

**RANI CHANNAMMA UNIVERSITY, BELAGAVI**  
**DEPARTMENT OF STUDIES IN ECONOMICS**

**III SEMESTER- SYLLABUS**

**W.E.F 2018-19**

**Paper No: 3.1: ECONOMICS OF GROWTH AND DEVELOPMENT –I (Compulsory/ Hard Core)**

**Objectives:**

- 1) To Study the various Growth Models.
- 2) To analyze the impact of Growth Models on output, income and employment both in Developed and Developing Countries.

**Module 1: Theories of Development-I**

Classical Theory of Development- Adam Smith, Ricardo, Malthus, James Mill; Karl Marx and Development of Capitalistic Economy-Theory of Social Change, Surplus Value and Profit; Crisis in Capitalism; Marx's model and under developed countries

**Module 2: Theories of Development-II**

Schumpeter and Capitalistic Development; Circular Flow, Innovations;-Role of Credit, Profit and Degeneration of Capitalism; critical appraisal, Business-Cycle or crisis.

**Module 3: Approaches to Development**

Vicious Circle of Poverty, Rostow's Theory of Growth, Unlimited Supply of Labour; Lewis, Ranis and Fei Models; Balanced and Unbalanced Growth Strategies; Critical Minimum Effort Thesis. Nurkse Theory of Disguised unemployment.

**Module4: Economic Growth-I**

Economic Growth and Inclusive Growth- Factors Affecting Economic Growth; modern economic growth, characteristics of modern economic growth; Growth Models-Harrod-Domar; Neo-Classical Growth Models-Solow and Meade, Joan Robinson's Growth Model;

**Module 5: The Models of Technical Change**

Technological Progress—Embodied and Disembodied Technical Progress; Hicks; Harrod; Technological progress and economic development; Transfer of technology to under

development countries; Choice of Appropriate Technology; Intermediate Technology; Brain Drain; Technological Development in India.

**Reading List:**

1. Adelman, I. (1961): Theories of Economic Growth and Development, Stanford University Press, Stanford.
2. Brown, M. (1996): On the Theory and Measurement of Technical Change, Cambridge University Press, Cambridge, Mass.
3. Chenery, H.B et. al.(Eds.) (1974): Redistribution with Growth, Oxford University Press, Oxford.
4. Dasgupta, P. (1993): An Enquiry into Well-being and Destitution, Clarendon Press, Oxford.
5. Ghatak, S. (1986): An Introduction to Development Economics, Allen and Unwin, London.
6. Gillis, M., D.H. Perkins, M. Romer and D.R Snodgrass (1992): Economics of Development, (3<sup>rd</sup> Edition), W. W. Norton, New York.
7. Higgins, B. (1959): Economic Development, W.W. Norton, New York.
8. Meier, G.M. (1995): Leading Issues in Economic Development, (6<sup>th</sup> Edition), Oxford University Press, New Delhi.
9. Todaro, M.P. (1996): Economic Development, (6<sup>th</sup> Edition), Longman, London.
10. Thirlwal, A.P. (1999): Growth and Development, (6<sup>th</sup> Edition), Macmillan, U.K
11. Belagavi District Human Development Report, Zilla Panchayat, Belagavi.

**Paper No: 3.2: MATHEMATICS FOR ECONOMICS  
(Compulsory/Hard Core)**

**Objectives:**

- 1) To Train the Students in Basic Mathematical skills
- 2) To enable them to apply the Mathematical Techniques to economic problems

**Module 1:**

Importance of Mathematical and Statistical Methods in Economic Analysis; Review of some Concepts; Algebraic Expressions; Equations; Exponents; Ratio; Proportion; Compound Interest Formula; Graphs of Lines and Non-Linear Equations; System of Simultaneous Equations; Market Equilibrium of Single and Multi Commodity System; Effects of Specific Tax on Equilibrium Price and Quantity; Equilibrium Analysis of National Income and IS-LM Model.

**Module 2:**

Concept of Function and Types; Limit, Continuity and Derivatives; Rules of Differentiation; Marginal Concept; Marginal Cost; Revenue; Utility; Elasticities and Types; Partial Differentiation and Applications.

**Module 3:**

Problems of Maxima and Minima in Single and Multivariable Functions; Unconstrained and Constrained; Optimization in Simple Economic Problems; Concept of Integration; Some Simple Rules of Integration and Applications to Consumer's Surplus and Producer's Surplus.

**Module 4:**

Determinants and their Basic Properties; Solution of Simultaneous Equations through Cramer's Rule; Concept of Matrix and Types; Matrix Inverse and Rank of a Matrix; Introduction to Input-Output Analysis.

**Module 5:**

Linear Programming – Basic Concepts; Formulation of a Linear Programming Problem; Its Structure; Variables; Feasible, Basic and Optional Solutions; Graphical and Simple Method of Solving a Linear Programming Problem; Formulation of the Dual Linear Programming and its Interpretation.

**Reading List**

1. Barry Bressler: A unified Introduction to Mathematical Economics McGraw Hill New Delhi.
2. Chaing.A.C. (1986): Fundamental Methods of Mathematical Economics. McGraw Hill, New York.
3. Edward T. Dowling (1992): Introduction to Mathematical Economics: Schaum's Outline Series Tata Mc Graw Hill, New Delhi.
4. J.Black and J.F.Bradley: Essential Mathematics for Economists. John Wiley and Sons. London.
5. Monga G.S. (1972): Mathematics and statistics for Economists. Vikas Publishing House, New Delhi.
6. Veerachamy R. (2002): Quantitative Methods for Economists. New Age International Publishers, Bangalore.

**Paper No: 3.3: STATISTICS FOR ECONOMICS  
(Compulsory/Hard Core)**

**Objectives:**

- 1) To provide basic inputs of applied statistics.
- 2) Application of Statistical tools in applied economics.

**Module 1:**

Sources of Data; Primary and Secondary Data; Schedules and Questionnaires; Meaning of Sampling and Sampling Techniques-Simple Random, Stratified and Systematic Random Sampling Methods; Tabulation and Frequency Distribution.

**Module 2:**

Measures of Central Tendency; Measures of Dispersion; Lorenz Curve; Coefficient of Variation; Probability and its Applications.

**Module 3:**

Correlation-Simple, Partial and Multiple Correlations; Measurement of Correlation; Rank Correlation; Regression Analysis; Regression Equations; Cause and Effect Relationship; Formulation of Statistical Hypotheses; Type I and Type II Errors; Some Statistical Tests of Significance, Z, T and F Tests and their Applications.

**Module 4:**

Analysis of Time Series; Components of Time Series-Trend, Seasonal, Cyclical and Irregular Variations; Estimation of Trend Values; Fitting of Straight Lines by Least Squares Method.

**Module 5:**

Index Numbers- Problems in the Construction of Index Numbers; Laspeyres', Pasche's and Fischer's Ideal Index Numbers; Wholesale Price Index Numbers and Cost of Living Index Numbers.

**Reading List:**

1. B.N.Gupta, (1992): Statistics Theory and Practice. Sahitya Bhavan, Agra.
2. Goon AM, M.K.Gupta and B.Dasgupta.: Fundamentals of Statistics, Vol.1, The World Press, Ltd, Calcutta.
3. Nagar,A.L.and R.K.Das: Basic Statistics Oxford University Press, New Delhi.
4. S.C.Gupta (1982): Fundamentals of Statistics Himalaya Publishing House, Bombay.
5. S.P.Gupta, Statistical Methods, S.Chand & Company, New Delhi

**Paper No: 3.4: RESEARCH METHODOLOGY AND DATA ANALYSIS (Compulsory/ Hard Core)**

**Objectives:**

- 1) To impart adequate knowledge of research methodology and project designing
- 2) To develop original thinking and writing skills

**Module 1: Foundations of Research**

Scientific and Social Science Research-nature, objectives and limitations; Types and methods of research; Review of literature- Need for reviewing literature-sources of literature; Research Design Identification and conceptualization of a research problem-objectives and hypotheses.

**Module 2: Methods of Data Collection and Sampling**

Meaning and importance of data; Methods of collecting primary and Secondary data; Sampling techniques-sample size, Sampling error and problems in Sampling; tools of Data collection-schedules and questionnaires; Nature of field Work-pilot study-sampling frame and sample selection.

**Module 3: Editing and Processing of Data**

Preparation for Analysis, Editing, Coding, Classification & Transcription of Data, Tabulation, construction of Frequency Table, Graphs/Charts/ Diagrams

**Module 4: Statistical Analysis of Data**

Statistical Analysis of Data, Measures of Central Tendency, Dispersion, Relationship, Chi Square test, ANOVA, Testing of Hypothesis (Parametric and non parametric), Multivariate Analysis

**Module 5: Report writing**

Types of reports; Steps in report writing; Format of the research report; Principles of writing; Documentation, foot notes and bibliography

**Reading List:**

- 1) Goode, William J and Hatt, Paul K (1952) "Methods in Social Research" McGraw-Hill Book co. New York.
- 2) Sharma, B A V and others (Ed) (1984) "Research Methods in Social Sciences" Sterling Publishers, New Delhi.
- 3) Cochran, W G (1963) "Sampling Techniques" John Wiley & Sons, New York
- 4) Krishnaswamy, O.R. and Ranganathan, M. (2005) Methodology of Research in Social Sciences, Himalaya Publishing House, Bangalore.

- 5) Wilkinson, S. and Bhandarkar, P.L. (1977) “Methodology and Techniques in Social Research”, Himalaya Publishing House, Bombay.
- 6) Thanulingom, N. (2000), “Research Methodology” Himalaya Publishing House Bangalore.
- 7) Sadhu, A.N. and Singh, Amarjit –(1983), “Research Methodology in Social Sciences” Himalaya Publishing House Mumbai.

**Paper No: 3.5.1: ADVANCED ECONOMETRICS  
(Specialization /Optional/Soft Core)**

**Objective:**

The course is designed to develop a deeper understanding of the econometric techniques, which could be successfully used for improving the quality of economic discussions. The students will study this course with an advanced approach.

**Module 1:**

The K-variable Linear Model- Assumptions, Estimation, (method of OLS), Properties of Estimation, Goodness of Fit, Coefficient of Determination  $R^2$  and Adjusted  $R^2$ , Hypothesis testing.

**Module 2:**

Simultaneous- Equation Model- Nature, Simultaneous Equation Bias, Structural and Reduced Form of Models, The Identification Problems- Rules for Identification, Test for Simultaneity, Tests for Exogeneity.

**Module 3:**

Simultaneous Equation Methods- Approaches to Estimation-Recursive Models and OLS, The methods of IV, ILS, 2SLS, MLM(LIMLM, FIMLM)

**Module 4:**

Non-linear Regression- The Newton Raphsan Method, The Gauss-Newton Method Models of Expectations, Naïve Models, Adoptive Expectations Model, Rational Expectation Models

**Module 5:**

Time Series Econometrics- some basic concepts, Stochastic Process, Tests of Stationarity Unit Root Test, Cointegration, ECM, Some Economic Applications

## Reading List

1. Damodar Gujarathi,(2004): Basic Econometrics, Tata McGraw Hill, Bombay
2. Jonston, J. (2000): Econometric Methods, McGraw Hill, New York.
3. Maddala, G.S.(2000): Econometrics Methods and Applications, Alder Shot, U.K.
4. Theil, H(1971): Principles of Econometrics(Wiley: New York)
5. Patricia, E Gaynor and R.C. Kirkpatric(1994): Introduction to time Series Modeling and Forecasting in Business and Economics, McGraw Hill, New Delhi.

## Paper No: 3.5.2: ECONOMICS OF EDUCATION

(Specialization /Optional/Soft Core)

### Objective:

The paper attempts to equip the students with basics of human capital, economics of education-costs and benefits, approaches to educational and manpower planning, pattern of educational financing and subsidies and educational system and progress in India.

### Module 1: Human Capital and Development

Concept and Origin of Human Capital; Components of Human Capital; Nexus between Human Capital, Physical Capita and Natural Capital; Theory of Investment in Human Capital; Concept and Dimensions of Human Development; Growth Accounting Equations of Denison and Schultz

### Model 2: Economics of Education

Meaning of Economics of Education, Demand for Education–Private Demand and Social Demand; Determinants of Demand; Costs of Education–Expenditure on Education; Private Costs and Social Costs; Benefit of Education– Direct and Indirect Benefits; Private and Social Benefit; Cost–Benefit Analysis.

### Model 3: Educational and Manpower Planning

Approaches to Educational Planning- Social Demand approach; The Rate of Return Approach; The Manpower Requirement Approach; The Tinbergen Model; The Bowels model; The Adelman Model

### Model 4: Educational Financing and Subsidies

Resource Mobilization and Financing, the balance between the Public and Private Financing;; Pricing and Subsidies-The argument for Public Subsidy, Effects of Educational Financing on Equity and Efficiency; Education and Labour Market – Effects of Education, Ability and Family Background on Earnings, Poverty and Income Distribution, Education and Employment (The Path Model Analysis).

## Module 5: Education and Economic Development in India

Objectives of Educational Planning; A Review of Educational Development in India – Primary, Secondary, Vocational, Higher, Technical and Adult Education; Educational Policy in India; Expenditure on Education and Improvement in Literacy in India; Educational Development and Employment in India.

### Reading List

1. Aggarwal and Aggarwal (1992): Educational Planning in India, Vol. I, Delhi.
2. Chandra, Prasanna (1995): Project: Planning, Analysis, Selection, Implications and Review, Tata McGraw-Hill Publishing Company Limited, New Delhi.
3. Heggade, O. D. (): Economics of Education, Himalaya Publishing house, Bombay.
4. McMohan, W. W. (1999): Education of Development: Measuring the Social Benefit, Oxford University Press, Oxford
5. Nanjundappa, D. M.: Finance and Management of Higher Education, Deep and Deep, New Delhi
6. Psacharopoulos, George and Maureen Woodhall (1985): Education for Development: An Analysis of Investment Choice, Oxford University Press. Pandit, h. n. (1968)
7. Psacharopoulos, George (1987): Economics of Education: Research and Studies, (Ed.), Pergamon Press, New York.
8. Rao, V.K.R.V (1966): Education and Human Resources Development, Allied Publishers Bombay.
9. Shah, K. R. (1997): Essays on Economics of Human Resource, Spellbound Publications, Rohtak.
10. Shri Prakash (1994): Cost of Education: Theoretical Exploration and Empirical Prognostication, Deep and Deep Publications, New Delhi.
11. Tilak, J, B.G. (1987): The Economics of Inequality in Education, Sage Publishers, New Delhi
12. Tilak, J.B.G. (1994): Education for Development in Asia, Sage Publications, New Delhi
13. Vaizey, Johan (1962): The Economics of Education, Faber and Faber, 24 Russell Square, London.
14. Woodhall, M. (1992): Cost-Benefit Analysis in Educational Planning, UNESCO, Paris



**Paper No: 3.5.3: DEMOGRAPHY  
(Specialization /Optional/Soft Core)**

**Objectives:**

- 1) To enable the students to understand various demographic theories
- 2) To know the composition and dynamics of population across the world.

**Module 1:**

Nature and Scope of Demography-Basic Concepts in Demography; Population Theories-Pre- Malthusian, Malthusian and Post- Malthusian Theories; Theory of optimum Population; Theory of Demographic Transition.

**Module 2:**

Fertility, Nuptiality and Mortality -Factors Accounting for Changes in fertility and Mortality in the developed (DCs) Countries and Less Developed (LDCs) Countries; Infant Mortality- Characteristics of Infant Mortality Factors Affecting, Foetal and Infant Mortality.

**Module 3:**

Migration and Urbanization – Basic Concepts, Importance of Migration in the Study of Population; Types of Migration – Levels, Trends and Differentials in the DCs and LDCs

**Module 4:**

Effect of In-migration and Out-migration on the Growth of Population-Factors Affecting Migration- Theories Concerning Internal Migration-Urbanization , Todaro Model: Distribution and Growth of Urban and Rural Population in DCs and LDs; Levels and Trends of Urbanization in DCs and LDCs and Particularly in India.

**Module 5:**

Population Policies and their Impact on Fertility in DCs and LDCs; Nature, Scope and Need for Population Education; Demographic Trends in India; Population of India from 1971 to 2001 Censuses; and Family Welfare Programmes in India; The New Population Policy of India.

## Reading List

1. Kammeyar Kenneth (ed) (1975): Population Studies, Rand McNally, Chicago
2. UNO (1975): The Determinants and Consequences of Population Trends, UNO Publication New York.
3. Government of India: Population Census Reports since 1951.
4. Ashish Bose: Pattern of Population Change in India, Vikas Publishing House, New Delhi.
5. Ashish Bose, P.B. Desai, A Mitra and T.N. Sharma: Population in India's Development, Vikas Publishing House, New Delhi.
6. Aggarwal, S.N.: India's Population Problems, Tata McGraw Hill, Bombay.
7. Choubey, P. K. (2000): Population Policy in India, Kanishka Publication New Delhi.

## Paper No: 3.5.4: WELFARE ECONOMICS (Specialization/Optional/Soft Core)

### Objective:

The course aims at equipping the student with necessary concepts and skills to evaluate a given policy of the government from the point of view of its impact on socio-economic welfare.

### Module- 1: Pre-Paretian Welfare Economics

Benthamite Approach to Aggregate Welfare; Optimum Resource Allocation and Welfare Maximization; Assumption of Uniform Income-Utility Function of Individuals; Question of Income Distribution; Issue of Interpersonal Comparisons of Utility; Marshallian Welfare Economics; Consumer Surplus-Measurement of Consumer's Surplus, Difficulties Involved, Criticism; Principle of Compensating Variation; Hick's Four Consumer's Surplus; **consumers surplus and Tax Bounty.**

### Module- 2: Paretian Welfare Economics

Pareto Optimality-Optimum Exchange Conditions; Production Optimum, Consumption Optimum; Concept of Contract Curve; Top Level Optimum; Infinite Number of Non Comparable Optima, Vs. Unique Social Optimum;

### Module 3: New Welfare Economics

Compensation Criteria—Contributions of Barone, Kaldor, and Hicks; Scitovsky Double Criterion; Concept of Community Indifference Map; Samuelson's Utility Possibility Curve; Value Judgments and Welfare Economics; Bergson's Social Welfare Function, Arrow's Impossibility Theorem; Sen's Contribution to Welfare Economics.

### Module- 4: Later Developments

Divergence Between Private and Social Costs; Problems of Non-Market Interdependence; Externalities of Production and Consumption; External Economies and Diseconomies; Problem of Public Goods; Pigovian Welfare Economics; Second Best Optima;

### **Module 5: Policy Appraisal**

Marginal Cost Pricing; Cost—Benefit Analysis; Interdependent Utilities; Attempts to Develop Dynamic Welfare Analysis.

#### **Reading List**

1. Arrow, K. J. (1951): Social Choice and Individual Values, Yale University Press, New Haven
2. Baumol, W.J. (2001): Welfare Economics, Edward Elgar Publishing Ltd. U.K.
3. Broadway, R.W. and N. Bruce (1984): Welfare Economics, Basil Blackwell, Oxford.
4. Ng. Y.K. (1979): Welfare Economics, Macmillan, London.
5. Nicholas, B. (Ed) (2001): Economic Theory and Welfare State, Edward Elgar Publishing Ltd. U.K.
6. Little, I.M.D. (1939): A Critique of Welfare Economics, (2<sup>nd</sup> Ed), Oxford University Press, Cambridge.
7. Pigou, A.C. (1962): The Economics of Welfare, (4<sup>th</sup> edition) Macmillan.
8. Henderson and Quandt: Microeconomics.

### **Paper No: 3.6.1: KARNATAKA ECONOMY (Open Elective)**

#### **Objectives:**

- 1) To study the present Socio-economic position of Karnataka economy
- 2) To identify the problems of the measures adapted by the Govt. of Karnataka to redress them

#### **Module 1: Introduction**

Karnatak in the Indian Economy-Natural Resources-Trends in State income and Per -capita income-Net District product-Human Development in Karnataka-Anti-Poverty and Employment generation Programmes.

## **Module 2: Agricultural Development**

Land use Pattern in Karnataka-Trends in Area, Production and yield of Major crops-Regional Pattern of Agricultural Production –Horticultural/plantation crops, Vegetables, Fruits-floriculture-Sericulture-Live Stock economy-An analysis of Factors of agriculture growth (Institutional and Technological)-Agrarian Crisis.

## **Module 3: Industry and Infrastructure**

Industrial Development –Major industries of Karnataka-Policies and Programmes Power-Availability and crisis- Financial Institutions-Co-operatives, Commercial banks-RRBs-KSFC and KSIIDC-IT industry in Karnataka.

## **Module 4: State Finances**

Trends in source of Finance-Revenue and Non-Revenue Sources-Sharing of Central Taxes and Grants-in aid-Trends in Expenditure Pattern-Development and Non-Development-Trends in Indebtedness of the State

## **Module 5: Regional Imbalances and Planning**

Extent of Disparities, causes and consequences-Concept of Backward Area-criteria and Identification of backward areas-Measures to reduce imbalances –High Power Committee Recommendations-Objectives and Strategies of planning-Targets and achievements of plans-Decentralized planning in Karnataka-Panchyat Raj-Planning machinery-Financing and Implementation.

## **Reading List**

- 1) Hemalatha Rao. (1996): Regional Disparities and Development in Karnataka.
- 2) M.V.S. Gowda and D.T.N. Gowda (1999): Economic Development of Karnataka- Leading issues.
- 3) Puttaswamaiah (1986): Karnataka: A Treatise in Development and change Vol. I and Vol. II.

## **Documents**

- 1) Government of Karnataka-Economic Survey
- 2) Government of Karnataka-Karnataka at a Glance
- 3) Government of Karnataka-District Socio-Economic Indicators
- 4) Government of Karnataka-Budget Papers
- 5) Government of Karnataka-Five Year plan Documents
- 6) Belagavi District Human Development Report, Zilla Panchayat, Belagavi.

## **Paper No: 3.6.2: RURAL DEVELOPMENT (Open Elective)**

### **Objectives:**

1. To understand the basics of rural development, including characteristics, problems, theories and programmes of rural redevelopment
2. To study the trends and patterns of economic diversification in rural areas;
3. To study the role of infrastructural facilities in rural development and
4. To enable the people to take active participation in main stream development process in rural areas with adequate information and skills required

### **Module 1:**

Nature and Scope of Rural Development Need for Rural Development; Concept, Objectives and Indicators of Rural Development; Characteristics of Rural Economy- Concepts of inclusive development and sustainable development.

### **Module 2:**

Poverty and Unemployment in Rural India Rural Poverty- Concept, Extent, Regional Pattern and Causes of Poverty; Farm and Non-farm employment; Concept, and Types of of employment; Extent, Review of Poverty Alleviation and Employment Generation Programmes in India.

### **Module 3:**

Diversification of Agriculture-Dairy Farming, Fishery, and social Forestry; Rural Industrialisation- Importance, Programmes, Progress and Problems of Small- Scale and Cottage Industries and Remedial Measures.

### **Module 4:**

Rural Infrastructure- Meaning and importance, Educational and Health infrastructure; Housing and Sanitation; Drinking Water Supply; Rural Transport and Communication; Rural Energy; Rural Electrification.

### **Module 5:**

Panchayat Raj Institutions Legislations powers, Functions and sources of revenue- Role of N.G.Os in rural development

### **Reading List**

1. Biradar, R.R.(2008): Rural Non-Agricultural Employment in India: An Analysis of Its Determinants and Impact on Poverty and Inequality, Concept Publishing Company, New Delhi
2. Chadha, G. K. and A. N. Sharma (Eds) (1997): Growth, Employment and Poverty: Change and Continuity in Rural India, D K Publishers, New Delhi.
3. Chambers, R. (1983): Rural Development: Putting the Last First, Longman, Harlow.

4. Dandekar, V.M. and N. Rath (1971): Poverty in India, GIPE, Pune.
5. Dantwala, M. L. (1973): Poverty in India: Then and Now, 1870-1970, Macmillan, Bombay.
6. Dantwala, M. L. and Others (Ed) (1986): Indian Agricultural Development since Independence: A Collection of Essays, Oxford and IBH Publishing Co.Pvt. LTd. New Delhi.
7. Gupta. K .R. (Ed) (2003): Rural Development in India, Atlantic Publishers and Distributors, New Delhi.
8. Jain, Gopal Lal (1997): Rural Development, Mangal Deep Publications, Jaipur,.
9. Singh, Katar (1986): Rural Development: Principles, Policies and Management, Sage Publications, New Delhi, (Second Edition).
10. Karalay, G. N. (2005): Integrated Approach to Rural Development: Policies, Programmes and Strategies, Concept Publishing Company, New Delhi
11. Maheshwari, S. R. (1985): Rural Development in India, Sage, Publications New Delhi.
12. Satya Sundaram, I. (1997): Rural Development, Himalaya Publishing House, Delhi.
13. Mehta, Shiv R. (1984): Rural Development Policies and Programmes, Sage Publications, New Delhi.
14. Srinivasan, T. N. and P. K. Bardhan (Eds) (1974): Poverty and Income Distribution in India, Statistical Publishing Society, Calcutta.
15. Tyagi, B. P. (1998): Agricultural Economics and Rural Development, Jai Prakash Math and Co., Meerut.
16. Visaria, P. and R. Basant Ed) (1994): Non-Agricultural Employment in India: Trends and Prospects, Sage Publications, New Delhi.

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**IV SEMESTER- SYLLABUS**

**W.E.F 2018-19**

**Paper No: 4.1: ECONOMICS OF GROWTH AND DEVELOPMENT-II**  
**(Compulsory/ Hard Core)**

**Objectives:**

- 1) To Study the various Social and Institutional Aspects Development
- 2) To Analyze the modern Development theories and Macro Economic Policies

**Module 1: Social and Institutional Aspects of Development**

Concept of Development, Underdevelopment and Sustainable Development; Characteristics of Under development; Measuring Development and Under development, Human Development Index; HDI; HPI; GDI; GEM; DDI; Inequality of Income; Kuznets Hypothesis. Harris- Todaro Model of Development; Population as Limits to Growth; Theory of Demographic Transition; Issues in Good Governance.

**Module 2: Sectoral Aspects of Development**

Role of Agriculture in Economic Development; Marketable surplus and Economic Development; Industry and Economic Development; Complementary nature of Agriculture and Industry; Public Enterprises and Economic Development; Human capital and Economic Development; The Choice of Technology; Terms of Trade Between Agriculture and Industry, Infrastructure and importance.

**Module 3: Macro Economic Policies and Development**

Role of Monetary and Fiscal Policies in Developing Countries; Domestic Financing of Development; Inflation and Growth- Empirical Evidence; Foreign Trade; Foreign Direct Investment; MNC Activity in Developing Countries;

**Module 4: Allocation of Resources, Planning and Development**

Allocating investment resources-The Traditional approach; Need For Investment Criteria in Developing Countries—; Alternative Investment Criteria; Capital Turnover Criteria and Time Series Criteria; Concept of Planning; Need For Planning; Types of Planning; Planning under mixed Economy; Features of Indian Economic Planning.

**Module 5: Modern Theories of Development**

Dualistic Theories, Concept of Dualism-meaning, types and theories: Social Dualism, Technological Dualism and Financial Dualism.

### Reading List:

1. Bhagwati, J and P. Desai (1970): Planning for Industrialization, Oxford University Press
2. Chakravarthy, S. (1987): Development planning; The Indian Experiences, Clarendon Press, Oxford.
3. Jadhav, N. (1995): Monetary Economics for India, Macmillan, New Delhi.
4. Meir, G.M (1995): Leading Issues in Economic Development, Oxford University press, New Delhi.
5. Nayyar, D. (Ed.) (1994): Industrial Growth and Stagnation: The Debate in India, Oxford University Press, New Delhi.
6. Mehrotra, S.J. Richard. (1998): Development with Human Face. Oxford University Press, New Delhi.
7. Thirlwal (2000): Growth and Development, (6<sup>th</sup> Edition), Affiliated East- West Press, New Delhi.
8. Todaro, M.P. (1996): Economic Development in the Underdeveloped Countries, Oxford University Press, New York.
9. United Nations (1994): Human Development Report, United Nations, New York.
10. Belagavi District Human Development Report, Zilla Panchayat, Belagavi.

### Paper No: 4.2: BASIC ECONOMETRICS (Compulsory/ Hard Core)

#### Objective:

As economists rely more on econometrics techniques this course intends to develop the basic awareness of the fundamental techniques of econometrics with the intention of providing a thorough and sound foundation for future courses in econometrics.

#### Module 1:

Nature, Meaning and Scope of Econometrics; Methodology of Econometric Research

#### Module 2:

The Simple linear Regression Model, The two variable Model- Assumptions, Estimation (method of OLS), Properties of Estimation: Gauss-Makov Therem, Goodness of Fit  $R^2$  and Adjusted  $R^2$ , Hypothesis Testing.

#### Module 3:

Multiple Regression Analysis, The three variable Linear Regression Model- Assumptions, Estimation (method of OLS), Properties of Estimation  $R^2$  and Adjusted  $R^2$ , Hypothesis testing, ANOVA and its Applications to Regression Analysis



#### **Module 4:**

Regression Analysis in Practice, Problems of Multicollinearity Heteroscedasticity & Autocorrelation; Model specification error and Diagnostic Testing-Dummy variables- DLM Models – Simultaneous Equations Models.

#### **Module 5:**

Introduction to Time Series Analysis and Forecasting Introduction to Time Series data – Collecting Time Series data – Components of Time Series - Graphical presentation –Building Tools: Index Nos-smoothing Time Series, data frequency conversion and data transformation Forecasting – Introduction, Types, Methodology- Measuring accuracy of forecasting models .

#### **Reading List**

1. Damodar Gujarati,(2004) Basic Econometrics, Tata McGraw Hill Bombay
2. Koutsoyiannis (2000): Theory of Econometrics, Mac millan Publication London
3. Madani, G.M.K. (2000): Introduction to Econometrics: Principles and applications, Oxford University Publications.
4. Jilia Hebden(2000): Statistics for Economics, Heritage Publication, Oxford University.
5. Theil, H. (1978): Introduction to Econometrics Prentice-Hall: Englewood Cliffs,NJ)
6. Badi H. Baltagi (1999): Econometrics, Springer-Verlag Berlin Heidelberg New York
7. Patricia E Gaynor and Rickey C Kirk Patrick (1994): Introduction to Time Series and Forecasting in Business and Economics, Magraw Hill Publications.

#### **Paper No: 4.3: ECONOMICS OF ENVIRONMENT (Compulsory/ Hard Core)**

##### **Objectives:**

Environmental issues are becoming important in policy making and assessing the welfare of the societies. The application of economic tools and principles to environmental issues has gained lot of significance. Against this background, the paper aims at equipping the learner with suitable tools and techniques to analyze environmental problems, dissect their cause, evaluate the monetary consequence of policy intervention and suggest a suitable corrective action for the maximization of the outcome, ultimately leading to attainment of sustainable development.

##### **Module 1: Elements Environmental Economics**

Meaning, Nature and Scope of Environmental Economics; Elements of Ecology; Interaction Between Ecological and Economic Systems; Environment-Development-Poverty Nexus; Sustainable Development-Concept and Operationalization

##### **Module 2: Economics of Natural Resource Use**

Resource Taxonomy; Economics of Exhaustible Resources- Scarcity Rents, Hotelling's Theory of Optimum Depletion and Recent Developments; Economics of Renewable Resources;

Resource Scarcity as Limits to Growth; Pricing of Resources; Energy and Economic Development.

### **Module 3: Environmental Pollution (with special reference to India)**

Pollution as Externality; Extent, Causes and Consequences of Degradation of Land, Water, Forests and Air; Common Property Resources – Contributions and Management; Pollution Abatement; Theory of Environmental Regulation- Pigovian Taxes, Command and Control Versus Market Based Instruments, Standards, Quotas, Tradable Permits; Environmental Regulation System in India.

### **Module 4: Valuation of Environment**

Meaning; Alternative Methods of Valuing Costs of Environmental Damage and Benefits of Environmental Improvement- Objective, Subjective, Direct and Indirect Valuation Methods; Environmental Impact Assessment; Integrated Economic and Environmental Accounting.

### **Module 5: Global Environmental Issues**

Global Summits; Issues in International Trade and Environment; Climate Change-Extent, Impact, Adjustment and Mitigation; Global Environment Facility; Loss of Bio-diversity.

### **Reading List**

1. Bhattacharya, R. N. (Ed): Environmental Economics: An Indian Perspective Oxford University Press, New Delhi.
2. Baumol, W.J. and W.E.Oates: The Theory of Environmental Policy Cambridge University Press, Cambridge.
3. Daly, H.E.: Ecological Economics and Ecology of Economics
4. Hanley, N., J.F.Shogren, and B.White: Environmental Economics, Macmillan, New Delhi.
5. Hartwick, J.M and N Oliwiler: The Economics of Natural Resource Use Harper and Row, New York.
6. Karpagam, M: Environmental Economics: An Introduction Sterling Publishers, New Delhi.
7. Kerr and Others (Eds): Natural Resource Economics: Theory and Applications for India Oxford University Press, New Delhi.
8. Kolstad, C.D: Environmental Economics.
9. Sengupta, R: Ecology and Economics Oxford University Press, New Delhi.
10. Singh, Katar and Anil Shishodia; Environmental Economics; Theory and Applications, Sage Publications, New Delhi, 2007.
11. Tietenberg, T: Environmental and Resource Economics
12. World Bank: World Development Report, 1992: Environment and Development Oxford University Press, New Delhi

## **Paper No: 4.4: RURAL DEVELOPMENT**

### **Objectives:**

1. To understand the basics of rural development, including characteristics, problems, theories and programmes of rural redevelopment
2. To study the trends and patterns of economic diversification in rural areas;
3. To study the role of infrastructural facilities in rural development and
4. To enable the people to take active participation in main stream development process in rural areas with adequate information and skills required

### **Module 1:**

Nature and Scope of Rural Development Need for Rural Development; Concept, Objectives and Indicators of Rural Development; Characteristics of Rural Economy- Concepts of inclusive and sustainable development-meaning and importance.

### **Module 2:**

Theories and Approaches to Rural Development Unbalanced Growth Theory; Dualistic Models of Development- Lewis Model and Fei and Ranis Model; Approaches to Rural Development in India- Concepts of 'PURA'.

### **Module 3:**

Poverty and Unemployment in Rural India Rural Poverty- Concept, Measurement, Extent, Regional Pattern and Causes of Poverty; Farm and Non-farm employment Concept, Measurement Types and Extent, Review of Poverty Alleviation and Employment Generation Programmes in India.

### **Module 4:**

Diversification of Rural Economy, Diversification of Agriculture-Dairy Farming, Fishery, and New agricultural strategy social land reforms; Forestry; Rural indebtedness- Agricultural marketing and finance, Rural Industrialisation- Importance, Programmes, Progress and Problems of Small- Scale and Cottage Industries and Remedial Measures.

### **Module 5:**

Panchayat Raj Institutions Legislations powers, Functions and sources of revenue- Role of N.G.Os in rural development; Rural Infrastructure- Educational and Health infrastructure; Housing and Sanitation; Drinking Water Supply; Rural Transport and Communication; Rural Energy; Rural Electrification.

### **Reading List**

1. Biradar, R.R.(2008): Rural Non-Agricultural Employment in India: An Analysis of Its Determinants and Impact on Poverty and Inequality, Concept Publishing Company, New Delhi
2. Chadha, G. K. and A. N. Sharma (Eds) (1997): Growth, Employment and Poverty: Change and Continuity in Rural India, D K Publishers, New Delhi.
3. Chambers, R. (1983): Rural Development: Putting the Last First, Longman, Harlow.

4. Dandekar, V.M. and N. Rath (1971): Poverty in India, GIPE, Pune.
5. Dantwala, M. L. (1973): Poverty in India: Then and Now, 1870-1970, Macmillan, Bombay.
6. Dantwala, M. L. and Others (Ed) (1986): Indian Agricultural Development since Independence: A Collection of Essays, Oxford and IBH Publishing Co.Pvt. LTd. New Delhi.
7. Gupta. K.R. (Ed) (2003): Rural Development in India, Atlantic Publishers and Distributors, New Delhi.
8. Jain, Gopal Lal (1997): Rural Development, Mangal Deep Publications, Jaipur,.
9. Singh, Katar (1986): Rural Development: Principles, Policies and Management, Sage Publications, New Delhi, (Second Edition).
10. Karalay, G. N. (2005): Integrated Approach to Rural Development: Policies, Programmes and Strategies, Concept Publishing Company, New Delhi
11. Maheshwari, S. R. (1985): Rural Development in India, Sage, Publications New Delhi.
12. Satya Sundaram, I. (1997): Rural Development, Himalaya Publishing House, Delhi.
13. Mehta, Shiv R. (1984): Rural Development Policies and Programmes, Sage Publications, New Delhi.
14. Srinivasan, T. N. and P. K. Bardhan (Eds) (1974): Poverty and Income Distribution in India, Statistical Publishing Society, Calcutta.
15. Tyagi, B. P. (1998): Agricultural Economics and Rural Development, Jai Prakash Math and Co., Meerut.
16. Visaria, P. and R. Basant Ed) (1994): Non-Agricultural Employment in India: Trends and Prospects, Sage Publications, New Delhi.

**Paper No: 4.5.1: TIME SERIES MODELING AND FORECASTING  
(Specialization /Optional/Soft Core)**

**Objective:**

This course is designed to give a thorough, applied and simple to comprehend presentation of most of the procedures useful in modeling and forecasting time series data. Further it aims at familiarising the students with recent advances in time series analysis that have affected the developments of the theory of dynamic econometrics

**Module 1:**

An Introduction to Time Series; Correlation, Auto Correlation, & Partial Auto correlation: First Order Moving Average Process- Definition, Properties, Identification, Estimation and Forecasting, First Order Auto Regressive Process-Definition, Properties, Estimation & Forecasting; Mixed Auto Regressive Moving Average Models (ARMA) – Definition, Properties, Parameters, Estimation and Forecasting

**Module 2:**

Pure Moving Average Process of Higher Order- Properties Parameters Estimation and Forecasting; Pure Auto regression Process of Higher Order- Properties, Parameter, Estimation and Forecasting; Auto regressive Moving Average Models (ARMA) of Higher Order- Parameter Estimation and Forecasting

### **Module 3:**

An Introduction to Non-Stationary Univariate Time series Model-Non Deterministic Time Series, Testing, Developments of Non-stationary Univariate Time Series Models-ARIMA models, Applications

### **Module 4:**

Stationarity and Non Stationarity in Single Equation Regression Analysis- Co-integration (COI), Testing for Non Co-integration, Links between COI and Error correction Models, Estimation, Inferences and Simulations

### **Module 5:**

Multivariate Model & Cointegration Simple Multivariate models; Auto Regressive Conditional Heteroscedasticity Modeling Volatility-ARCH, GARCH; Modelling with seasonal time series data

### **Reading List**

1. Patricia, E Gaynor and R.C. Kirkpatrick(1994): Introduction to time Series Modeling and Forecasting in Business and Economics, McGraw Hill, New Delhi.
2. Gujarati, D. (2000): Basic econometrics, Mc Hill Pullution company, New York
3. Bowerman, B and R, O. Cannel (2000): time Series and Forecasting, Duxbury perm Boston.
4. Harvey, A. C. (2000): Econometric Analysis of Time Series, Phillip Allen, London.
5. Kerry Patterson: An Introduction to Applied Econometrics a Time series Approach, Macmillam Pvt. Ltd.
6. Sufi M. Nazem 1988: Applied Time Series Analysis for Business and Economic Forecasting, Marcell Dekker, Inc New York
7. Pindyck, R.S. and D.L. Rubinfeld(2000); Econometric Models and Economic Forecasts, McGraw Hill- Kogach Usha Tokyo.
8. Box, G.E.P. & G.M. Jenkin(2000): Time Series Analysis; Forecasting and Control, Holden-Day, San Francisco.

### **Paper No: 4.5.2: ECONOMICS OF HEALTH (Specialisation/Optional/Soft Core)**

#### **Objective:**

Attaining improved health and sustaining the economy is one of the key objectives of the current development trajectory. It is important to understand several issues relating to economics of health. The paper attempts to teach students the economics of health including concept, importance and measurement of health, financing and evaluation of health care services and nexus between development of health sector and economy in India.

## **Module 1: Introduction of Health Economics**

Concept of Health, Economics of Health and Why Health Economics; Scope of Economics of Health; Health as Commodity; Determinants of Health– Poverty, Malnutrition and Environmental Issues; Indicators of Health; Nexus between Health and Economic Growth

### **Model 2: Demand for Health**

Nature of Demand for Health, Determinants of Demand, Elasticity of Demand-Price and Income Elasticity; Models of Demand for Health

### **Model: 3: Supply of Health**

Nature of Supply of Health; Health Production Function; Pricing of Health Care Services-Drugs, Hospitals; Cost of Health Care Services; Market Failure; Externalities and Public Goods.

### **Model 4: Financing and Evaluation of Health Care Services**

Health Delivery Systems in India- Public and Private Financing of Health Care; Health Insurance and Co-operatives- Concept, Schemes and Progress; Expenditure on Health in India-Trends in Public and Private Expenditure; Public and Private Health Infrastructures; Evaluation of Health Services-Cost-Benefit Analysis (CBA), cost-Effectiveness Analysis (CEA), Cost-minimisation and cost-Utility analysis; Economic Reforms and Health Sector

### **Model 5: Economic Development and Health Attainments in India**

Life Expectancy- Concept, male-female and rural-urban life expectancy; Regional Pattern of Life Expectancy; Infant Mortality Rate- Concept and Trends in Infant Mortality rates; Maternal Mortality Rate: Concept and Trends in Maternal Mortality Rates; Fertility Rate-Concept and Trends in Fertility Rates; Illness Prevalence Rate (IPR); Crude Birth Rate and Death Rates; Nexus between Health and Economic Development.

### **Reading List:**

1. Baru, R.U. (1998): *Private Health Care in India; Social Characteristics and Trends*, Sage Publications, New Delhi.
2. Berman Peter (1991): *Health Economics, Health Financing and the Health Needs of Poor, Women, and Children*, Ford Foundation, New Delhi.
3. Berman, Peter and M. E. Khan (1993): *Paying for India's Health Care*, Sage Publications, New Delhi.
4. Zweifel, Peter and Friedrich Breyer (1997): *Health Economics*, Oxford University Press, New York.
5. Carrin Guy (1984): *Economic Evaluation of Health Care in Developing Countries: Theory and Applications*, Croom Helm, London
6. Charles Phelps (1991): *Health Economics*, Oxford University, Press, New York
7. Charles, C. Griffin (1992): *Health Care in Asia: A Comparative Study of Cost and Financing*, World Bank
8. Cooper, M. H. and Culyer, A. J. (1973): *Health Economics*, Penguin Book Ltd, England.
9. Adi, Mukta. S. "An Introduction to Health Economics", Current Publications, 2018.

10. Das Gupta M., Chen, L. C. and Krishna, T. N (1996): *Health, Poverty and Development in India*, Oxford University Press, Delhi.
11. Gopal, K. (1982): *Economics of Health and Nutrition*, Chaugh Publishers
12. Jack, William (1999): *Principles of Health Economics for Developing Countries*, World Bank, Washington DC.
13. Panchamukhi, P. R. (2002): *Economics of Health: An Introductory Review*, Reading Material, Indian Economic Trust
13. Panchamukhi, P. R. (1980): "Economics of Health: A Trend Report" in *ICSSR: A Survey of Research Economics, Vol. VI, Infrastructure*, Allied, Delhi.
14. World Bank (1987): *Financing Health Services in Development Counter: An Agent for Reform*.
15. World Bank (1993): *The World Development Report, 1993: Investing in Health*, Oxford University Press, New York.

**Paper No: 4.5.3.: ECONOMICS OF GENDER AND DEVELOPMENT  
(Specialization/Optional/Soft Core)**

**Objectives:**

- 1) To enable the Students to understand thoroughly the theories of Gender and Development.
- 2) To familiarize the students about the vital aspects of Gender and Development

**Module1: Introduction of Gender Studies**

Importance and Concepts of Women Studies- Women in Patriarchal and Matriarchal Societies and Sprinters, Patrilineal and Matrilineal Systems and Relevance to Present Day Society in India- Economic Basis and Functioning of Patriarchy in Developed and LDCs, Particularly India -Women in Decision Making.

**Module 2: Demographic Aspects of Female Population in India**

Demography of Female Population, Age Structure, Mortality Rates and Sex Ratio- Causes of Declining Sex Ratios and Fertility Rates in LDCs and Particularly India

**Module 3: Conceptualization of Women's Work**

Concept and Analysis of Women's Work; Valuation of Productive and Unproductive Work, Visible and Invisible Work, Paid and Unpaid Work; Economically Productive and Socially Production Work; Economic Status and Female Contribution to National Income

**Module 4: Women and Labour Market**

Factors Affecting Female Entry in Labour Market; Supply and Demand for Female Labour in Developed and Developing Countries; Particularly India, Studies of Female Work Participation in Organized and Unorganized Sectors in India.

## Module 5: Gender Planning and Development Policies

Gender and Development Indices; Mainstreaming Gender into Development Policies; Paradigm Shift from Women's Well Being to Women's Empowerment; Democratic Decentralization (Panchayats) and Women's Empowerment in India

### Reading List

1. Boserup, E (1970): Women's Role in Economic Development, George Allen and Unwin, London.
2. Desai, N. and M. K. Raj (Eds) (1979): Women and Society in India, Research Centre for women Studies, SNDT University, Bombay.
3. Government of India (1974): Towards Equality Report of the Committee on the Status of Women in India, Department of Social Welfare ministry of Education and Social Welfare, New Delhi.
4. Krishnaraj, .M.R.M. Sudarshan and A Shariff (1999): Gender, Population and Development, Oxford University Press, New Delhi.
5. Seth, M. (2000): Women and Development: The Indian Experience, Sage Publications New Delhi.
6. Agnihotri, S.B. (2000): Sex ratio in Indian Population: A Fresh Exploration, Sage Publications, New Delhi.
7. Papola , T.S. and A.N. Sharma (Eds) (1999): Gender and Employment in India, Vikas Publishing House, New Delhi.
8. Narasimham, S. (1999): Empowering Women: An Alternative Strategy from Rural India, Sage Publications, New Delhi.
9. Baud, I.S. A.(1992): Forms of Production and Women's Labour : Gender Aspects of Industrialization in India and Mexico, Sage Publication, New Delhi.
10. Carr M.C. Martha and R. Jhabvala (Eds) (1997): Speaking Out Women's Economic Empowerment in South Asia, Vistaar Publications, New Delhi.

## Paper No: 4.5.4: HUMAN RESOURCE MANAGEMENT

(Specialisation/Optional/Soft Core)

### Objectives:

- 1) To enable the Students to understand thoroughly the theories of HRM
- 2) To familiarize the students about the vital aspects of HRM.

### Module1: Introduction

Concept of HRM- Meaning, Objectives, Scope and its Importance; Economic and Non-Economic Factors and their Interactions, Distinction between Human Resource and Non-Human Resource



## **Module 2: Functions of HRM**

Functions of HRM; Planning, Recruitment and Selection, Training and Development, Compensation, Welfare and Industrial Relation Functions – Time Management and Stress Management.

## **Module 3: Human Resource Planning**

Human Resource Planning (HRP): Definition, Need and Process of HRP, Responsibility for HRP, Job – Analysis and its Components – Emotional Intelligence IQ V/S EQ.

## **Module 4: Appraisal**

Performance Appraisal: Need and Significance- Setting Employees Performance, Objectives and Goals; Creating Organizational Conditions for Improving Employee Performance.

## **Module 5: Human Resource Information System.**

The concept of HRIS; Sub- systems of HRIS, Functions of HRIS, Designing of HRIS; Applications of Computerised HRIS.

## **Reading List**

1. Wayne, F. Cascio (2000): Management Human Resources, Irwin.
2. Daniel Goleman (2000): Emotional Intelligence.
3. David Fortana (2000): Stress Management.
4. Shankar Digambar Bagade (2000): Time Management.
5. Jim Mathewinan (2000): Human Resource Planning, Jaico Publish House, Bangalore.
6. Holloway, J (2000): Performance Measurement and Evaluation, New Delhi, Sage.
7. Aswathappa, K (2000): Human Resource and Personal Management, Tata Mc Graw Hill New Delhi.

## **Paper No: 4.6: PROJECT/DISSERTATION (Compulsory/Hard Core)**

A Student is required to write a dissertation under the supervision of any one of the faculty members in the department on any current/ contemporary economic issues incorporating all the aspects of writing a dissertation like research problem, review of literature, objectives, data source and methodology, analysis of field work/secondary data, findings and policy interventions. And he has to submit the bounded volume on or before the last date of the closure of the term.

**M.A. ECONOMICS**  
**CHOICE BASED CREDIT SYSTEM**  
**Model Question Paper**

All the papers will have the same pattern of question paper. The question paper has 3 parts –A, B and C. Time Duration =3hrs

Max.Marks=80

Part-A

Short Answer questions

The Students will be asked to 10 questions out of 12 questions (Marks 2 each x 10 questions) Total Marks=20

Q 1. a.

b.

c.

-

-

k.

l.

Part-B

Medium Answer questions

The students will be asked to answer 5 questions out of 8 questions. (Marks 6 each x 5 questions) Total Marks=30

Q 2.

3

4

5

6

7

8

9

Part-C

Long Answer questions

The students will be asked to answer 3 questions out of 5 questions (Marks 10 each x 3 questions) Total Marks=30

Q 10.

11

12

13

14

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