houghton Mifflin, 1987.



## 11. SOCIOLOGY

### B.A. Part III

Social Problems in India

(Optional -II)

Maximum Marks : 100

Theory : 80

Internal Assessment : 20

Time : 3 Hours

**Note :** The Paper setter shall set 8 questions from all four units with internal choice. However, one compulsory question of short answer type would be set from the entire syllabus comprising Four Sub-questions of four marks each under 5th Unit. Such way, the examinees are required to attempt five questions in all, of 16 Marks each.

#### Unit-I

**Social problems :** Concept, Meaning and types; Importance of the Study of Social Problems: Poverty; Alcoholism, Drug Addiction, Black Money and Corruption.

#### Unit-II

**Structural Issues :** Social Justice and Inclusive Development; Inequality of Caste, Class and Gender; Developments of Minorities, Backward Classes and Dalits.

#### Unit-III

**Gender Issues and Legislative Measures :** Patriarchy and Gender Discrimination; Female Foeticide, Dowry, Domestic Violence, Divorce and Protective Measures for women

#### Unit-IV

**Social Disorganization :** Unemployment, Delinquency, Child Abuse, HIV/AIDS, Suicides.

#### Readings :

Ahuja, Ram (2000) : **Social Problems in India**, New Delhi : Rawat Publications.

Beteille, Andre (1992) : **Backward Classes in contemporary India**, New Delhi : OUP

Beteille, Andre (1974) : **Social Inequality**, New Delhi : OUP

- Bereman, G.D. (1978): **Caste and Other Inequalities**: Essay in Inequality, Meerut: Folklore Institute.
- Dube, Leela (1997) : **Women and Kinship, Comparative Perspective on Gender in South and Southeast Asia**, New Delhi: Sage Publication.
- Desai, Neera & Usha Thakkar (2007): **Women in Indian Society**, National Book Trust, India.
- Gadgil, Madhav and Ramchandra Guha (1996): **Ecology and Equality The use and abuse of nature in Contemporary India**, New Delhi: OUP
- Gill, S.S. (1998): **The Pathology of corruption**, New Delhi: Harper Collin Publishers
- Lewis, Oscar (1966): **Culture of Poverty "Scientific American"** Vol-II and V No. IV PP-19-25.
- Satya Murty, T.V. (1966.) **Region, Religion, Caste, Gender and Culture in Contemporary India**, New Delhi: OUP

### **B.A. Part III**

#### **Population and Society**

#### **(Optional-III)**

**Maximum Marks : 100**

**Theory : 80**

**Internal Assessment : 20**

**Time : 3 Hours**

**Note :** The Paper setter shall set 8 questions from all four units with internal choice. However, one compulsory question of short answer type would be set from the entire syllabus comprising Four Sub-questions of four marks each under 5th Unit. Such way, the examinees are required to attempt five questions in all, of 16 Marks each.

#### **Unit-I**

**Population Studies :** Meaning, Scope and Significance, Fertility, Mortality and the Determinants; Migration- Types and factors.

#### **Unit-II**

**Theoretical Issues :** Biological, Malthusian and Neo-Malthusian Theory; Demographic Transition; Optimum Population.



### **Unit-III**

**Composition of Population in India :** Age and Sex Structure, Problem of Sex-ratio Decline; Religious Composition, Rural and Urban Dimension, Occupational Structure; Literacy-illiteracy.

### **Unit-IV**

**Population Planning and Control :** Family Planning Programme, Population Policy of India, National Rural Health Mission, Menace of Female Foeticide; Female centered welfare measures in India and Haryana.

#### **Readings:**

Agarwal, S.N. (1989): **Population Studies with Special Reference to India**, New Delhi: Lok Surjeet Publication.

Bose, Ashish (1991): **Demographic Diversity in India**, Delhi: B.R. Publishing Corporation.

Banarjee, D. (1985) : **Health and family planning services in India**, New Delhi: Lok Parkashan.

Chandrasekhar, S. (ed.) (1974) : **Infant Mortality, Population Growth and family Planning in India**, London George Alen and Unwin Ltd. Dubey, Surendra Nath(2001): **Population of India**, Delhi: Authors Press.

Kohli, S. (1977): **Family Planning in India**, New Delhi.

Malthus, T.R. (1986): **An Essay on the Principle of Population**, London: William Pickering.

Premi, M.K. (2004): **Social Demography**, Delhi: Jawahar Publishers and Distributors.

Sharma, Rajendra (1997): **Demography and Population Problems**, New delhi: Atlantic Publishers.

Srivastava, O.S. (1998): **Demography and Population Studies**, New Delhi: Vikas Publishing House.

National Rural Health Mission (2006.), Govt. of India, New Delhi.

## 12. PUBLIC ADMINISTRATION

### B.A. Part III

#### (Local Government and Administration)

Maximum : 80

Internal Assessment : 20

Time : 3 Hours

**Note :** The Candidates will be required to attempt five questions, atleast one question from each unit.

**Unit-I** One Compulsory question comprising of 8 objective type questions of 2 Marks each covering the whole syllabus.

**Unit-II** Local Government: Meaning and Significance, Evolution of Local Government in India since 1882. Administrative Growth of Rural Development, Institutions in India since Independence. 73rd and 74th Constitutional Amendment Acts..

**Unit-III** Urban Local Bodies: Municipal corporation, Municipal Council and Municipal Committee-their meaning, Composition, Features and significance with special reference to Haryana and Punjab. State Government's control over Muncipal Bodies.

**Unit-IV** Rural Local Bodies: Composition, Functions, Sources of income of Gram Panchayat, Panchayat Samiti and Zila Parishad. Composition, Functions and Significance of District Planning Committee. Problems of Rural Urban Relationship.

**Unit-V** District Administration: its features, purposes and problems. Role of Deputy Commissioner in the context of planning and Development at district level. Role of Divisional Commissioner, State Headquarter's Control over district Administration. Rural Development and Information Technology.

#### Books Recommended:

1. K.K. Puri: Local Government, Bharat Prakashan, Jalandhar.
2. S.R. Maheswari: Local Government in India, Laxmi Narain Aggarwal, Agra.
3. Sahib Singh & Surinder Singh: Local Government, New Academic-Publishing Company, Jalandhar.
4. V.K. Puri: Local Government and Administration, Modern Publishers, Jalandhar.



## 13. MATHEMATICS

Paper-I : BM-301 : Analysis

Maximum Marks : 27

Internal Assessment : 6

Time : 3 Hours

### Section-I (3 Questions)

Riemann integral, Integrability of continuous and monotonic functions. The fundamental theorem of integral calculus, Mean value theorems of integral calculus. Improper integrals and their convergence, Comparison tests, Abel's and Dirichlet's tests. Frullani's integral. Integral as a function of a parameter. Continuity, derivability and integrability of an integral of a function of a parameter.

### Section-II (2 Questions)

Series of arbitrary terms. Convergence, Divergence and Oscillation. Abel's and Dirichlet's tests. Multiplication of series. double series. Fourier Series Fourier Expansion of piece-wise monotonic functions. Partial derivatives and differentiability of real-valued functions of two variables. Schwarz's and Young's theorem. Implicit function theorem.

### Section-III (2 Questions)

Stereographic projection of complex numbers. Continuity and differentiability of complex Function's Analytic Functions. Cauchy-Riemann equations. Harmonic functions. Elementary functions. Mapping by elementary functions. Mobius transformations. Fixed Points Cross ratio. Inverse Points and critical mappings.

### Section-IV (3 Questions)

Definition and examples of metric spaces. Neighbourhoods. Limit points. Interior points. Open and closed sets. Closure and interior. Boundary points Subspace of a metric space. Cauchy sequences. Completeness. Cantor's Intersection theorem. Contraction principle. Construction of real numbers as a complete ordered field. Dense subsets. Baire category theorem. Separable, Second Countable and first



countable spaces. Continuous functions. Extension theorem. Uniform continuity. Isometry and homeomorphism. Equivalent metrics. compactness. Sequential compactness. Totally bounded spaces. finite intersection property. Continuous functions and compact sets. Connectedness components. Continuous functions and connected sets.

**Note :** The examiner is required to set ten questions in all, selecting questions section-wise as indicated in the syllabus. The candidate is required to attempt five questions, selecting at least one question from each section.

**Books Recommended :**

1. T.M. Apostol : Mathematical Analysis, Narosa Publishing House, New Delhi, 1985.
2. R.R. Goldberg, Real Analysis, Oxford & IBH Publishing Co., New Delhi, 1970.
3. S. Lang: Undergraduate Analysis, Springer-Verlag, New York, 1983.
4. D. Somasundaram and B. Choudhary : A first Course in Mathematical Analysis, Narosa Publishing House, New Delhi, 1997.
5. Shanti Narayan: A Course of mathematical Analysis, S. Chand & Co., New Delhi.
6. R.V. Churchill & J.W. Brown : Complex variables and Applications, 8th Edition, McGraw-Hill, New York, 1990.
7. Shanti Narayan : Theory of Functions of a Complex Variable, S. Chand & Co. New Delhi.
8. E.T. Copson, Metric Spaces, Cambridge University Press, 1968.
9. G.F. Simmons : Introduction to topology and Modern Analysis, McGraw-Hill 1963.



## Paper-I : BM-302 : Abstract Algebra

Maximum : 26

Internal Assessment : 7

Time : 3 Hours

### Section-I (3 Questions)

Group-Automorphisms, inner-automorphism, Automorphism groups and their computations. Conjugacy relation Normaliser. Counting Principle and the class equation of a finite group. Center for Group Prime-order Abelianizing of a group and its universal property. Sylow's Theorems. P-Sylow's subgroup. Structure theorem for finite Abelian groups.

### Section-II (2 Questions)

Ring theory-Ring homeomorphism. Ideals and Quotient Rings. Field of Quotients of an Integral Domain. Euclidean Rings. Polynomial Rings Polynomials over the Rational Field. The Eisenstein Criterion. Polynomial Rings over Commutative Rings. Unique factorization domain  $R$  unique factorisation domain implies so is  $R[X_1, X_2, \dots, X_n]$

### Section-III (3 Questions)

Definition and examples of vector spaces, Subspaces. Sum and direct sum of subspaces. Linear span. Linear dependence, independence and their basic properties Basis. Finite dimensional vector spaces. Existence theorem for bases. Invariance of the number of elements of a basis set. Dimension. Existence of complementary subspace of a finite dimension. Existence of complementary Subspace of a finite dimensional vector space. Dimensional of sums of subspaces. Quotient space and its dimension. Linear transformations and their representation as matrices. The algebra of linear transformations. The rank nullity theorem. Change of basis. Dual space, Bidual space and natural isomorphism. Adjoint of a linear transformation. Eigenvalues and eigenvectors of a linear transformation Diagonalisation. Annihilator or a Subspace Bilinear, Quadratic and Hermitian forms.

### Section - IV (2 Question)

Inner product spaces-Cauchy-Schwarz inequality. Orthogonal vectors. Orthogonal Complements. Orthonormal sets and bases. Bessel's inequality for finite dimensional spaces. Gram-Schmidt Orthogonalization process. Modules.

submodules. Quotient Modules. Homeomorphism and Isomorphism theorems.

**Note:** The examiner is requested to set ten questions in all, selecting questions section-wise as indicated in the syllabus. The candidate is required to attempt five questions selecting at least one question from each section.

**Books Recommended:**

1. I.N. Herstein : Topics in Algebra, Wiley Eastern Ltd. New Delhi, 1975.
2. N. Jacobsen: Basic Algebra Vols. I & II, W.H. Freeman, 1980 (also published by Hindustan Publishing Company.
3. P.B. Bhattacharya, S.K. Jain and S.R. Nagpal : Basic Abstract Algebra (2nd edition.)
4. K. Hoffman and R. Kunze, Linear Algebra, 2nd Edition.
5. S.K. Jain, A. Gunawardena & P.B. Bhattacharya : Basic Linear Algebra with MATLAB.
6. Vivek Sahai and Vikas Bist: Algebra, Narosa Publishing House.
7. I.S. Luther and I.B.S. Passi: Algebra, Vol. I, Groups Vol. II Rings, Narosa Publishing House.



**Paper-III BM 303 : Programming in C and Numerical Analysis**

**(Theory & Practical)**

**(Non Programmable Scientific Calculator is allowed in this paper)**

Max. Marks : 20

Internal Assessment: 14

Time: 3 Hours

**Section-I (3 Questions)**

Programmer's model of a computer. Algorithms. Flow Charts. Data Types Arithmetic and Input/Output instructions. Decisions control structures. Decision statements Logical and conditional operators. Loop Case control structures. Functions Recursions Preprocessor. Arrays Puppeting of strings. Structures. Pointers. File formatting.

**Section-II (3 Questions)**

Solution of Equations: Bisection, Sectim, Regular Falsi Newton's Raphson's Method, Newton's iterative method for finding p the root of a number, Order of convergence of above methods.

Interpolation: Language and Hermite Interpolation, Divided differences. Difference Schemes, Interpolation Formulas using Differences.

Numerical Differentiation.

Numerical Quadrature: Newton-Cote's Formulas, Trapezoidal rule, Simpson's one-third and three eight rule, Gauss Quadrature formulas. Chebychev's Formulas.

Numerical Differentiation.

Numerical Quadrature: Newton-Cote's Formulas, Trapezoidal rule, Simpson's one-third and three eighth rule, Gauss Quadrature formulas. Chebychev's Formulas.

Algebraic: Gauss-elimination method, Gauss-Jordan method, Simultaneous linear Linear Equations Triangularization method (LU Decomposition), Crait's method, Cholesky Decomposition, iterative methods. (Jacobi, Guass-Seidel, Relaxation Methods.)

Algebraic Eigenvalue problem: Jacobi's Method, Given's Method. Heusehold Method, Power Method, QR Method Lanczos' Method.

### Section-III (2 Questions)

Numerical solution of Ordinary Differential Equations: Euler Method modified Euler's method, Single -step Methods, Picard's method, Taylor's series method Runge-Kutta's Method, Multi-step Methods Predictor-Corrector method.

Approximation: Different types of Approximation, Least Square Polynomial Approximation, Polynomial Approximation using Orthogonal Polynomials, Approximation with Trigonometric Functions. Exponential Functions, Chebychev polynomials Rational Functions.

### Section - IV (2Question)

Random number generation congruential generators, statistical tests of pseudorandom numbers.

Random variate genention, inverse transform method, Composition method, acceptance rejection method, generation of exponential, normal variates; binomial and poisson variates.

Monte Carlo integration, hit or miss Monte Carlo integration, Monte Carlo integration for improper integrals, error analysis for Monte Carlo integration.

**Note:** The Examiner is required to set ten questions in all, selecting questions section-wise as indicated in the syllabus. The candidate is required to attempt five questions selecting + at least one question from each section.

**Practicals** Practical in C is based on Numerical Analysis as in Section-II and III above.

### Books Recommended :

1. B.W. Kernighan and DM. Ritchie, The C programming Language, 2nd Edition.
2. V. Rajaraman, Programming in C, prentice hall of India, 1994.
3. Byron S. Gottfried, Theory and problems of Programming with C, Tata McGraw Hill Publishing Co. Ltd. 1998.
4. C.E. Froberg. Introduction to Numerical Analysis (2nd Edit ion).



5. Melvin J. Maron, Numerical Analysis : A Practical Approach, Macmillan Publishing Co, Inc, New York.
6. M.K. Jain, S.R.K. Lyengar, R.K. Jain, Numerical Methods-Problems and solutions, New Age international (P) Ltd. 1996.
7. M.K. Jain, S.R.K. Lyengar, R.K. Jain, Numerical Methods for Scientific and Engineering Computation, New Age International (P) Ltd., 1999.
8. R.Y. Rubinstein : Simulation and the Monte Carlo Methods, John Wiley, 1981.