SRI VENKATESWARA UNIVERSITY: TIRUPATI

S.V.U COLLEGE OF ARTS

DEPARTMENT OF ECONOMETRICS

Course

ECONOMETRICS

Choice Based Credit System (CBCS)

Academic Year 2017 – 18

VISION

The vision is to promote the publication of high-quality research works in the fields of Economic Theory, Econometrics, and Quantitative Economics more generally. Publications may range from more or less extensive accounts of the state of the art in a field to which the authors have made significant contributions, to shorter monographs representing important advances on more specific issues. In addition to the usual promotion by the Publisher in their advertising and displays at conferences, it also arranges for members of the Econometric Society to receive monographs at a special discount.

in the same way as for papers submitted to Econometrics. Our experience shows that this procedure generates quite valuable services to the authors. Referee reports are usually very professional, and contain detailed and specific suggestions on how to improve the manuscript. Such services, which are not normally offered by private publishing companies, are among the features that distinguish the Monograph Series of the Society from others.

MISSION

The department mission is to The Master of Arts programme in Econometrics has been designed with the objective to develop in-depth knowledge of students in frontier areas of economic theory and quantitative methods, so that they are able to use the knowledge to study real world economic problems. The course has a strong focus on theoretical and quantitative skills and train students in the collection and analysis of the data using their software skills. The programme offers specialized optional courses, which allow student to pursue their studies in their area of interest. The students are required to submit report and present their findings of field-study. Besides, to hone the student's writing and analytical skills they are required to submit a term paper on current economic problem. Thus, the Masters in Econometrics programme seek to: Supportive environment for all students.

PROGRAM OBJECTIVE

The basic objectives of our M.A Econometrics degree program. The department's research mission is to develop an environment conducive to promoting high-quality applied research. Applied research is work that informs policy at the global, national or local level, or that is useful in the conduct of business, or the administration of government or non-profit activities.

- to provide our students with appropriate analytical skills to lay the groundwork for lifelong learning;
- to enable our students to become policy-literate and thus be more informed as citizens;
- to encourage the use of experiential learning, including cooperative education, as a means to introduce students to the world of work, reinforce classroom teaching, and assist in the development and advancement of career goals;
- to prepare our students for successful careers as applied economists; and
- Prepare students to develop own thinking /opinion regarding current national or international policies and issues
- Create awareness to become a rational and an enlightened citizen so that they can take the responsibility to spread the governments' initiatives/schemes to the rural areas for the upliftment of the poor or vulnerable section of the society for inclusive growth.
- Motivating the learners to conduct investigations of multifaceted problems by applying research-based knowledge and different types of research methods including conducting of user studies and case studies in libraries, analysis and interpretation of data and synthesis of the information to get right solutions to the problems
- Inspiring the learners to learn ICT skills, Retrieval of various Electronic Resources

PO No	**Programme outcomes**
PO1	**Knowledge of Economic System:** Ability to understand economic theories and functioning of basic microeconomic and macroeconomic systems. Prepare students to develop own thinking /opinion regarding current national or international policies and issues.
PO2	**Statistical and Mathematical Skills:** Acquaint with collection, organization, tabulation and analysis of empirical data
PO3	**Econometric Applications:** Acquaint with basic and applied econometric tools and methods used in economics. The aim of this course is to provide a foundation in applied econometric analysis and develop skills required for empirical research in economics. It also covers statistical concepts of hypothesis testing, estimation and diagnostic testing of simple and multiple regression models.

PO4	**Development Perspective:** Delineate the developmental policies designed for developed and developing economics. The course also acquaint with the measurement of development with the help of theories along with the conceptual issues of poverty and inequalities.
PO5	**Environmental Strategy and management:** This course emphasis on environmental problems emerging from economic development. Economic principles are applied to valuation of environmental quality, quantification of environmental damages, tools of evaluation of environmental projects such as cost-benefit analysis and environmental impact assessments.
PO6	**Perspectives on Indian Economy:** Acquaint with basic issues of Indian economy and learn the basic concept of monetary analysis and financial marketing in Indian financial markets.
PO7	**Develop critical thinking:**Prepare students to develop critical thinking to carry out investigation about various socio-economic issues objectively while bridging the gap between theory and practice.
PO8	**Acquire Practical Knowledge:** Practical exercises done will enable students to analyze and interpret data and also to draw valid conclusions. This will enable students to face real time applications.
PO9	**Testing of Hypothesis:**Equip the student with skills to analyze problems, formulate a hypothesis, evaluate and validate results and draw reasonable conclusions thereof.
PO10	**Application in Real Life Problems:**Apply the concepts of statistics, Operations Research, Probability theory, Time Series, Designs of Experiment, etc. in real life problems.Perform, Assess and implement practical techniques and procedure to solve and understand the problems and analyze and quantify data collected during any project.
PO11	**Employment through Entrepreneurship:** Prepare students for pursuing research or careers that provide employment through entrepreneurship and innovative methods. Because today's unemployment problem can also be solved by developing the micro and small entrepreneurship.
PO12	**Create awareness**: create awareness to become a rational and an enlightened citizen so

	that they can take the responsibility to spread the governments' initiatives/schemes to the rural areas for the upliftment of the poor or vulnerable section of the society for inclusive growth.

PROGRAM EDUCATIONAL OBJECTIVE

- Understanding the basic assumptions in various econometric analysis, economic theories and enhance capabilities of developing ideas based on them
- Prepare and motivate students for research studies in Econometrics models especially by developing questionnaire, collecting primary data through field surveys
- Provide knowledge of a wide range of econometric techniques using excel or other statistical software
- Motivate students to extract or utilize different websites for secondary data collection, generating concepts for various facets of econometrics studies and gather latest informations provided by various Universities, UGC, or ICSSR
- Motivate students in preparing for various competitive examinations, NET, SET, Indian Economic Service etc., by developing or gaining value addition day by day by giving assignments, by following a routine or developing discipline / concentration etc

Semester – I

S. No	Code	TitleoftheCourse	Credit Hrs /Week	No. ofCredits	Core /Elective	IA	SEE	Total Marks
1	EMT 101	MicroeconomicTheoryI	6	4	Core	20	80	100
2	EMT 102	MacroeconomicTheoryI	6	4	Core	20	80	100
3	EMT 103	MathematicalMethods	6	4	Core	20	80	100
4	EMT 104	PracticalI	6	4	Core	20	80	100
5.	EMT 105	StatisticalMethods	6	4	CF	20	80	100
6.	EMT 106	HumanValuesandProfessionalEthics–I	6	4	EF	20	80	100
		Total	36	24		120	480	600

***AllCOREPapersareMandatory**

- **CompulsoryFoundation -Chooseonepaper**
- **ElectiveFoundation -Chooseonepaper.**
- **InterestedstudentsmayregisterforMOOCwiththeapprovaloftheconcernedDDCbutitwillbeconsideredfor theawardofthegrade asopenelectiveonlygiving extra credits.**

Semester–II

S. No	Code	TitleoftheCourse	Credit Hrs /Week	No. ofCredits	Core /Elective	IA	SEE	TotalMarks
1	EMT 201	MicroeconomicTheoryII	6	4	Core	20	80	100
2	EMT 202	MacroeconomicTheoryII	6	4	Core	20	80	100
3	EMT 203	BasicEconometrics	6	4	Core	20	80	100
4	EMT 204	Practical II	6	4	Core	20	80	100
5.	EMT 205	MathematicalEconomics	6	4	CF	20	80	100
6.	EMT 206	HumanValuesandProfessionalEthicsII	6	4	EF	20	80	100
		Total	**36**	**24**		**120**	**480**	**600**

***AllCOREPapersareMandatory**

- **CompulsoryFoundation -Chooseonepaper**
- **ElectiveFoundation-Chooseonepaper.**

InterestedstudentsmayregisterforMOOCwiththeapprovaloftheconcernedDDC butitwillbeconsideredfortheawardofthe grade asopenelectiveonlygiving extra credits.

Semester–III

S. No	Code	Titleofthe Course	Credit Hrs /Week	No. ofCredits	Core /Elective	IA	SEE	TotalMarks
1	EMT 301	***IndianEconomy***	6	4	Core	20	80	100
2	EMT 302	***EconomicsofInsurance***	6	4	Core	20	80	100
3	EMT 303	***AdvancedEconometrics***	6	4	Core	20	80	100
4	EMT 304	***ComputerApplicationsandData Analysis***	6	4	Generic Elective	20	80	100
5	EMT 305	***PublicFinance***						
6	EMT 306	***FinancialInstitutionsandMarkets***	6	4		20	80	100
7	EMT 307	***PracticalIII***						
8	EMT 308	IntroductiontoEconometrics	6	4	OpenElective	20	80	100
9	EMT 309	IndianEconomy						
10	EMT 310	EconomicsofInsurance						
		Total	**36**	**24**		**120**	**480**	**600**

*** AllCOREPapersareMandatory**

- **GenericElective-Choosetwo**
- **Open Electives are for the Students of other Departments. Minimum One Paper should be opted. Extra credits may beearnedbyoptingformore numberofopenelectivesdependingontheinterestofthestudentthroughself study.**
- **InterestedstudentsmayregisterforMOOCwiththeapprovaloftheconcernedDDC.**

Semester–IV

S. No	Code	TitleoftheCourse	Credit Hrs /Week	No. ofCredits	Core /Elective	IA	SEE	Total Marks
1	EMT 401	***InternationalTradeandFinance***	6	4	Core	20	80	100
2	EMT 402	***EnvironmentalEconomics***	6	4	Core	20	80	100
3	EMT 403	***AppliedEconometrics***	6	4	Core	20	80	100
4	EMT 404	***OptimizationTechniquesin Economics***	6	4		20	80	100

5	EMT 405	***TimeSeriesEconometrics***	6	4	Generic Elective	20	80	100
6	EMT 406	***PracticalIV EnvironmentalEconomics***						
7	EMT 407	Project						
8	EMT 408	***OptimizationTechniquesin Economics***	6	4	OpenElective	20	80	100
9	EMT 409	DataBasefortheIndianEconomy						
10	EMT 410	ActuarialStatistics						
		Total	**36**	**24**		**120**	**480**	**600**

*** AllCOREPapersareMandatory**

- **GenericElective-Choosetwo**
- **Open Electives are for the Students of other Departments. Minimum One Paper should be opted. Extra credits may beearnedbyoptingformore numberofopenelectivesdependingontheinterestofthestudentthroughself study.**
- **InterestedstudentsmayregisterforMOOCwiththeapprovaloftheconcernedDDC.**

EMT101	**MICROECONOMIC THEORY-I**		**4Credits**

Course Objectives: The objective of this course is to provide the basic knowledge of decision making, production of products, different market structure and pricing structure of the firms with the study of the subject in a Master's programme.

CourseOutcomes: Attheendofthe course, thestudentwillbeableto

CO1	The microeconomic theory is to analyze how individual decision-makers, both consumers and producers, behave in a variety of economic environments.
CO2	The common goal in all of these issues is to identify the incentives of the various participating agents and the trade-offs that they face.
CO3	Microeconomics is a branch of economics that studies the behavior of individuals and firms in making decisions regarding the allocation of scarce resources and the interactions among these individuals and firms.
CO4	Microeconomics shows conditions under which free markets lead to desirable allocations.
CO5	The fundamental concepts of supply and demand, rational choice, efficiency, opportunity costs, incentives, production, profits, competition, monopoly, externalities, and public goods will help you to understand the world around you.

Mappingofcourseoutcomeswiththeprogramoutcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2	-	1	1	-	2	2	-	1
CO2	3	2	2	2	-	1	1	1	2	2	1	2
CO3	3	3	2	-	2	1	1	-	2	2	-	-
CO4	3	2	3	2	-	1	1	-	2	2	1	-
CO5	3	2	1	-	1	2	-	1	1	2	-	1

Unit 1:Theory of Individual Decision Making

Theory of Demand - Consumer equilibrium under Indifference Curve Analysis – Applications of Indifference Curves - Slutsky Theorem – Revealed Preference Hypothesis - Choice under Uncertainty- Recent Developments in the Theory of Market Demand.

Unit 2: Theory of Production and Cost

Concepts of Production Function – Homogeneous Production Function - Least Cost Combinations of Factors – Cobb-Douglas and CES Production Functions – Frontier Production Function - Properties - Laws of Returns to Scale - Theory of Cost – Traditional and Modern theories of Cost.

Unit 3:Traditional Market Structures

Perfect Competition - Equilibrium, Short Run and Long Run considerations, Efficiency and Welfare – Monopoly – Price and output determination - Price Discrimination - Welfare and Output.

Unit 4: Modern Theories of Market

Monopolistic competition – Collusive and Non- Collusive Oligopoly: Cournot, Bertrand Stackelberg models - Nash equilibrium - Kinked Demand curve and Price Leadership models.

Unit 5: Limit Pricing and Managerial Theories of Firm

Bain's Limit Pricing: Recent developments – Sylos-Labini and Franco Modigliani Models - Baumol's Sales Maximisation: Static single product model with and without advertisements – Marris' model of Managerial Enterprise.

TEXT AND REFERENCE BOOKS:

1) J.M. Henderson and R.E. Quandt (2003) Micro-economic Theory: A Mathematical Approach, Tata McGraw Hill publishing company Ltd.
2) Hal R.Varian (1995), Intermediate Micro-econometrics: A Modern Approach, East West Press.
3) A. Deaton and J. Muellbauer (1987) Economics and Consumer Behaviour, Cambridge University Press.
4) A. Koutsoyiannis, (1979), Modern Micro-economics, London: Macmillan.

MAPPING….

Model Paper

M.A DEGREE EXAMINATION -2017-18

First Semester

Branch: ECONOMETRICS

Paper 101 – MICROECONOMIC THEORY – I

(UNDER CBCS Revised Syllabus from 2017-18)

Time: 3 Hours Max. Marks: 80

Section-A

Answer any FIVE questions

Each question carries 4 marks(5X4=20)

1. Explain the properties of Indifference curves.
2. Explain the statement 'Choice Reveals Preference'.
3. State any four properties of the Cobb-Douglas Production Function.
4. Explain the relatinship between average cost and marginal cost in the Modern Theory of Cost.
5. State the characteristics of perfect competition.
6. State the conditions for Price discrimination.
7. Explain the Cournot's model of Duopoly.
8. Explain the reason for kink in the Demand Curve of an Oligopolist firm.
9. What are the weaknesses of the Bain's theory of Limit Pricing?
10. State the assumptions of Marris' model of Managerial Enterprise.

PART –B

Answer ALL the questions

Each question carries 12 marks

11. (a) Discuss consumer's equilibrium under Indifference Curve analysis.

Or

(b) Explain how the price effect can be decomposed into substitution and income effects.

12. (a) Explain the relationship among various cost components in the traditional theory of cost.

Or

(b) Discuss the properties of CES Production Function.

13. (a) Discuss the price and output determination of a firm under perfect competition.

Or

(b) Explain the short – run and long run equilibrium of the firm under Monopoly.

14. (a) Critically examine Chamberlin's model of Monopolistic Competition.

Or

(b) Explain the Price Leadership model of the Dominant firm.

15. (a) Discuss Baumol's theory of Sales Maximisation.

Or

(b) Elucidate the Franco Modigliani model of Limit Pricing.

EMT102	**MACROECONOMIC THEORY-I**		**4Credits**

Course Objectives: The objective of this course is to provide the basic knowledge of the study of the aggregate economy. The primary goals of macroeconomics are to achieve stable economic growth and maximize the standard of living. The basic concepts in macroeconomics and the concepts of National Income, measurement of National Income and factors determining national income and problems in Estimation of National Income. The theory of Employment, consumption Function, investment Multiplier and Accelerator, IS-LM model with Government sector, Monetary and Fiscal Policies and effect of IS and LM curves; Kinds of investment and determinations of investment; the monetary policy and fiscal policy are tools used by the government to control economic performance and reach macroeconomic goals.

CO1	Define and explain the process of calculating national income, identify its components, demonstrate circular flow of income, analyse the various income identities with government and international trade, define the concept of green accounting.
CO2	Understand Say's law of market, classical theory of employment and Keynes objection to the classical theory, demonstrate the principle of effective demand and income determination.
CO3	Explain the meaning of consumption function, relationship between APC and MPC, consumption and income, concept of multiplier and analyse the theories of absolute and relative income hypotheses.
CO4	Understand the relationship between investment and savings, demonstrate investment multiplier, and understand the meaning of MEC and MEI. CO5. Illustrate the meaning of interest, analyse the various theories of interest

CO5	The goals are supported by objectives such as minimizing unemployment, increasing productivity, controlling inflation, and more. The macro economy of a country is affected by many forces, and as such, economic indicators are invaluable to assessing different aspects of performance.

Mappingofcourseoutcomeswiththeprogramoutcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2	-	1	1	-	2	2	-	1
CO2	3	2	2	2	-	1	1	-	2	2	1	2
CO3	3	3	2	-	2	1	1	-	2	2	-	-
CO4	3	2	3	2	-	1	1	-	2	2	1	-
CO5	3	2	1	-	1	2	-	1	1	2	-	1

Unit 1: Macro-Economics

Micro and Macroeconomics - Basic Concepts in Macroeconomics – Stocks and Flows - Statics, Comparative statistics and Dynamics – Micro Foundations of Macroeconomics -– Circular flow of National income.

Unit 2: National Income

Definition – Concepts of National Income – Measurement of National Income – Factors determining National income – National Income and Social Accounting - Methods of Estimation – Problems in Estimation of National Income – National Income and Economic Welfare.

Unit 3: Classical and Keynesian Economics

Classical Theory of Employment – Critique of Classical Theory – Basic Keynesian Model – Consumption Function – Investment Multiplier – Accelerator – Interaction between Multiplier and Accelerator - Integration of Monetary theory and Value theory – Don Patinkin theory – The Real Balance Effect – Pigou Effect.

Unit 4: Neo-Classical and Keynesian Synthesis

The IS-LM model – Extension of IS & LM model with government sector – Relative effectiveness of Monetary and Fiscal Policies –Shifts in IS and LM curves.

Unit 5: Savings &Investment

Kinds of investment – Determinations of investment - Investment demand and Output growth – Marginal Efficiency of Capital – Tobin's 'Q' Theory – Lags in Investment demand.

TEXT AND REFERENCE BOOKS:

1) Edward Shapiro, Macroeconomic Analysis, Galgotia Publications, New Delhi.
2) Keynes, J.M. 1936, General theory of Employment, Interest and Money.
3) Gardener Ackley, 1978, Macro-economic Theory - Theory and policy, Macmillan, New Delhi.

MODEL QUESTION PAPER

M.A DEGREE EXAMINTION
FIRST SEMESTER
BRANCH: ECONOMETRICS
Paper-102: MACROECONOMIC THEORY-I
(Under CBCS Revised Syllabus from 2017-18)

Time: 3 Hours Max. Marks: 80

Section-A
Answer any FIVE questions
Each question carries 4 marks
(5X4=20)

1. Expliain the basic concepts in Macroeconomics.
2. Write a note on Comparative Statics and Dynamics.
3. List out the problems in the measurement of National Income.
4. Is national income an adequate measure of welfare?
5. Explain the concept of Investment Multiplier.
6. Write a note on the consumption function.
7. Explain the concepts of Classical Range and Keynesian Range.
8. Explain the efects of shifts in Savings and Investments on the IS curve.
9. What are the determinants of investment?
10. Write a short note on Tobin's Q theory.

Section- B
Answer ALL the questions
Each question carries 12 marks
(5X12=60)

11. (a) Explain the Circular Flow of National Income in an economy.

Or

(b) Examine the Micro Foundations of Macroeconomics.

12. (a) Discuss the methods of estimation of National Income.

Or

(b) Explain different concepts of National Income and their usefulness.

13. (a) Critically examine the Classical Theory of Employment

Or

(b) Discuss the practical implications of the basic Keynesian model.

14. (a) Discuss the IS-LM model with government sector.

Or

(b) Elucidate the relative effectiveness of Monetary and Fiscal Policies.

15. (a) Explain the determinants of Marginal Efficiency of Capital

Or

(b) Distinguish between Autonomous and Induced investments and discuss the lags in investment demand.

EMT103	**MATHEMATICAL METHODS**		**4Credits**

Course Objectives: The course is designed to build the mathematical foundations of the students by equipping them with basic mathematical methods that are essential for learning and working with economic theories and models.This course also introduces the Mathematical tools such as Basic Algebra, Sets operations, functions which is more important in economic functional relations, differential equations and Matrices and Determinants.

CO1	Formulate mathematical models describing the dynamics of economic systems.Demonstrate the role of quantitative techniques in the field of business/industry, illustrate different types of equations, solve equations and system of equations, understand the concept of sets, illustrate and apply basic set operations.
CO2	Explain the rules for calculating derivatives, uses and application in calculating inter-relationship among total, marginal and average cost and revenue, calculate maxima, minima, elasticity, decide the optimal level of production for a firm.
CO3	Demonstrate the rules for calculating integration, describe the importance and application of integration in consumers' and producers' surpluses, total revenue and cost.
CO4	Illustrate matrix operation, minors, cofactors, use cofactor method to find inverse of a matrix, use Cramer's rule to solve systems of equations.
CO5	Students will get to learn applications of mathematical tools to economy.

Mappingofcourseoutcomeswiththeprogramoutcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2	-	1	1	-	2	2	-	1
CO2	3	2	2	2	-	1	1	-	2	2	1	2
CO3	3	3	2	-	2	1	1	-	2	2	-	-
CO4	3	2	3	2	-	1	1	-	2	2	1	-
CO5	3	2	1	-	1	2	-	1	1	2	-	1

Unit 1: Basic Concepts and Set Theory

Exponents – Polynomials – Factorization of Equations — Sets - Meaning, Definition, Types of sets, set operations – Ordered Sets – Linear Point Sets - Cartesian product – Relation – Functions.

Unit 2: Functions and Limits

Functions - Type of Functions – Increasing and Decreasing – Implicit and Explicit – Constant, Linear, Quadratic, Logarithmic and Exponential functions – Graphical Representations of Functions – **Economic Applications of Functions - Limits:** Concepts of a Limit of a Function –Theorems on Limits of Functions – Evaluations of Limits in Simple Cases – Limits and Continuity of Functions.

Unit 3: Differential Calculus and Economic Applications (One Variable)

Differential Calculus: Meaning – Process of Differentiation – Rules of Differentiation – Differentiation of Logarithmic and Exponential Functions – Higher Order Derivatives – Maximum and Minimum Points – Points of Inflection - **Economic Applications:** Marginal concepts, Price and cross Elasticity of demand – Relationship among Total, Marginal, Average concepts – Optimizing Economic functions.

Unit 4: Integration and Economic Applications

Concept of an Indefinite Integral – Standard Integral Formula – Rules of Integration – Methods of integration – Concept of a Definite Integral – Area under a Curve – Fundamental theorem of Calculus – Properties of Definite Integral – Area between Curves; **Economic Applications:** Total Functions from Marginal Function – Consumer's and Producer's Surplus.

Unit 5: Matrices and Determinants

Matrices: Concept of a Matrix – Types of Matrices – Matrix Operations – **Determinants:** Properties of Determinants – Minors and Co-Factors – Evaluation of Determinants of Second and Third Order - Inverse of a Matrix – Solutions of Simultaneous Linear Equations involving two or three Variables by Matrix Inverse Method and Cramer's Rule – Characteristic roots and equations – Concept of a Quadratic form – Rank of a Matrix – Concept of g-inverse and c- inverse.

TEXT AND REFERENCE BOOKS:

1) Allen, RGD : Mathematical Analysis for Economists
2) Mehta, BC and Madanani GMK: Mathematics for Economists, Sultan Chand and Sons, Delhi

3) Taro Yamane: Mathematics for Economists (An Elementary Survey), Prentice Hall of India Private Ltd, New Delhi
4) Alpha C. Chang: Fundamental Methods for Mathematical Economics
5) Barry Bressler: A Unified introduction of Mathematical Economics.
6) Dowing, Edward T: Introduction to Mathematical Economics, (2/ed.), Schaum's Outlines, Mc. Graw Hill, 1980
7) Bose, D : An Introduction to Mathematical Economics, Himalaya Publishing Company, Delhi.

MAPPING

Model Paper

M.A DEGREE EXAMINTION- 2017-18

FIRST SEMESTER

BRANCH: ECONOMETRICS

Paper-103: MATHEMATICAL METHODS

(Under CBCS Revised Syllabus from 2017-2018)

Time: 3 Hours Max. Marks: 80

Section-A

Answer any FIVE questions

Each question carries 4 marks

(5X4=20)

1. What is an exponent? State the properties of exponents.
2. Distinguish between a Relation and a Function with an example.
3. What is an Algebraic Function? Explain different types of algebraic functions with examples.
4. State any two theorems of Limit.
5. Define the derivative of a function and write down the Product and Quotient Rules of differentiation.
6. Given the demand function, Q_d= 100- 2P, find the point elasticity of demand at P= 25.
7. Discuss the properties of definite integral.
8. Given the marginal cost curve MC = $3-2x-x^2$, find the total cost curve.
9. Explain the concepts of Upper Triangular Matrix and Lower Triangular Matrix.
10. Explain the concepts of g-inverse and c-inverse.

Section- B

Answer ALL the questions
Each question carries 12 marks
(5X12=60)

11. (a) Simplify: $\frac{4^3 \times 27^2}{9^3 \times 4^2}$

Or

(b) Define a Set and discuss different types of Sets.

PTO

12. (a) Explain the conepts of Logarithmic and Exponential fucntions and their applications in economics.

Or

(b) Find the limits of the following functions:

i) $Y = \frac{(x^2+1)}{(x^2-1)}$ $as\ x \to \infty$

ii) $Y = \frac{(x^2-4)}{(x-2)}$ $as\ x \to 2$

13. (a) State the conditions for maxima and minima of the function y = f(x) and find them for the function $y = 3x^2-x+1$.

Or

(b) The total revenue and total cost functions of a firm are $R = 20Q-Q^2$ and $C = Q^2+8Q+12$ respectively. Find the profit maximizing levels of output and the maximum profits.

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14. (a) Distinguish between the concepts of 'Definite and Indefinite Integrals' and find the integral of the following function:

$$\int_0^1 x(x+6)dx$$

Or

(b) Define the concepts of Consumers' Surplus and Producers' Surplus. If the demand function is $p = 25-3x-3x^2$, find the consumers' surplus when the quantity demanded, $x_0 = 2$.

15. (a) Define the concept of Determinant of a Matrix and discuss the properties detrminants with illustrations.

Or

(b) Solve the following system of equations by Cramer's Rule:

$$2x-4y+3z=3$$
$$4x-6y+5z=2$$
$$-2x+y-z=1$$

EMT104	PRACTICAL-I		4Credits

Course Objectives: The main objective of this study programme is thus to promote the analytical skills of the practical knowledge of calculating descriptive statistics. These knowledge scan be used to solve complex analytical tasks based on statistical analysis of the underlying socio-economic data.To solve the tasks of formulating and estimating economic models using statistical methods such as Correlation and Regression.This course an underlying of practical knowledge of Probability, and Testing of Hypothesis.

CO1	Able to find Mean, Median, Mode, Range, Quartile Deviation and Standard Deviation and Coefficient of Variation.
CO2	Able to apply Binomial, Poisson, Normal and Log-Normal Distribution Correlation and Regression Analysis
CO3	Able to test small sample tests based on t, F and Chi-square distributions
CO4	Able to find Inverse of a Matrix, System of Simultaneous Linear Equations and Cramer's Rule method.
CO5	Student can identify the relationship between the economic variables and test their significance which is key factor for economic analysis and policy making or business decisions.

Mappingofcourseoutcomeswiththeprogramoutcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2	-	1	1	-	2	2	-	1
CO2	3	2	2	2	-	1	1	-	2	2	1	2

CO3	3	3	2	-	2	1	1	-	2	2	-	-
CO4	3	2	3	2	-	1	1	-	2	2	1	-
CO5	3	2	1	-	1	2	-	1	1	2	-	1

Unit 1: Functions and Limits

Functions - Type of Functions – Increasing and Decreasing – Implicit and Explicit – Constant, Linear, Quadratic, Logarithmic and Exponential functions – Graphical Representations of Functions – **Economic Applications of Functions - Limits:** Concepts of a Limit of a Function –Theorems on Limits of Functions – Evaluations of Limits in Simple Cases – Limits and Continuity of Functions.

Unit 2: Differential Calculus and Economic Applications (One Variable)

Differential Calculus: Meaning – Process of Differentiation – Rules of Differentiation – Differentiation of Logarithmic and Exponential Functions – Higher Order Derivatives – Maximum and Minimum Points – Points of Inflection - **Economic Applications:** Marginal concepts, Price and cross Elasticity of demand – Relationship among Total, Marginal, Average concepts – Optimizing Economic functions.

Unit 3: Estimation and Testing of Hypothesis:

Estimation: Introduction – Point and Interval Estimation - Estimators and their Properties: Consistency, Unbiasedness, Efficiency and Sufficiency - Method of estimation – Method of Least Squares and Method of Maximum Likelihood. **Tests of Hypothesis:** Statistical Hypothesis – Critical Region – Best Critical region – The Most Powerful Test - Types of errors - Large sample tests for means and proportions - Small sample tests based on t, F and Chi-square distributions.

Unit 4: Sampling Theory:

Need for sampling – Census Vs. Sampling - Types of sampling – Simple random sampling – Stratified random sampling – Systematic sampling – Two Stage sampling.

Unit 5: Correlation and Regression:

Simple Correlation – Computation – Properties - Rank Correlation - Regression Lines - Numerical problems – Concept of Partial and Multiple Correlations.

TEXT AND REFERENCE BOOKS:

1) Allen, RGD : Mathematical Analysis for Economists
2) Mehta, BC and Madanani GMK: Mathematics for Economists, Sultan Chand and Sons, Delhi
3) Taro Yamane: Mathematics for Economists (An Elementary Survey), Prentice Hall of India Private Ltd, New Delhi
4) Alexander M.Mood, Franklin A. Graybill and Duance C. Boes: Introduction to the Theory of Statistics. Third Edition. McGraw-hill Statistics Series, 1988.
5) S.P. Gupta: Introduction to Statistical Methods.
6) S.P. Gupta: Elements of Statistics.

Model Paper

M.A DEGREE EXAMINATION -2017-18

First Semester

Branch: ECONOMETICS

DEPARTMENT OF ECONOMETRICS

1ST SEMESTER –PRACTICAL EXAMINATION

PAPER CODE: EMT-104

TIME: 3 HOURS **Maximum: 80 Marks**

Answer any **four**questions, All Questions Carry equal Marks (4*20=80 Marks)

1. Calculate Mean, Median and Mode for the following data.

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70
No. of Students	6	16	35	55	45	31	8

2. Following are the Marks obtained by two students A and B in 10 papers in an examination.
Who will get the prize, if the consistency of performance is the criterion for awarding the prize?

Student/sets	1	2	3	4	5	6	7	8	9	10
Marks obtained by A	42	82	80	47	51	70	68	53	62	65
Marks obtained by B	41	69	53	64	66	58	71	49	54	45

3. The distribution of typing mistakes committed by a typist

Mistake for Page	0	1	2	3	4	5
No. of Mistakes	142	156	69	27	5	1

(i) Fit a Poisson distribution (ii) To find expected frequencies

(iii) Test for goodness of fit.(X^2table value is 9.488)

4. The scores for nine students in Physics and Chemistry are as follows:

Physics	35	23	47	17	10	43	9	6	28
Chemistry	30	33	45	23	8	49	12	4	31

Compute the Spearman rank correlation.

5. Fit two Regression Lines for the following data, Y on X and X on Y

X	46	31	29	32	51	24	16	23	28
Y	34	42	57	40	54	50	28	47	38

6. Use Cramer's Rule to solve $3x+5y-7z=13$,
$4x+y-12z=6$,
$2x+9y-3z=20$.

EMT105	**STATISTICAL METHODS**		**4Credits**

Course Objectives: The main objective of this study programme is thus to cultivate the analytical skills that can be used to solve complex analytical tasks based on a non-trivial statistical analysis of the underlying data.To solve the tasks of formulating and estimating economic models using statistical methods.This course an underlying of descriptive statistics, Probability, Sampling methods, Correlation and Regression Analysis and Testing of Hypothesis.

CO1	Able to find Mean, Median, Mode, Range, Quartile Deviation and Standard Deviation and Coefficient of Variation.
CO2	Able to apply Binomial, Poisson, Normal and Log-Normal Distribution Correlation and Regression Analysis.
CO3	Able to test small sample tests based on t, F and Chi-square distributions
CO4	formulate Statistical Methods describing the dynamics of economic systems such as production function analysis and solve econometric analysis of underlying data use with knowledge advanced econometric tools and techniques can solve easily.
CO5	Student can identify the relationship between the economic variables and test their significance which is key factor for economic analysis and policy making or business decisions.

Mappingofcourseoutcomeswiththeprogramoutcomes												
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2	-	1	1	-	2	2	-	1
CO2	3	2	2	2	-	1	1	-	2	2	1	2
CO3	3	3	2	-	2	1	1	-	2	2	-	-
CO4	3	2	3	2	-	1	1	-	2	2	1	-
CO5	3	2	1	-	1	2	-	1	1	2	-	1

Unit 1: Basics:

Measures of Central Tendency – Measures of Dispersion – Coefficient of Variation, Skewness and Kurtosis – Numerical problems.

Unit 2: Probability and Distributions:

Probability: Concept of Probability – Axioms of Probability – Addition and Multiplication theorems – Bayes's Theorem - **Distributions:** Random Variables – Distribution Function – Probability Density Function - Mathematical Expectation – Binomial, Poisson, Normal and Lognormal distributions – Mean and Variance - Chief characteristics of Normal Distribution.

Unit 3: Estimation and Testing of Hypothesis:

Estimation: Introduction – Point and Interval Estimation - Estimators and their Properties: Consistency, Unbiasedness, Efficiency and Sufficiency - Method of estimation – Method of Least Squares and Method of Maximum Likelihood. **Tests of Hypothesis:** Statistical Hypothesis – Critical Region – Best Critical region – The Most Powerful Test - Types of errors - Large sample tests for means and proportions - Small sample tests based on t, F and Chi-square distributions.

Unit 4: Sampling Theory:

Need for sampling – Census Vs. Sampling - Types of sampling – Simple random sampling – Stratified random sampling – Systematic sampling – Two Stage sampling.

Unit 5: Correlation and Regression:

Simple Correlation – Computation – Properties - Rank Correlation - Regression Lines - Numerical problems – Concept of Partial and Multiple Correlations.

REFERENCES

1) S.C. Gupta and V.K. Kapoor: Elements of Mathematical Statistics.

2) Wonnacott&Wonnacott: Introduction to Statistical Methods.
3) Alexander M.Mood, Franklin A. Graybill and Duance C. Boes: Introduction to the Theory of Statistics. Third Edition. McGraw-hill Statistics Series, 1988.
4) S.P. Gupta: Introduction to Statistical Methods.
5) S.P. Gupta: Elements of Statistics.

Model Paper

M.A DEGREE EXAMINTION- 2017-18

FIRST SEMESTER

BRANCH: ECONOMETRICS

Paper-105: STATISTICAL METHODS

(Under CBCS Revised Syllabus from 2017-18)

Time: 3 Hours Max. Marks: 80

Section-A

Answer any FIVE questions

Each question carries 4 marks(5X4=20)

1. Define Arithmetic Mean and discuss its properties.
2. Define Skewness and discuss different methods of measuring Skewness.
3. Define Probability and discuss any three concepts associated with Probability.
4. Expalin the concepts of Distribution Function and Probability Density Function.
5. Distinguish between Point Estimation and Interval Estimation with an example.
6. Explain the concept of Type – I Error and Type – II Error.
7. Explain the concept of Probability Sampling with an example.
8. What are the advantages of Stratified Sampling over the Simple Random Sampling?
9. State various uses of Correlation and Regression analysis in economics.
10. Distinguish between Partial and Multiple Correlations.

Section- B

Answer ALL the questions

Each question carries 12 marks

(5X12=60)

11. (a) Compute Mean, Median and Mode for the following data:

Class Interval	40-50	50-50	60-70	70-80	80-90	90-100
Frequency	35	24	21	18	6	3

Or

(b) Compute the Coefficeint of Variation for the following data:

Class Interval	5-10	11-15	16-20	21-25	26-30	31-35
Frequency	3	4	7	3	2	1

PTO

12. (a) Derive the Mean and Variance of the Binomial Distribution.

Or

(b) Fit Poisson distribution for the following data:

x-value	0	1	2	3	4
Frequency-f	123	59	14	3	1

13. (a) Discuss the desirable properties of a Good Estimator.

Or

(b) Out of a sample of 120 persons in a village, 76 were administered a new drug for preventing influenza and out of them, 24 were attacked by influenza. Out of those who were not adminstered the new drug, 12 persons were not affected by influenza. Prepare

(a) The 2x2 table showing actual and expected frequencies.

(b) Use Chi-square test for finding out whether the new drug is effective or not.

(The table Chi-square value at 5% level of significance for one degree of freedom is 3.84)

14. (a) Define Sampling and discuss the relative merits and demerits of Sample and Census methods of data collection.

Or

(b) (b) Distinguish between Random and Non-random sampling and discuss different types of Random Sampling.

15. (a) Compute the Correlation Coefficient for the following data and interpret your result:

Class Interval	3	5	6	7	9	10	11	12	13	15
Frequency	4	5	7	8	9	11	12	13	14	16

Or

(b) (b) What are Regression Lines? Explain the method of deriving two regression lines of Y on X and X on Y.

EMT 106: HUMAN VALUES AND PROFESSIONAL ETHICS - 1

UNIT I: Definition and Nature of Ethics

- Its relation to Religion, Politics, Business, Legal, Medical and environment.
- Need and Importance of Professional Ethics - Goals - Ethical Values in various Professions.

UNIT II: Nature of Values

- Good and Bad, Ends and Means, Actual and potential Values, Objective and Subjective Values, Analysis of basic moral concepts- right, ought, duty, obligation, justice, responsibility and freedom, Good behavior and respect for elders.

UNIT III: Ahimsa (Non-Violence), Satya (Truth), Brahmacharya (Celibacy),

-Asteya(Non possession) and Aparigraha(Non- stealing).

- Purusharthas(Cardinal virtues)-Dharma (Righteousness)
- Artha(Wealth), Kama(Fulfillment Bodily Desires)
- Moksha(Liberation)

UNIT IV: Bhagavad Gita

- (a) Niskama karma. (b) Buddhism
- The Four NobleTruths
- Aryaastangamarga
- (c) Jainism- mahavratas and anuvratas.
- Values Embedded in Various Religions, Relirious Tolerance
- Gandhian Ethics.

UNITV: Crime and Theories of punishment

- (a) Reformative, Retributive and Deterrent.
- (b) Views on manu and Yajnavalkya.

RECOMMENDED BOOKS

1. John S Mackenjie: A manual of ethics.

2. “The Ethics of Management” by Larue Tone Hosmer, Richard D. Irwin Inc.

3. “Management Ethics - integrity at work’ by Joseph A. Petrick and John F. Quinn, Response Books:New Delhi.

4. “Ethics in Management” by S.A. Sherlekar, Himalaya Publishing House.

5. Harold H. Titus: Ethics for Today

6. Maitra, S.K: Hindu Ethics

7. William Lilly: Introduction to Ethics

8. Sinha: A Manual of Ethics

9. Manu: Manu Dharma Sastra or the Institute of Manu: Comprising the Indian System of Duties: Religious and Civil(ed.) G.C.Haughton

. 10. SusrutaSamhita: Tr.KavirajKunjanlal, KunjalalBrishagratha, Chowkamba Sanskrit series, Vol I,II and III, Varnasi, Vol I OO, 16-20, 21-32 and 74-77 only.

11. CarakaSamhita :Tr. Dr.Ram Karan Sarma and VaidyaBhagavan Dash, Chowkambha Sanskrit Series office, Varanasi I, II, III Vol I PP 183-191.

12. Ethics, Theory and Contemporary Issues., Barbara Mackinnon, Wadsworth/Thomson Learning, 2001.

13. Analyzing Moral Issues, Judith A. Boss, Mayfield Publishing Company, 1999.

14. An Introduction to Applied Ethics (Ed.) John H.Piet and Ayodhya Prasad, Cosmo Publications.

15. Text book for Intermediate logic, Ethics and Human Values , board of Intermediate Education&Telugu Academic Hyderabad 15. I.C Sharma Ethical Philosophy of India.Nagin&coJulundhar.

EMT201	**MICRO ECONOMIC THERORY II**		**4Credits**
Course Objectives: The microeconomic theory is to analyze how individual decision-makers, both consumers and producers, behave in a variety of economic environments. The factor prices are land, labour, capital and organization, determination of factor prices, pricing of factors; Ricardian theory of Rent, wage determination under perfect competition, classical theory of interest, theories of Profit; static and dynamic equilibrium, Walrasian System of General Equilibrium, Existence and Stability of General Equilibrium, externalities and Allocative Efficiency; Adam Smith, Bentham, Pigou, Kaldor-Hicks Compensation Criteria.The Fundamental concepts of supply and demand, rational choice, efficiency, opportunity costs, incentives, production, profits, competition, monopoly, externalities, and public goods will help you to understand the world around you.			

CO1	Demonstrate the meaning and function of money, high powered money, monetary and paper system, illustrate various version of quantity theory of money.
CO2	Identify types of banks, explain the meaning and function of commercial banks, illustrate how banks create credit, and suggest the instruments to control credit.
CO3	Analyze different phases of trade cycle, demonstrate various trade cycle theories, understand the impact of cyclical fluctuation on the growth of business, and lay policies to control trade cycle.
CO4	Illustrate the meaning of inflation, deflation, stagflation and reflation, identify different kinds of inflation, causes and effects of inflation on different sectors of the economy, describe different measures to control inflation.
CO5	Criteria of Social Welfare – Adam Smith, Bentham, Pigou, and Cardinal school – Pareto Optimality in Consumption, Production and Distribution – Kaldor-Hicks Compensation Criteria- Bergson Social Welfare Function - Social Choice Theory, Coase and Sen.

Mappingofcourseoutcomeswiththeprogramoutcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2	-	1	1	-	2	2	-	1
CO2	3	2	2	2	-	1	1	-	2	2	1	2
CO3	3	3	2	-	2	1	1	-	2	2	-	-
CO4	3	2	3	2	-	1	1	-	2	2	1	-
CO5	3	2	1	-	1	2	-	1	1	2	-	1

Unit 1: Factor Markets

Factor Pricing: Marginal Productivity Theory of determination of Factor prices - Factor shares and the 'Adding up' problem - Euler's theorem - Pricing of factors under Imperfect Competition.

Unit 2: Functional Distribution

Theories of Rent: Concept of Rent – Ricardian theory of Rent – Quasi Rent, Theories of Wages: Wage determination under Perfect competition, Monopsony and Collective bargaining Bilateral Monopoly), Theories of Interest: Classical theory of interest – Loanable fund theory – Keynes liquidity preference theory of interest, Theories of Profit: Profit as dynamic surplus – innovations and profits – risk uncertainty and profits

Unit 3:Economics of Information

Basic Concepts of Economics of Information - Economic Value of information - Role of information in Economic theory – Information, a measure of risk - Bayes' Rule - Classical Paradoxes - Choice under Risk - Risk Allocation in Exchange Economies Model - Monopolist Insurer - Perfect Competition - Adverse Selection - Monopolistic Screening, Competition and Market Breakdown - Public Intervention - Brief introduction to Game theoretic approach to information use.

Unit 4: General Equilibrium

Meaning of Partial and General Equilibrium – Static and Dynamic Equilibrium – Stable and Unstable Equilibrium –Walrasian System of General Equilibrium - Existence and Stability of General Equilibrium - Externalities and Allocative Efficiency.

Unit 5: Welfare Economics

Welfare Economics – Criteria of Social Welfare – Adam Smith, Bentham, Pigou, and Cardinal school – Pareto Optimality in Consumption, Production and Distribution – Kaldor-Hicks Compensation Criteria-Bergson Social Welfare Function - Social Choice Theory, Coase and Sen.

TEXT AND REFERENCE BOOKS:

1. J.M. Henderson and R.E. Quandt (2003) Microeconomic Theory: A Mathematical Approach, Tata McGraw Hill publishing company Ltd.
2. Hal R.Varian(1995), Intermediate Micro econometrics: A Modern Approach, East West Press.
3. A. Deaton and J. Muellbauer(1987) Economics and Consumer Behaviour, Cambridge University Press.
4. A. Koutsoyiannis, (1979), Modern Microeconomics, London: Macmillan.
5. Macho-Stadler, I and D. PerezCastrillo (1997): "An Introduction to the Economics of Information", Oxford University Press.
6. J. Hirshleifer and J. Riley (1992): "The Analytics of Uncertainty and Information", Cambridge University Press
7. J.-J. Laffont (1989): "The Economics of Uncertainty and Information", MIT Press
8. L. Phlips (1988): "The Economics of Imperfect Information", Cambridge University Press
9. T. Van Zandt (2006): "Introduction to the Economics of Uncertainty and Information"
10. K. Binmore (2011): "Rational Decisions", Princeton University Press
11. M. Osborne: "An Introduction to Game Theory", Oxford University Press.

Model Paper

M.A DEGREE EXAMINATION – 2017 -2018
Second Semester
Branch: ECONOMETRICS
EMT 201 – MICROECONOMIC THEORY – II
(UNDER CBCS Revised Syllabus from 2017-18)

Time: 3 hours Marks: 80

Section-A
Answer any FIVE questions
Each question carries 4 marks(5X4=20)

13. Distinguish between the Value of Marginal Product (VMP) and Marginal Revenue Product.
14. Explain the concept of 'Monopolistic Exploitation' of a Factor.
15. What is 'Quasi Rent'?
16. Explain the concept of 'Liquidity Trap'.
17. State the meaning of risk and distinguish it from uncertainity.
18. What is 'Zero Sum' game?
19. Explain the concepts of stable and unstable equilibrium.
20. What are externalities?
21. Distinguish between Pareto Optimality and Pareto improvement.
22. State the concept of Kaldor-Hicks' Compensation Criterion.

Section –B

Answer ALL the questions
Each question carries 12 marks
5x12=60

23. Critically examine Marginal Productivity Theory of Distribution

Or

State and prove Euler's Theorem and explain its significance.

24. Discuss the Ricardian Theory of Rent.

Or

Evaluate the Loanable Funds theory of interest.

13. Elucidate the role of information in economic theory.

Or

Explain the short – run and long run equilibrium of the firm under Monopoly.

15. Critically examine Chamberlin's model of Monopolistic Competition.

Or

Explain the Price Leadership model of the Dominant firm.

15. Discuss Baumol's theory of Sales Maximisation.

Or

Elucidate the Franco Modigliani model of Limit Pricing.

EMT202	**MACRO ECONOMIC THERORY II**		**4Credits**

Course Objectives: Macroeconomics refers to the study of the overall performance of the economy. While microeconomics studies how individual people make decisions, macroeconomics deals with the overall aggregate effect of microeconomics. Macroeconomics is crucial for the government to understand and predict the long-term consequences of their decisions. The overarching goals of macroeconomics are to maximize the standard of living and achieve stable economic growth. The goals are supported by objectives such as minimizing unemployment, increasing productivity, controlling inflation, and more. The objectives are Full employment. Price stability. A high, but sustainable, rate of economic growth. Keeping the balance of payments in equilibrium.

CO1	The overarching goals of macroeconomics are to maximize the standard of living and achieve stable economic growth
CO2	The goals are supported by objectives such as minimizing unemployment, increasing productivity, controlling inflation, and more.
CO3	The macro economy of a country is affected by many forces, and as such, economic indicators are invaluable to assessing different aspects of performance.
CO4	Meaning and Types of Inflation – Demand-Pull inflation – Cost-Push Inflation – The Phillips curve – The Inflation – Unemployment trade-off.
CO5	Objectives of Macroeconomic policies – Objectives of Monetary policy.New-classical and Real Business cycles Theorem – Post-Keynesians - Implications for Stabilization Policies.

Mappingofcourseoutcomeswiththeprogramoutcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2	-	1	1	-	2	2	-	1
CO2	3	2	2	2	-	1	1	-	2	2	1	2
CO3	3	3	2	-	2	1	1	-	2	2	-	-
CO4	3	2	3	2	-	1	1	-	2	2	1	-
CO5	3	2	1	-	1	2	-	1	1	2	-	1

Unit 1: Demand for and Supply of Money

The Classical View- Neo-classical view-Quantity Theory of Money – Keynes and the Demand for Money - Post Keynesian theories of demand for money - Baumol , James Tobin and Friedman – Concept of Money Supply – Components of Money Supply – RBI approach to Money supply – High Power Money and Money Multiplier – Determinants of Supply of Money.

Unit – 2: Macro Theories of Distribution

Functional Versus Personal Distribution of Income - MicroversusMacro-theories of Distribution - Marxian, Ricardian, Kelecki Theories of Distribution - Alternate theories of distribution – Kaldor.

Unit 3: Trade Cycles

Meaning and Types of Trade Cycles – Different theories of Trade Cycles – Samuelson`s Model of Trade Cycle – Hicks' Theory Cycle – Kaldor`s Model of Trade Cycle – Control of Business Cycle – Monetary and Fiscal Policies.

Unit 4: Theories of Inflation

Meaning and Types of Inflation – Demand-Pull inflation – Cost-Push Inflation – The Phillips curve – The Inflation – Unemployment trade-off - The Monetarists Accelerationists' Hypothesis – Rational Expectations Hypothesis – New-classical and Real Business cycles Theorem – Post-Keynesians - Implications for Stabilization Policies.

Unit 5: Macroeconomic policies

Objectives of Macroeconomic policies – Objectives of Monetary policy – The policy of Activists arguments – The policy of Non-activists arguments - Fiscal policy – objectives and tools - Automatic stabilizers – Problems of using of Fiscal policies – Effectiveness of Monetary and Fiscal policies –The concept of Open Economy macroeconomics.

TEXT AND REFERENCE BOOKS:

1. Ackley, G. Macroeconomic theory, Macmillan
2. Edward Shapiro, Macroeconomic Analysis, 5th edition, New-Delhi Galgotia publications.
3. Branson, W.B., Macro Economic Theory and Policy.
4. Gupta, S.B., 1983, Monetary Economics, Chand and Co.
5. Hicks, J.R., Mr. Keynes and the Classicals; A suggested Interpretation, Econometrics,
6. Laidler, D.E.W., Demand for money.
7. Friedman, M. (ed), The quantity theory of money – A Restatement of studies in the quantity theory of money.
8. Patinkin, Don., Money, Interest and Prices.
9. Rosalind Levacic and Alexander Rebthann, 1982, Macroeconomics; The English Language Book Society and Macmillan.
10. Rongar L. Miller and Robert Pulsinelli, Macroeconomics.

MAPPING

MODEL QUESTION PAPER

Model Paper
M.A DEGREE EXAMINATION – 2017-18
Second Semester
Branch: ECONOMETRICS
EMT 202, MACROECONOMIC THEORY II
(UNDER CBCS Revised Syllabus from 2017-18
Time: 3 Hrs Marks: 80

Section-A
Answer any FIVE questions
Each question carries 4 marks(5X4=20)

1. State and explain Fisher's Quantity theory of money.
2. What are the components of money supply according to RBI in India?
3. Distinguish between Fucntional and Personal distribtuion of Income.
4. Explain the Ricardian concept of Stationary State'.
5. Briefly explain different phases of Trade Cycle.
6. What are the lags in monetary policy?
7. Distinguish between 'Demand Pull and Cost Push Inflations".
8. State the implications of Rational Expectation Hypothesis.
9. What are the objectives of the Monetary Policy?
10. What are the uses of Automatic Stabilizers?

Section –B

Answer ALL the questions
Each question carries 12 marks 5x12=60

11. Discuss Tobin's Portfolio Approach to demand for money.

Or

What is 'High Powered' Money? Explain the process of Money Multiplier in an economy.

12. ElucidiateKelecki Theory of Distribution.

Or

Give an account of Kaldor's theory of Distribution.

13. Examine Hicks' Thoery of Trade Cycle.

Or

Explain the methods of controlling Trade Cycles in a free market economy.

14. Discuss the 'Trade – off' between Inflation and unemployment in the short run.

Or

Critcally examine the 'Real Business Cycle Theorem' profounded by the New Classical School.

15. What are the instruments of Monetary policy? Explain their role in stabilisation of the economy.

Or

Expalin the relative effectiveness of Fiscal and monetary policies in promoting economic growth in an economy.

EMT203	BASIC ECONOMETRICS		4Credits
Course Objectives: This course is designed to define Econometrics, Steps in Empirical Economic Analysis, Different types of data involved in econometric Analysis.The courses involved Simple and Multiple Linear regression model and Functional forms of Non-Linear Regression			

models.Basic concept of Auto regressive distributed lag model (ARDL) developed which will be helpful for future research work with time series data.	
CO1	Adequate competency in the frontier areas of economic theory and methods.
CO2	Formulation and estimation of a multiple regression model.
CO3	Decision about the statistical significance of individual explanatory variable and also over all models
CO4	Impacts for the violation of one of the important assumptions for application of OLS regression.
CO5	Estimation of system of equations, estimation of panel data models, generalized method of moments, discrete response models, censored regression models and estimation of average treatment effects.

Mappingofcourseoutcomeswiththeprogramoutcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2	-	1	1	-	2	2	-	1
CO2	3	2	2	2	-	1	1	-	2	2	1	2
CO3	3	3	2	-	2	1	1	-	2	2	-	-
CO4	3	2	3	2	-	1	1	-	2	2	1	-
CO5	3	2	1	-	1	2	-	1	1	2	-	1

Unit 1: Nature of Econometrics and Economic Data

Definition of Econometrics – Steps in Empirical Economic Analysis - Econometric Model – The Role of Measurement in Economics – The Structure of Economic Data: Cross-Sectional data, Time Series data, Pooled Cross Section data, Panel Data.

Unit 2: Simple Regression Model

Two Variable Linear Regression Model: Assumptions, Estimation of Parameters, Tests of Significance and Properties of Estimators – Functional forms of Regression models – Log-linear models, Semi log-models and Reciprocal models – Choice of Functional Form.

Unit 3: The General Linear Model

Review of Assumptions, Estimation and Properties of Estimators: Un-biasness, BLUEs and Tests of significance of estimates – Analysis of Variance - **Dummay variables -** Nature of Dummy variables – Use of Dummy Variables – Errors in Variables and its consequences.

Unit 4: Auto-regressive and Distributed Lag Models

Introduction – Types of Lag schemes - Koyck's lag model, Almon's Lag scheme, Partial Adjustment and Expectations models - Causality in Economics – The Granger Causality Test.

Unit 5: Simultaneous Equation Models

Specification – Simultaneous Bias – Inconsistency of OLS Estimators - The concept of Identification, Rank and Order conditions for Identification – Indirect Least Squares - Two stage Least Squares (without proof), Problems.

TEXT AND REFERENCE BOOKS:

1) Johnston,J: Econometric Methods, McGraw-Hill Book Co., New York.
2) Maddala, G.S: Econometrics, McGraw-Hill Book Co., New York, 3rd Rd.
3) Gujarathi, D.N: Basic Econometrics, Fourth Edition, Tata McGraw-Hill, New Delhi.
4) Tintner,G: Econometrics, John Wiley & Sons, New York.
5) Wooldridge, Jeffery M: Econometrics, Cengage Learning India Pvt. Ltd, New Delhi

MODEL PAPER

M.A. DEGREE EXAMINATION – 2017-2018
SECOND SEMESTER
Branch: Econometrics
PAPER: 203 – BASIC ECONOMETRICS
(Revised Regulations CBSC from 2017-18)

Time: 3 Hours Max. Marks: 80

PART- A

Answer any FIVE questions. Each question carries 4 Marks
(Marks: 5 x 4 = 20 Marks)

1. Discuss the role of measurement in Economics.
2. Explain the method of Pooling of Cross Section and Time Series Data.
3. State the properties of OLS Estimators.
4. State the assumptions of the two variable linear model.
5. Derive the mean and variance of OLS estimator in general linear model.
6. What is Error in Variables linear model? What are its consequences?
7. What is a distributed lag model? Explain different lag schemes in lagged variable linear models.

8. Explain the method of Koyck's lag scheme.
9. Show that the OLS estimators are inconsistent in simultaneous equation models.
10. State the Rank and Order conditions for Identification.

PART- B

Answer ALL questions. Each question carries 12 Marks
(Marks: 5 x 12 = 60 Marks)

11. Explain the interrelationship among economics, mathematics and statistics in econometric approach.

(OR)

What are the basic principles of Econometric model building?

12. Formulate the classical linear regression model and discuss the properties of least squares estimators of a linear regression model.

(OR)

Explain the different Functional Forms of regression models

PTO

13. Show that the OLS estimators are BLUEs.

(OR)

What is multiple correlation coefficient? What are its uses and explain the difference between R^2 and adjusted R^2?

14. Explain Almon's method of estimation of parameters in lagged variables

(OR)

Explain the Partial Adjustment and Cagan's Adaptive Expectations models in distributed lag models

15. Explain the method of Indirect Least Squares.

(OR)

Explain the model specification, assumptions and procedure of 2SLS method of estimation without proof.

EMT204	PRACTICAL-II		4Credits

Course Objectives: The course designed about Practical knowledge of mathematical concepts specially related to Input-output analysis and Linear Programming which are most important in economic decisions.This course covered Practical knowledge of OLS Method.The course involved practical approach of Multiple Linear Regression Model.Identify, Inconsistency of OLS Estimators.This course is extension of practical practices of Basic Econometrics and Mathematical Economics what we mentioned in the courses of EMT 203 and EMT 205.

CO1	Students can Identify Inter industrial relationships using Input-output analysis,
CO2	analyse maximization of profits and minimization of costs can evaluate using Linear Programming,
CO3	Analyse relationship of economic variables using simple and multiple regression models which are covered in basic Econometrics
CO4	Able to estimate and interpret linear regression models and be able to distinguish between economic and statistical importance
CO5	They should be able to critique reported regression results in applied academic papers and interpret the results for someone who is not trained as an economist.

Mappingofcourseoutcomeswiththeprogramoutcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2	-	1	1	-	2	2	-	1
CO2	3	2	2	2	-	1	1	-	2	2	1	2
CO3	3	3	2	-	2	1	1	-	2	2	-	-
CO4	3	2	3	2	-	1	1	-	2	2	1	-
CO5	3	2	1	-	1	2	-	1	1	2	-	1

Unit 1: Input-Output Analysis

Assumptions - Technological Co-efficient Matrix – Closed and open Model – Solution of Open Model –

Hawkins-Simon Conditions – Dynamic Input-Output Model – Production Function Approach to Input Output Model.

Unit 2: Linear Programming

Basic Concepts – Formulation of LPP – Basic and Feasible Solutions – Graphical Solution - Simplex Method – Duality in Linear Programming – Elements of Data envelop Analysis and its Applications.

Unit 3: The General Linear Model

Review of Assumptions, Estimation and Properties of Estimators: Un-biasness, BLUEs and Tests of significance of estimates – Analysis of Variance - **Dummay variables -** Nature of Dummy variables – Use of Dummy Variables – Errors in Variables and its consequences.

Unit 4: Auto-regressive and Distributed Lag Models

Introduction – Types of Lag schemes - Koyck's lag model, Almon's Lag scheme, Partial Adjustment and Expectations models - Causality in Economics – The Granger Causality Test.

Unit 5: Simultaneous Equation Models

Specification – Simultaneous Bias – Inconsistency of OLS Estimators - The concept of Identification, Rank and Order conditions for Identification – Indirect Least Squares - Two stage Least Squares (without proof), Problems.

TEXT AND REFERENCE BOOKS:

1) Johnston,J: Econometric Methods, McGraw-Hill Book Co., New York.
2) Maddala, G.S: Econometrics, McGraw-Hill Book Co., New York, 3rd Rd.
3) Gujarathi, D.N: Basic Econometrics, Fourth Edition, Tata McGraw-Hill, New Delhi.
4) Allen, RGD: Mathematical Analysis for Economists.
5) Mehta, BC and Madanani GMK: Mathematics for Economists, Sultan Chand and Sons, Delhi.
6) Taro Yamane: Mathematics for Economists (An Elementary Survey), Prentice Hall of India Private Ltd, New Delhi.

MODEL PAPER

M.A. DEGREE EXAMINATION
SECOND SEMESTER
Branch: Econometrics
PAPER: 204 – practical II
(Revised Regulations CBSC from 2017-18)

Answer any THREE Questions. All Questions carry equal marks
[3x20=60]

1. The following data we get to all the Indian Agriculture production, area and a yield index numbers from 2000-01 to 2014-15 are furnished below.

Year	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2013-14
Aggregate Consumption(Y)	107.1	113.7	118.7	122.2	121.8	127.5	129.6	138.5	142.4	145.5	145.9	150.6	148.2	144.4	145.5
Disposable Income (X)	105.6	109.1	112.1	113.8	114.6	116.1	117.7	119.7	121.2	122.4	123.4	123.7	122.4	121.8	122.8

Calculate the following objectives based on the above data

(i). estimate the parameters and fit the two-variable linear model.

$$Y_t = \alpha + \beta X_t + u_t$$

(ii). to predict the value of 'Y' when 'X=130.5.

(iii). to determine the R^2

2. The following data relates to the corn production with the inputs of fertilizers and insecticides used.

Production (Y)	40	44	46	48	52	58	60	68	74	80
Fertilizers (X_1)	6	10	12	14	16	18	22	24	26	32
Insecticides (X_2)	4	4	5	7	9	12	14	20	21	24

(i). Estimate the parameters and fit the three variable linear model

(ii). Test the significance of individual parameters

(iii) Calculate the Analysis of variance (ANOVA).

3. From the following matrix find out the final output goals of each industry, assuming that consumer output targets are USD $ 80 millions in Steel, USD $ 30 millions in Coal and USD $ 50 millions in Railway transport industry. The technological coefficient matrix and final consumer requirements of theCoal (A), Steel (B), and Railway transport (C) are;

Coal Steel Railway's Final consumer requirements

Coal (A)	0.3	0.2	0.2	Rs. 80 million
Steel (B)	0.2	0.1	0.5	Rs. 30 million
Railway's (C)	0.2	0.4	0.2	Rs. 50 million
Labour	0.3	0.3	0.1	

(i). Determine the gross levels of output of three industries and

(ii). To find what will be the total labour requirements.

4. Solve the following LPP using the Simplex method.

$$\textit{Maximize} \qquad Z = 12x_1 + 16x_2$$

$$\textit{Subject to} \qquad 10x_1 + 20x_2 \le 120$$

$$8x_1 + 8x_2 \le 80$$

$$x_1 \textit{ and } x_2 \ge 0$$

5. The following problems solved byUsing Lagrange multiplier method.

(i). Maximization: what combination of (output) mixed should be profit maximizing produced when its total profit function is $\pi = 80x - 2x^2 - xy + 3y^2 + 100y$, and maximum output capacity is $x + y = 12$, and also estimate the effect of profit when its output capacity extended by one unit.

(ii). Minimization: what combination of goods x and y should produced to the minimum cost when joint cost function $C = 6x^2 + 10y^2 - xy + 30$, and firm as a production quota is $x + y = 34$. Estimate the effect on cost if the production quota is reduced by one unit.

EMT205	**MATHEMATICAL ECONOMICS**		**4Credits**
Course Objectives: This course also introduces the Mathematical tools such as Differential Calculus and Economic Applications (Two or More Variables), Differential Equations and Economic Applications.This course explores Input-output analysis and Linear programming which is most important in the area of Inter industrial dependency and maximization of the profits and minimization of the cost of the firms.			
CO1	Students can deal Mathematical calculation of static optimization, Application of Lagrange's method and also student can evaluate Differential Equations and with		

	Economic Applications.
CO2	Able to estimate and interpret Inter industrial relationships using Input-output analysis, also analyse maximization of profits and minimization of costs of the firms using Linear Programming method
CO3	Economic Applications of Differential Equations – Dynamic Multiplier – Harrod-Domar Model.
CO4	Homogeneous Linear Difference Equations with Constant Coefficients – Particular Solution of Non-homogeneous Linear Equations – Linear First Order and Second Order Difference Equations with constant coefficients – Cobweb Model –Market model with Stocks
CO5	Formulation of LPP – Basic and Feasible Solutions – Graphical Solution - Simplex Method – Duality in Linear Programming – Elements of Data envelop Analysis and its Applications.

Mappingofcourseoutcomeswiththeprogramoutcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2	-	1	1	-	2	2	-	1
CO2	3	2	2	2	-	1	1	-	2	2	1	2
CO3	3	3	2	-	2	1	1	-	2	2	-	-
CO4	3	2	3	2	-	1	1	-	2	2	1	-
CO5	3	2	1	-	1	2	-	1	1	2	-	1

Unit 1: Differential Calculus and Economic Applications (Two or More Variables)

Differential Calculus: Functions of two or more variables and Partial Derivatives – Rules of Partial Differentiation – Second-Order Partial Derivatives – Optimization of Multivariable Functions – Constrained Optimization with Lagrange Multipliers – Significance of Lagrange Multiplier – Differentials – Total and Partial Differentials – Homogeneous Functions – Euler's Theorem – Partial Elasticities; **Economic Applications:** Maximization of Utility – Minimization of Cost – Maximization of Cost, Profit – Elasticity of Substitution

Unit 2:Differential Equations and Economic Applications

Definitions and Concepts – Linear Differential Equations of the First and Second Order with constant coefficient – Non-linear Differential equations of First-Order and First Degree – Variable Separable Case, Differential Equations with homogeneous equations - Economic Applications of Differential Equations – Dynamic Multiplier – Harrod-Domar Model.

Unit 3: Difference Equations and Economic Applications

Definitions and Concepts – Homogeneous Linear Difference Equations with Constant Coefficients – Particular Solution of Non-homogeneous Linear Equations – Linear First Order and Second Order Difference Equations with constant coefficients – Cobweb Model –Market model with Stocks – Dynamic Multiplier – Multiplier Acceleration Model :HarrodDomar Model – Multiplier's Accelerator Interaction Model of Samuelson.

Unit 4: Input-Output Analysis

Assumptions - Technological Co-efficient Matrix – Closed and open Model – Solution of Open Model – Hawkins-Simon Conditions – Dynamic Input-Output Model – Production Function Approach to Input Output Model.

Unit 5: Linear Programming

Basic Concepts – Formulation of LPP – Basic and Feasible Solutions – Graphical Solution - Simplex Method – Duality in Linear Programming – Elements of Data envelop Analysis and its Applications.

TEXT AND REFERENCE BOOKS

1) Allen, RGD: Mathematical Analysis for Economists.
2) Mehta, BC and Madanani GMK: Mathematics for Economists, Sultan Chand and Sons, Delhi.
3) Taro Yamane: Mathematics for Economists (An Elementary Survey), Prentice Hall of India Private Ltd, New Delhi.
4) Alpha C. Chang: Fundamental Methods for Mathematical Economics.
5) Barry Bressler: A Unified introduction of Mathematical Economics
6) Dowing, Edward T: Introduction to Mathematical Economics, (2/ed.), Schaum's Outlines, McGraw Hill, 1980.
7) Bose, D: An Introduction to Mathematical Economics, Himalaya Publishing Company, Delhi.

MODEL PAPER

M.A. DEGREE EXAMINATION –2017-2018
Second Semester
Branch: Econometrics
PAPER: 205 – MATHEMATICAL ECONOMICS
(Revised Regulations CBSC from 2017-18)

Time: 3 Hours Max. Marks: 80

PART- A

Answer any FIVE questions. Each question carries 4 Marks
(Marks: 5 x 4 = 20 Marks)

1. Explain the rules of partial differentiation.
2. Discuss the concept of partial elasticities.
3. Distinguish between first order and second order differential equations.
4. What is partial integration
5. Explain the concept of Non-homogeneous linear equation.
6. State the importance of Dynamic Multiplier.
7. Discuss the features of Technological Coefficient of Matrix.
8. State the assumptions of Dynamic Input Model.
9. How do you formulate Linear Programming Problem?
10. Explain the importance of Linear Programming Technique.

PART- B

Answer ALL questions. Each question carries 12 Marks
(Marks: 5 x 12 = 60 Marks)

11. Explain constrained optimization with Lagrange multipliers with an example.

OR

Maximise the utility function $U= 6xy-x^2$, subject to the budget constraint $4x+2y=30$.

12. Explain the general formula for solution of first order differential equation with an example.

OR

Find the solution Y(t) of the following differential equation, given that Y(0)= -2

$$\frac{dy}{dt}=\frac{ty^2}{\sqrt{1+t^2}}$$

13. Explain the procedure for solving non homogeneous difference equations and solve the following system.

$$\frac{1}{t}= 4^{1}/_{t} - 1^{-9}$$ and $Y_0 = 5$.

OR

Describe the Multiplier – Accelerator interaction model of Samuelson.

PTO

14. Given an econometrician's explanation for Input – Output technique and appraise the assumptions of input – output model.

OR

Given the matrix

$$X=\begin{bmatrix}50 & 30 & 40\\ 20 & 60 & 25\\ 10 & 15 & 24\end{bmatrix} \text{ and } F=\begin{bmatrix}50\\ 40\\ 60\end{bmatrix}$$

Where X represent the intersectoral flow of goods and F represent the final demand vector, time the total requirement table by inviting Leontief Matrix.

15. Explain the graphical solution of linear programming problem given below:

Maximize $Z= 20x+10y$

Subject to $4x+3y \leq 48$

$3x+5y \leq 60$

$x \leq 9$

$x,y \geq 0$

OR

Using the Simplex method solve the following:

Maximize $Z= 6x_1+4x_2$

Subject to $-2x_1+x_2 \leq 2$

$x_1- x_2 \leq 2$

$3x_1+2x_2 \leq 9$

$x_1,x_2 \geq 0$

CODE	TITLE OF THE PAPER
EMT206	**HUMAN VALUES AND PROFESSIONAL ETHICS**

EMT: 206: HUMAN VALUES AND PROFESSIONAL ETHICS – PAPER II

I. Value Education – Definition relevance to, present day - Concept of Human Values – Self introspection – Selfesteem. Family values-Components, structure and responsibilities of family - Neutralization of anger - Adjustability - Threats of family life - Status of women in family and society Caring for needy and elderly -Time allotment for sharing ideas and concerts.

II. Medical ethics- Views of Charaka, Sushruta and Hippocratus on moral responsibility of medical practitioners. Code of ethics for medical and healthcare profession3!s. Euthanasia, Ethical obligation to animals, Ethical issues in relation to health care professionals and Patients. Social justice in health care, human cloning, problems of abortion. Ethical issues in genetic engineering and Ethical issues raised by new biological technology or knowledge.

III. Business ethics- Ethical standards of business-Immoral and illegal practices are their solutions. Characterics of ethical problems in management, ethical theories, causes of unethical. behavior, ethical buses and work ethics.

IV. Environmentalethics- Ethical theory, man and nature- Ecological crisis, Pest control, Pollution and waste, Climate change, Energy and population, Justice and environmental health.

V. Social ethics- Organ trade, Human trafficking, Human rights violation and social disparities, Feminist ethics, Surrogacy/pregnancy. Ethic of media- Imp2ct of Newspapers, Television, 'Movies and Internet.

Books for study

1. John S Mackenjic: A manual of ethics.
2. "The Ethics of Management" by Larue Tone Hosmer, Richard D. Irwin Inc.
3. "Management Ethics - integrity at work' by Joseph A. Petrick and John F. Quinn, Response Books: New Delhi
4. "Ethics in Management"by S.A. Sherlekar, Himalaya Publishing House.
5. Harold H. Titas: Ethics for Today.
6. Maitra, S.K: Hindu Ethics.
7. William Lilly: Introduction to Ethics.
8. Sinha: A Manual of Ethics.
9. Manu: Manava Dharma Sastra or the Institute of Manu: Comprising the Indian System of Duties: Religious and Civil (ed.) G.CHaughton.
10. SusrutaSamhira: Tr.KavirajKunjanlal, Kunia!alBrishagratha, ChowkambaSanskrt series, Vol T,M and ill, Varnasi. VoiIOO, 16-20,21-32 and 74-77 only.
11. CarakaSambita :Tr. Dr.RamKarariSarma and VaidyaBhagavcn Dash; Chowkambha Sanskrit Series office. Varanasi 1. 11, Il! Vol 1 PP 153-191.
12. Ethics, Theory and Contemporary issues.. Barbara Mackinnon. Wadsworth/Thomson Learning. 2001.
13. Analyzing Moral Issues, Judith A'. Boss, Mayfield Publishin5 Company, 1999.
14. An Introduction, to Applied Ethics (Ed.) John H.Piet and Ayodhya 'Prasad, Cosmo Publications.
15. Text Book for Intermediate First \'ear Ethics and Human Values, Board of Intermediate 'Education-Telugu Akademi. Hyderabad.
16. I.C Sharma Ethical Phitosoph.' of India. Nagin&coJulundhar.

	INDIAN ECONOMY		**4Credits**

EMT 301			

Course Objectives: The objective of this course is to provide the basic knowledge of Indian economyStructure of the Indian Economy, Agricultural Sector, Industrial Sector, Tertiary and Foreign Sectors and Planning and Development of the Indian economy that is with the study of the subject in a Master's programme.

CourseOutcomes: Attheendofthecourse, thestudentwillbeableto

CO1	Students will develop ideas of the basic characteristics of Indian economy, its potential on natural resources.Understand the importance, causes and impact of population growth and its distribution, translate and relate them with economic development.
CO2	Understand agriculture as the foundation of economic growth and development, analyse the progress and changing nature of agricultural sector and its contribution to the economy as a whole. Students will obtain information regarding various agricultural issues in India and remedies for it
CO3	Students will aware about recent economic affairs such as demonetization, universal basic income, cashless economy, skill and training development schemes, make in India etc
CO4	Students will get benefit about various economic issues at local, national and global level.
CO5	Grasp the importance of planning undertaken by the government of India, have knowledge on the various objectives, failures and achievements as the foundation of the ongoing planning and economic reforms taken by the government.

Mappingofcourseoutcomeswiththeprogramoutcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2	-	1	1	-	2	2	-	1
CO2	3	2	2	2	-	1	1	-	2	2	1	2
CO3	3	3	2	-	2	1	1	-	2	2	-	-
CO4	3	2	3	2	-	1	1	-	2	2	1	-
CO5	3	2	1	-	1	2	-	1	1	2	-	1

Unit 1: Structure of the Indian Economy

Indian Economy on the Eve of Independence- Basic Characteristics of the Indian Economy as Developing Economy- Major issues of Development in Indian Economy- Growth and Structural Changes in the Indian Economy- Population-Poverty –Measurement of Poverty, Anti PovertyProgrammes - Inequality- Natural Resources-Infrastructure- Human Development in India-Prices, Price Policy and Economic Growth- Balanced Regional Development-Unemployment in India.

Unit 2: Agricultural Sector

Role Agriculture in Indian Economy- Share of Agriculture - Interrelationship between Agriculture and Industry –Land Tenure System - Farm Size and Productivity -Institutional and Technological Aspects-New Agricultural Policy-Food Security in India-Rural Credit- Agricultural Marketing- Regional Disparities in Indian Agriculture- Irrigation and other Agricultural Inputs.

Unit 3: Industrial Sector

Industrial Structure and Economic Growth- Large and MSMEs - Industrial Labour Problems and Labour Policy -Industrial Sickness Causes and Remedial Measures- Economic Reforms and Industrial Growth-Pattern of Industrialization-Public and Private Industrial Finance in India- Unorganized Sector and Informalisation of the Indian Economy.

Unit 4: Tertiary and Foreign Sectors

Service Sector - Role, Growth and Structure of Service Sector in India –Growth, Composition and Direction of India's Foreign Trade – Trade Policy and its Reforms in India – India's Balance of Payments - WTO and Indian Economy.

Unit 5: Planning and Development

Objectives and Strategy of Planning- Public Sector and Indian Planning- Re-Organization of Planning Commission (NITIAayog) - Privatization and Globalization and its impact on India-Government Subsides in India **-** Problems of Capital Formation- Foreign Capital, Foreign aid and Economic Development in India.

TEXT AND REFERENCE BOOKS:

1. Ghosh. Alak, Indian Economy –Its Nature and Problems, A New Look Indian Economics, Calcutta, The World Press Private Limited, 1989.
2. Jalan.B, The Indian Economy Problems and Prospects, Viking Publications, New Delhi, 2006.
3. RuddarDatt and Sundaram. K.P.M, S.Chand and Company, New Delhi, 2008.
4. S.K.Misra and V.K. Puri, Indian Economy, Himalaya Publishing House, New Delhi, 2006.
5. Sen R.K and B.Chatterjee, Indian Economy-Agenda for 21st Century, Deep and Deep Publications, New Delhi, 2001.

6. Uma Kapila, Indian Economy Since Independence, Agricola Publications Academy, New Delhi, 1998.

Model Paper

M. A. DEGREE EXAMINATION
THIRD SEMESTER
Branch: Econometrics
Paper: EMT: 301-INDIAN ECONOMY
(Revised Regulations CBSC from 2017-18)

Time: 3 Hours Max: Marks: 80

PART- A

Answer any FIVE questions. Each question carries 4 Marks
(Marks: 5 x 4 = 20 Marks)

1. State the major structural changes in Indian economy since its independence.
2. What are the basic characteristics of a developing economy?
3. Write a short note on new agricultural policy.
4. Explain the concept of food security.
5. Write a short note on the source of industrial finance in India.
6. What are the major problems of industrial labour in India.
7. Write a short note on GATT.
8. Describe broad structure of India's foreign trade in recent years.
9. What are the major objectives of planning in India?
10. What are the problems of capital formation in India?

PART- B

Answer ALL questions. Each question carries 12 Marks
(Marks: 5 x 12 = 60 Marks)

11. What do you mean by anti-poverty Programmes? Briefly describe about anti-Poverty programmesimplementedin India after 1970s.

Or

Critically examine the Indian economic development during five-year plans.

12. Explain inter relationship between agriculture and industry.

Or

Examine the controversy in India between the farm size and productivity.

13. What are the causes of industrial Sickness in India? Suggest some remedial measures.

Or

Evaluate the importance of Micro, Small and Medium Scale Enterprises (MSMEs) in the Indian economy.

14. Examine methods of correcting disequilibrium in India's BOP.

Or

Evaluate the impact of WTO on agriculture in India.

15. Explain the concepts of Privatization and Globalization and their impact on India.

Or

Discuss the role of foreign capital and foreign aid in India's Economic development.

EMT 302	**ECONOMICS OF INSURANCE**		**4Credits**

Course Objectives: The objective of this course is to provide the basic knowledge of Economics of Insurance, Element of Risk and Risk Management, Life and Health Insurance, Risk and Insurance, General and Other Types of Insurance and Regulation of Insurance are explained.

CourseOutcomes: Attheendofthecourse, thestudentwillbeableto

CO1	Demonstrate knowledge of insurance contracts and provisions, and the features of property-liability insurance, life and health insurance, and employee benefit plans.
CO2	Demonstrate knowledge of the operation and management of insurance entities, and the economic implications of organizational design and structure.
CO3	Develop skills to facilitate insurance product cost and pricing, marketing, and distribution.
CO4	Develop practical skills through professional development seminars, internships, and/or a practicums in insurance and risk management.
CO5	Examine the role of public policy including social insurance in personal financial planning and risk management.

Mappingofcourseoutcomeswiththeprogramoutcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12

CO1	3	3	2	2	-	1	1	-	2	2	-	1
CO2	3	2	2	2	-	1	1	-	2	2	1	2
CO3	3	3	2	-	2	1	1	-	2	2	-	-
CO4	3	2	3	2	-	1	1	-	2	2	1	-
CO5	3	2	1	-	1	2	-	1	1	2	-	1

Unit 1: Element of Risk and Risk Management

Fundamental of Risk and Uncertainty – Classification of Risk – Risk Pooling and Risk Transfer - Concept of Risk Management – Essentials and Elements of Risk Management – Risk Assessment and Risk Control.

Unit 2: Risk and Insurance

Definition of Insurance – Role and Functions of Insurance – General and Specific Principles of Insurance Contract – Insurance and Economic Development – Insurance as Financial Intermediaries and Investment Institutions – Classification of Insurance - The Concept of Re-insurance.

Unit 3: Life and Health Insurance

Fundamental Principles of Life and Health Insurances – Functions of Life and Health Insurances – Plans of Life and Health Insurance – The Process of Underwriting Life and Health Insurance- Group Insurance

Unit 4: General and Other Types of Insurance

Definition of General Insurance – Marine, Motor Vehicular, Fire and other types of Insurances – Physical and Moral Hazards in General Insurance – The General Insurance Corporation (GIC Re) and General Insurance Companies, NOUN – Growth of General Insurance business in India.

Unit 5:Regulation of Insurance

Organization and Growth of LIC - Monopoly of LIC - Need for Insurance Regulation in India - Functions and Duties of Insurance Regulation and Development Authority (IRDA) of India — Entry of Private and Foreign Insurance Companies – Implications – Prospects of Insurance Companies.

TEXT AND REFERENCE BOOKS:

1. Misra, M. N. and V. K. Puri, (2008), Insurance Principles and Practice, New Delhi: S. Chand.
2. Periasamy, P. (2007), Principles and Practice of Insurance, Mumbai: Himalaya Publishing House.
3. Palande, P. S., Shah, R. S. andLunawal, M. L. (1983), Insurance in India, Changing Policies and Emerging Opportunities, New Delhi: Response Books, A Division of Sage Publications.
4. Bhole, L. M. (1990), The Indian Financial System, New Delhi: Tata McGraw Hill.
5. Black, K. Jr. and H. D. (2000), Life and Health Insurance, New Jersey: Prentice Hall.

6. Bailey, R. (1999), Underwriting and Life and Insurance, Atlanta: LOMA.
7. Bickelhaupt. D. L. (1992), General Insurance, Burr Bridge: Irwin Inc.
8. Hedad, G. L. AND HornI.I. (1991), Essentials of Risk Management, Vol. I Insurance Institute of America.

Model Paper

M. A. DEGREE EXAMINATION
THIRD SEMESTER
Branch: Econometrics
Paper: EMT 302: ECONOMICS OF INSURANCE
(Revised Regulations CBSC from 2017-18)

Time: 3 Hours Max: Marks: 80

PART- A

Answer any FIVE questions. Each question carries 4 Marks
(Marks: 5 x 4 = 20 Marks)

1. Define the concept of Risk and distinguish it from the Concept of Uncertainty.
2. What is Risk Pooling?
3. Define Insurance.
4. Explain the concept of Reinsurance.
5. State the functions life insurance.
6. Give a brief account of any two life insurance products available in India.
7. Mention various types of General Insurance.
8. Explain the concept of Utmost Good faith.
9. Give a brief account on LIC of India.
10. What is IRDA? State its functions briefly.

PART- B

Answer ALL questions. Each question carries 12 Marks
(Marks: 5 x 12 = 60 Marks)

11. Explain the concept of Risk Management and examine the essentials of Risk Management.

Or

Explain the concepts of Risk Assessment and Risk Control. Examine different methods of effective Risk Management.

12. Is Insurance a contract? If so, discuss General and Specific Principles of Insurance Contract.

Or

Elucidate the relationship between Insurance and Economic Development.

13. Critically examine various life insurance products being marketed in India.

Or

What are the functions of Health Insurance? State the relevance of various Health Insurance policies in the Indian Context.

14. Enumerate the problems faced in the marketing of General Insurance policies in India.

Or

Examine the principles of Physical and Moral Hazards in General Insurance with special reference to India.

15. Do you think that there was a need for the entry of private and foreign insurance companies in Insurance business in India? Justify your answer.

Or

Critically examine the functioning of Insurance Regulatory and Development Authority in India.

EMT 303	**ADVANCED ECONOMETRICS**		**4Credits**

Course Objectives: The objective of this course to provide students with a knowledge of the core techniques of econometric analysis which forms the basis for the understanding and critical assessment of published work in empirical econometrics.
To develop the analytical skills required to demonstrate theoretical asymptotic properties of different econometric estimation and testing procedures under weakened modelling assumptions..

CourseOutcomes: Attheendofthecourse, thestudentwillbeableto

CO1	Concepts of Heteroscedasticity&Multicollinearity Possible reasons behind the presence of Heteroscedasticity&Multicollinearity. Skill to judge the reliability of estimation in case of violation of basic assumptions for the application of ordinary linear regression method.
CO2	Concepts of Autocorrlation reasons behind the presence of Heteroscedasticity&Multicollinearity. Describe the variance/covariance matrix for the regression errors under the assumption that the errors are correlated
CO3	Apply modern econometric methods covering time series analysis, financial econometrics, microeconometrics, macroeconometrics and structural econometric modelling;
CO4	Interpret and critically evaluate applied economics research literature; demonstrate programming skills and numerical methods; and

CO5	Apply methods learned to address policy and business decision questions.

Mappingofcourseoutcomeswiththeprogramoutcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2	-	1	1	-	2	2	-	1
CO2	3	2	2	2	-	1	1	-	2	2	1	2
CO3	3	3	2	-	2	1	1	-	2	2	-	-
CO4	3	2	3	2	-	1	1	-	2	2	1	-
CO5	3	2	1	-	1	2	-	1	1	2	-	1

Unit 1: Multicollinearity and Heteroscadasticity

Multicollinearity: Source and Consequences, Tests for Multicollinearity and solutions for Multicollinearity. Heteroscadasticity**:** Sources and Consequences, Tests for Heteroscadasticity, Generalized Least Squares Method of Estimation.

Unit 2: Autocorrelation

Sources of Autocorrelation - first order Autoregressive scheme - Consequences of Autocorrelation - Tests for Autocorrelation – Durbin-Watson test - Methods of estimation of Autocorrelation coefficient - Estimation from d- statistic and Cochran-Orcutt iterative method.

Unit 3: Qualitative and Limited Dependent Variables Models

Binary Choice Models: Linear Probability Model, Probit Model and Logit Models – Censored and Truncated regression models.

Unit 4: Simultaneous Equation Models: Estimation Methods

Two stage Least Squares, Limited Information Maximum Likelihood, K-class Estimators, Three Stage Least Squares and Full Information Maximum Likelihood Methods – Numerical Problems.

Unit 5: Panel Data Regression Models and Time Series Econometrics

Panel Data – Estimation of Panel Data Regression Models - Fixed and Random Effects – Estimation – Introduction to Time Series Econometrics - Stationary and Non-Stationary Stochastic Process – Integrated Stochastic Process – Unit roots – Co-integration – Test for co-integration, Co-integration and error correction mechanism.

TEXT AND REFERENCE BOOKS:

1. Maddala, G.S: Econometrics, McGraw-Hill Book Co., New York, 3rd Rd.
2. Johnston,J: Econometric Methods, McGraw-Hill Book Co., New York.
3. Gujarathi, D.N: Basic Econometrics, Fourth Edition, New Delhi.

4. Maddala, G.S: Limited-Dependent and Qualitative Variables in Econometrics, Cambridge University Press.

MODEL PAPER

M.A. DEGREE EXAMINATION

THIRD SEMESTER

Branch: Econometrics

PAPER: EMT 303 – ADVANCED ECONOMETRICS

(Revised Regulations CBSC from 2017-18)

Time: 3 Hours Max. Marks:80

PART- A

Answer any FIVE questions (Marks: 5 x 4 = 20 Marks)

1. Explain any one of the tests for detecting the Multicollinearity.
2. Explain the Bartlett Test for detecting the Heteroscadasticity.
3. Explain Cochran-Orcutt two-stage method.
4. Discuss the sources and consequences of Auto-Correlated disturbances.
5. Explain the Linear Probability Model.
6. Discuss the Censored Regression Model.
7. Write a note on K-Class estimators.
8. Discuss the LIML method of estimation.
9. What is meant by a fixed effects model (FEM)? Explain.
10. What is meant by an error components model (ECM)? Explain.

PART- B

Answer ALL questions (Marks: 5 x 12= 60 Marks)

11. Explain the concept of Multicollinearity. How does the presence of Multicollinearity affect prediction of the dependent variable?

(OR)

What is Heteroscadasticity? What are its consequences? Discuss a procedure for estimating the parameters of the model in the presence of Heteroscadasticity.

12. Explain Durbin-Watson test for testing the positive and negative Autocorrelation of first order.

(OR)

Explain the procedure for estimation of parameters of the model in the presence of Auto-correlation.

13. Explain the method of Probit Model in Limited Dependent Variables.

(OR)

Explain the Logit Method of Estimation.

14. Discuss the method of Two Stage Least Squares (2SLS).

(OR)

Explain the method of Full Information Maximum Likelihood (FIML).

15. When is panel data regression model inappropriate? Give an example.

(OR)

What is meant by an integrated time series? Explain.

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➢

EMT 304	**COMPUTER APPLICATIONS AND DATA ANALYSIS**		**4Credits**

Course Objectives: The objective of the course is to provide knowledge on Econometric tools and their applications on Economic theory and practice using statistical packages like STATA, SPSS, R, e-views etc.

CourseOutcomes: Attheendofthecourse, thestudentwillbeableto

CO1	Students will get basic knowledge of computers i.e., block diagram, evolution of computer, input/output devices, storing information in computer etc.
CO2	At the end of this course student will gain Examine spreadsheet concepts and explore the Microsoft Office Excel environment. Import and export data.
CO3	Work with pivot tables and charts. Create and edit charts. Learn to use functions and formulas. Perform analysis tasks using Data analysis pack
CO4	Student gained and evaluate Econometric Methods such as OLS, LPM, Logistic regression analyses and conclude using SPSS Package
CO5	Finally, student will be able to write programme for Simple statistical analyse and interpret through R-programming.

Mappingofcourseoutcomeswiththeprogramoutcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2	-	1	1	-	2	2	-	1
CO2	3	2	2	2	-	1	1	-	2	2	1	2

CO3	3	3	2	-	2	1	1	-	2	2	-	-
CO4	3	2	3	2	-	1	1	-	2	2	1	-
CO5	3	2	1	-	1	2	-	1	1	2	-	1

Unit 1: Computer Fundamentals

Definition - Components of a computer-block diagram – Evolution of computer – Generations – input/output devices – storing information in computer – types of computers – Hardware and Software – Compilers and Assemblers – Low level and high-level languages – Operating systems and the graphic user interface – Microsoft Windows operating system.

Unit 2: MS-WORD

Creating, opening and saving files - editing and formatting text - spell and grammar check – auto correct- hyphenation – creating of tables and columns - mail merge - equation editor – concept of a macro - print preview.

Unit 3: MS-EXCEL

Work sheet – entering data – creation of worksheets and workbooks – opening and saving workbooks - editing and formatting - sorting, filtering and pivot tables - Creating graphs and charts - mathematical and statistical functions -Data analysis pack in Excel - Descriptive statistics, tests of hypothesis, ANOVA, Correlation and Regression, Random Number Generation.

Unit 4:Data Handling Using SPSS

Opening Excel files in SPSS - Variables, labels and values, Analysis tools - Descriptive statistics - Selection of variables in multiple linear regression - Stepwise, forward and backward procedures - Factor analysis and Discriminant analysis (Stress on procedures and syntax only).

Unit 5: Data Analysis using R

R environment – Workspace, Getting help, Packages and Built-in data - Assigning values, performing vectorized arithmetic - Creating objects, vectors, lists, matrices, arrays and data frames - Conditional selection, sorting and indexing data frames, implicit looping - Importing data - Branching and looping statements - plotting data – Bar plots, Pie charts, Histogram, Box plots - Summary statistics - Generating samples from discrete and continuous distributions - Simple correlation and regression - Testing hypothesis of mean and variance, Analysis of variance.

TEXT AND REFERENCE BOOKS:

1. Shelly and Hunt, Computers and Common Sense, Prentice Hall of India, New Delhi.
2. Rajaraman V, Fundamentals of Computers, Prentice Hall of India, New Delhi.
3. Peter Dalgaard (2008): Introductory Statistics with R, 2nd Edition, Springer, New York. (Chapters 1, 2, 3,4,5,6 and 7).
4. Peter Norton's Introduction to computers, Tata McGraw Hill Publishing Co., New York.
5. Foster,J.J.(2001), Data Analyzing using SPSS For Windows 8.0 – 10.0, A Beginner's Guide.
6. M. Crawley, Basic Statistics: An Introduction using R.
7. B.S. Everitt& T. Hothorn, A Handbook of Statistical Analyses Using R (2nd Ed.).

8. J. Maindonald& J. Braun, Data Analysis and Graphics Using R: An Example-based. Approach.
9. P. Murrell, R Graphics (2nd Ed.).

- Finally, student will be able to write programme for Simple statistical analyse and interpret through R-programming.

Model Paper

M. A. DEGREE EXAMINATION

THIRD SEMESTER

Branch: Econometrics

EMT 304 – COMPUTER APPLICATIONS AND DATA ANALYSIS

(Revised Regulations CBSC from 2017-18)

Time: 3 Hours Max: Marks: 80

PART- A

Answer any FIVE questions. Each question carries 4 Marks

(Marks: 5 x 4 = 20 Marks)

1. Explain the characteristics of a computer.
2. Distinguish between Hardware and Software.
3. Describe the concept of 'macro' in MS Word.
4. Explain the importance of Spell and Grammar check in MS Word.
5. How do you create Worksheets and label them in MS Excel?
6. Distinguish between Absolute cell referencing and Relative cell referencing.
7. Describe the procedure for opening Excel files in SPSS.
8. Explain the Descriptive Statistics for data analysis in SPSS.
9. Explain the method of sorting and indexing data frames using R- software.
10. How do you draw Bar chart using R-software?

PART- B

Answer ALL questions. Each question carries 12 Marks

(Marks: 5 x 12 = 60 Marks

11. Describe the input-output devices of a computer and show them in a Block-diagram.

Or

What is an Operating System? Explain its features.

12. Discuss the procedure for creation of a Table, inserting columns and rows and editing them in MS Word.

Or

Describe the procedure for inserting Microsoft Equation in MS Word and explain the uses of equation editor in MS Word.

13. Explain the procedure for creating a scatter diagram and editing it in MS Excel by using Hypothetical statistical data.

Or

Discuss the steps involved in the estimation of descriptive statistics by using statistical functions in MS Excel. PTO

14. Explain the procedure for estimating a linear regression equation for statistical data using SPSS.

Or

Discuss the procedure for estimating the Chi-square test statistic using SPSS.

15. Explain the procedure of generating samples from discrete and continuous distributions using R-software.

Or

Using R-software, compute the mean, variance and ANOVA table with an example of your own.

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EMT 305	**PUBLIC FINANCE**		**4Credits**
Course Objectives: The objectives of public finance are achieved by managing and drafting policies pertaining to key areas such as taxation, management of public revenue and expenditure, raising and servicing public debt, fiscal administration at various levels.			
CourseOutcomes: Attheendofthecourse, thestudentwillbeableto			
CO1	Understand the sources of finance both public and private, demonstrate the role of government to correct market failures and possible advantage of public financing		
CO2	Attain the advantages and knowledge of public investments and other government expenditures. Understand the causes of growing public expenditures for various programmes and policies within and outside the country.		
CO3	Understand the possible burden, benefits and distribution of various types of taxes among various classes of people, know the general trend and impact on general welfare and arouse them to suggest good and bad tax system.		

CO4	Understand the needs of public borrowing from all possible sources to meet necessary public investment/expenditures. Also be alerted to find sources for repayment
CO5	Deliver effectively the preparation of budget and how they are passed in the house. Understand the changes in size and flexibility of state and central budget along with the role played by Finance Commission.

Mappingofcourseoutcomeswiththeprogramoutcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2	-	1	1	-	2	2	-	1
CO2	3	2	2	2	-	1	1	-	2	2	1	2
CO3	3	3	2	-	2	1	1	-	2	2	-	-
CO4	3	2	3	2	-	1	1	-	2	2	1	-
CO5	3	2	1	-	1	2	-	1	1	2	-	1

Unit 1: Scope and Structure of Public Finance

Nature, Scope and Importance of Public Finance - Public Finance and relationship with other Sciences - Distinction between Public and Private Finance - Principles of Public Finance-Principle of Opportunity Cost in Public Finance - Theory of Public Goods and Merit Goods - Role of Public Finance in Developing Economies and Underdeveloped Countries.

Unit 2: Public Expenditure

Introduction - Difference between Public and Private Expenditure - Reasons for growth of Public Expenditure - Classification and Canons of Public Expenditure - Effects of Public Expenditure - Wagner's Law of Increasing State Activities - Peacock and Wiseman Hypothesis - Controls and Accountability of Public expenditure in India

Unit 3: Public Revenue and Taxation

Sources of Public Revenue - Classification of Public Revenue - Principle of Public Revenue - Effects and significance of Public Revenue - Characteristics of Good Tax system in India - Canon of Taxation - Classification of Taxation - Benefit (Modern) theories of Taxation - Ability to Pay Theory - Taxable Capacity - Value Added Taxation**(VAT)**and GST Principle and Issues – Indian Tax Structure – Incidence and Effects of Taxation.

Unit 4: Public Debt

Classification of Public Debt - Causes of Public Debt - Objectives of Public Debt - Effects of Public Debt - Burden of Public Debt - Public debt Management - Public Debt in India.

Unit 5:Budget and Federal Fiscal Systems

Introduction –Definitions of Primary deficit, Revenue deficit, Budgetary deficit and Fiscal deficit - Budget classification - Zero Base Budgeting - Fiscal Deficit and Budgetary Deficit in India – FRBM - Centre-State Financial relations in India –Functions of Finance Commission - Recommendations of 13^{th}and14^{th} Finance Commissions.

TEXT AND REFERENCE BOOKS:

1. B.P.Tyagi, Public Finance, Jai Prakash& Company, Meerut, 2008.
2. Bhargava .R.N, the Theory and Practice of Union Finance in India, Chaitanya Publishers, Allahabad, 1998.
3. Dalton.H, Principle of Public Finance, Allied Publishers, Bombay, 1992.
4. Dwevedi.P.N, Reading in Indian Public Finance, Chanakya Publications, New Delhi, 2006.
5. Lakadawala.D.T, Union State Financial Relations, Lalwani Publishers House, Mumbai, 1986.
6. Mathew.T, Tax Policy, Some Aspects of Theory and Policy, Chanakya Publications, New Delhi, 2001.
7. Mundle.Sudipto.(ed), Public Finance, Policy Issues for India, OxfordUniversity, Press, 1999.
8. Musgave.R.A, The Theory of Public Finance- A Study of Public Finance, McGraw hill company, Tokyo, 1999.
9. R.K.Lekhi, Public Finance, Kalyani Publishers, New Delhi, 2007.

Model Paper

M.A DEGREE EXAMINTION-
THIRD SEMESTER
BRANCH: ECONOMETRICS
Paper-305: PUBLIC FINANCE
(Under CBCS Revised Syllabus from 2017-18)

Time: 3 Hours Max. Marks: 80

Section-A
Answer any FIVE questions
Each question carries 4 marks(5X4=20)

1. Distinguish between Private Finance and Public Finance.
2. Explain the concepts of Public Goods and Merit Goods.
3. State any four Cannons of public expenditure.
4. List out the effects of public expenditure.
5. Define Tax and discuss any three cannons of tax.
6. Explain the concept of Taxable capacity.
7. What are the causes of public debt?

8. Do you agree with the statement that internal debt is not a burden?
9. Distinguish between Primary deficit and Revenue deficit.
10. Write a short note on FRBM.

Section- B

Answer ALL the questions

Each question carries 12 marks(5X12=60)

11. (a) Discuss the nature, scope and importance of Public Finance.

Or

(b) Elucidate the principles of Public Finance.

12. (a) Critically examine the Wagner's Law of Increasing State Activities.

Or

(b) Explain the need for controls on and accoutability of Public expenditure in India.

PTO

13. (a) Analyse the characteristics of good tax system. Are they found in the Indian tax system?

Or

(b) Discuss the 'Ability to Pay' Theory of Taxation.

14. (a) Define Public Debt and discuss different types of classification of Public Debt.

Or

(b) Explain the principles governing the management of Public Debt.

15. (a) Critically examine the present system of Centre-State financial relations in India.

Or

(c) Discuss the major recommendations of 14th Finance Commission in India.

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EMT 306	**FINANICIAL INSTITUTIONS AND MARKETS**		**4Credits**
Course Objectives: To introduce students to the world of financial services to enrich student's understanding of the fundamental concepts and working of financial service institutions. Further, to equip students with the knowledge and skills necessary to become employable in the financial service			

industry.	
CourseOutcomes: Attheendofthecourse, thestudentwillbeableto	
CO1	Explain the broad features of Indian financial institutions with its apex banks' objectives and purview. Also understand the instruments to control credit in the country.
CO2	Effectively narrate the kinds and components of money with its regulatory system, be aware of the functions, objectives and limitations of commercial banks.
CO3	Identify the existence and development of non-banking financial institutions, know the important role of Mutual funds, LIC, investment companies etc., utilize and effectively participate in the development process.
CO4	Understand the conditions of financial markets and its impact in the economy
CO5	Demonstrate the role and significance of foreign exchange rate and its markets with its impact on various sectors in the economy.

Mappingofcourseoutcomeswiththeprogramoutcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2	-	1	1	-	2	2	-	1
CO2	3	2	2	2	-	1	1	-	2	2	1	2
CO3	3	3	2	-	2	1	1	-	2	2	-	-
CO4	3	2	3	2	-	1	1	-	2	2	1	-
CO5	3	2	1	-	1	2	-	1	1	2	-	1

Unit 1: Financial System

Evolution of Financial System – Structure of Financial System – Functions of Financial System – Financial System and Economic Development.

Unit 2: Money Market

Features of Money Market – Instruments of Money Market: Call Money Market – Treasury Bills Market – Commercial Bills – Market for Commercial Papers – Certificate of Deposits – Discount and Finance House of India (DFHI) – Securities Trading Corporation of India (STCI) – Deficiencies and Recent Developments in Indian Money Market.

Unit 3: Capital Market

Industrial Securities Market: Primary and Secondary Markets – Government Securities Market and Long Market – Objectives, Functions and performance of Securities and Exchange Board of India (SEBI) – Over the Counter Exchange of India (OCTCEI) – Functions of Stock Exchanges – Bombay Stock Exchange (BSE) – National Stock Exchange (NSE) – Reforms in Capital Market.

Unit 4: Banking and Financial Institutions

Banking: Central Banking: Objectives and Functions - Commercial Banks, Functions and Growth - Process of Credit Creation – Growth and Control of Non-banking Financial Institutions - Functions and Performance of Industrial Finance Corporation of India (IFCI) – Industrial Development Bank of India (IDBI) – Industrial Credit and Investment Corporation of India (ICICI) – Small Industrial Development Bank of India (SIDBI) – State Financial Corporations (SFCs) – Mutual Funds.

Unit 5: Investment Institutions and Foreign Capital

Functions and Performance of Life Insurance Corporation (LIC) – General Insurance Corporation (GIC) and Unit Trust of India (UTI) – Forms of Foreign Capital – International Financial Instruments – Trends in Foreign Capital Inflows to India – Advantages and Disadvantages of Foreign Capital.

TEXT AND REFERENCE BOOKS:

1. M.Y. Khan, Indian Financial System, Tata McGraw Hill, New Delhi.
2. L.M.Bhole, Financial Institutions and Markets, Tata McGraw Hill, New Delhi.
3. V.A.Avadhani, Indian Capital Market, Himalaya Publishing House, Bombay.
4. H.R.Machiraju, International Financial Markets and India, Wheeler Publishing Company, New Delhi.
5. Vasant Desai, Indian Financial System, Himalaya Publications, Bombay.
6. Peter.S. Rose, Money and Capital Market: Financial Institutions and Instruments, Tata McGraw Hill, London.
7. S.C.Kucchal, Corporation Finance, Chaitanya Publishing, Allahabad.
8. S.L.N.Sinha, Capital Market in India, Vora& Co, Bombay.
9. Hendrik.S. Houthakker, The Economics of Financial Markets, Oxford University Press, New Delhi.

Model Paper

M. A. DEGREE EXAMINATION
THIRD SEMESTER
Branch: Econometrics
Paper: EMT: 306- FINANCIAL INSTITUTIONS AND MARKETS
(Revised Regulations CBSC from 2017-18)

Time: 3 Hours Max: Marks: 80

PART- A

Answer any FIVE questions. Each question carries 4 Marks(Marks: 5 x 4 = 20 Marks)

1. Write a note on evolution of financial system.
2. State the structure of financial system.
3. What is the feature of Money market?
4. Give an account of discount and finance houses in India.

5. Explain briefly the functions of stock exchange.
6. Mention the features of primary Market.
7. What are the uses of mutual funds?
8. What are the functions of Industrial Finance Corporation of India (IFCI)?
9. Explain the advantages of foreign capital.
10. State briefly the Role of UTI in mobilizing financial resources.

PART- B

Answer ALL questions. Each question carries 12 Marks (Marks: 5 x 12 = 60 Marks)

11.Discuss the role of financial system in economic development.

Or

Explain the functions of financial system.

12. Elucidate the recent developments in Indian money market and their limitations.

Or

Explain the instruments of money market and their limitations.

13. Explain the reforms introduced by the Govt.to improve the performance of capital market.

Or

State the objectives and functions of and Securities and Exchange Board India (SEBI).

14.Discus the functions and achievement of I.C.I.C.I

Or

Explain the role of Industrial Development Bank of India in Industrial Development.

15. Mention the functions and problems of Life Insurance Corporation.

Or

Discuss the advantages and disadvantages of foreign capital.

EMT 307: PRACTCAL-III	**ADVANCED ECONOMETRICS, AND COMPUTER APPLICATIONS AND DATA ANALYSIS**		**4Credits**
Course Objectives: The objective of this course is to provide knowledge of data analysis through the domains of MS-Excel, SPSS and R-programming. In today's business world, data analysis plays a role in making decisions more scientific and helping businesses operate more effectively.			
CourseOutcomes: Attheendofthecourse, thestudentwillbeableto			

CO1	Student will gain Examine spreadsheet. Work with pivot tables and charts. Create and edit charts. Learn to use functions and formulas.
CO2	Perform analysis tasks using Data analysis pack using MS-Excel.
CO3	Student gained and evaluate Econometric Methods such as OLS, LPM, Logistic regression analyse and conclude using SPSS Package
CO4	Student will able to test of Multicollinearity, Heteroscedasticity and Autocorrelation.
CO5	Student will be able to write programme for Simple statistical analyse and interpret through R-programming.

Mappingofcourseoutcomeswiththeprogramoutcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2	-	1	1	-	2	2	-	1
CO2	3	2	2	2	-	1	1	-	2	2	1	2
CO3	3	3	2	-	2	1	1	-	2	2	-	-
CO4	3	2	3	2	-	1	1	-	2	2	1	-
CO5	3	2	1	-	1	2	-	1	1	2	-	1

Concepts are covered in this Practical Approach follows;

- **MS-Excel;**Pivot tables, Charts-Histogram, Bar, Pie, Scatter diagrams, Data Analysis Pack-Descriptive Statistics, Correlation Matrix, Simple and Multiple Regression analysis and Testing of Hypothesis.
- **SPSS;**Descriptive Statistics, Correlation Matrix, Simple and Multiple Regression analysis and Testing of Hypothesis.
  Using SPSS Testing of Multicollinearity, Heteroscedasticity and Autocorrelation, LPM and Logistic regression models
  R-programme;Descriptive Statistics, Correlation Matrix, Simple and Multiple Regression analysis and Testing of Hypothesis, LPM and Logistic Regression Models.

SRI VENKATESWARA UNIVERSITY: TIRUPATI
BRANCH IV (B) - ECONOMETRICS
Semester-303(A): PRACTICAL EXAMINATION
COMPUTER APPLICATIONS AND DATA ANALYSIS

Time: 3 Hours **Max. Marks: 80**

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Answer any Four Questions. All Questions Carry Equal Marks [4x20 = 80]

1. The following data refers to the distribution of body length of 120 fish observed in a lake.

Class	8-10	10 - 12	12 - 14	14 -16	16 - 18	18 - 20
Frequency	4	24	41	31	16	4

Prepare i) Histogram, ii) Frequency Polygon iii) Ogives

2. The following data refers to the intake of various dietary components consumed by 20 experimental subjects. Calculate all possible correlations among them using Excel Data Analysis and interpret the findings.

SNO	PRO	FAT	CHO	CAL	IRON	VITA
1	54.0	37.0	518.0	360	21	2321
2	58.0	34.0	524.0	363	22	2481
3	61.0	36.0	534.0	388	23	2436
4	54.0	42.0	526.0	372	26	2151
5	56.0	39.0	521.0	381	24	2122
6	57.0	41.0	542.0	379	23	2238
7	58.0	42.0	524.0	386	24	2408
8	52.0	43.0	512.0	381	28	2326
9	59.0	46.0	544.0	372	21	2129
10	53.0	45.0	538.0	389	20	2189
11	58.0	39.0	526.0	376	18	2326
12	52.0	48.0	556.0	388	17	2289
13	61.0	42.0	551.0	361	16	2186
14	58.0	47.0	548.0	373	22	2381
15	51.0	46.0	532.0	389	19	2286
16	42.0	41.0	489.0	348	21	2132

17	49.0	40.0	512.0	347	23	2412
18	51.0	42.0	551.0	386	26	2638
19	59.0	46.0	552.0	346	25	2132
20	42.0	41.0	489.0	389	20	2189

3. Fit the Multiple Linear Regressions for the following data using R-Programme and comment on results.

Y	40	44	46	48	52	58	60	68	74	80
X1	6	10	12	14	16	18	22	24	26	32
X2	4	4	5	7	9	12	14	20	21	24

4. The weights of a calf taken at weekly intervals are given below. Plot the scatter diagram and fit a Straight Line using the method of least squares. Display the Straight Line Equation and r^2 Value on chart. What is the average rate of growth per week?

Age (X)	1	2	3	4	5	6	7	8	9	10
Weight(Y) (in Kgs)	52.5	58.7	65.0	70.2	75.4	81.1	87.2	95.5	102.2	108.4

5. The below table gives Y is Dependent variable and X_1, X_2, X_3, X_4, X_5 are independent variables. Our model is $Y = \alpha_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + \alpha_5 X_5 + \varepsilon$

Y	**X1**	**X2**	**X3**	**X4**	**X5**
60323	830	234289	2356	1590	107608
61122	885	259426	2325	1456	108632
60171	882	258054	3682	1616	109773
61187	895	284599	3351	1650	110929
63221	962	328975	2099	3099	112075
63639	981	346999	1932	3594	113270
64989	990	365385	1870	3547	115094
63761	1000	363112	3578	3350	116219

66019	1012	397469	2904	3048	117388
67857	1046	419180	2822	2857	118734
68169	1084	442769	2936	2798	120445
66513	1108	444546	4681	2637	121950
68655	1126	482704	3813	2552	123366
69564	1142	502601	3931	2514	125368
69331	1157	518173	4806	2572	127852
70551	1169	554894	4007	2827	130081

Detect Multicollinearity using VIF test. If there Multicollinearityproblem exist what solution you are suggest [using SPSS].

6. Create an Excel worksheet with the following data

SNO	TC	TR	HDL	VLD	LDL
1	187.1	210.1	33.6	42	111.5
2	194.2	211.4	30.8	42.3	121.2
3	203.6	215.4	31	43	129.6
4	200	228.1	32.4	45.6	122
5	201	211.4	32	42.3	126.7
6	187.2	194.1	32.4	38.8	116
7	209.1	218.8	29.1	43.8	136.2
8	167.4	239.1	29.8	47.8	89.7
9	171.1	222	30.4	44.4	96.3
10	210.2	225.1	30	45	135.2
11	220.1	200.1	31	40	149.1
12	216.4	194.9	31.9	38.9	145.6
13	259.4	209.1	30.8	41.8	186.8

14	209	231	30	46.2	132.8
15	200	221	30	44.2	125.8

Using this data find the Descriptive Statistics using Data Analysis in Excel. Comment on results

EMT 308	**INTRODUCTION TO ECONOMETRICS**		**4Credits**

Course Objectives: The objective of the course is to provide knowledge on Econometric applications of Economic theory.

CourseOutcomes: Attheendofthecourse, thestudentwillbeableto

CO1	students will have adequate competency in the frontier areas of economic theory and methods
CO2	Use basic econometric estimation techniques such as Ordinary Least Squares to estimate bivariate and multivariate regression models.
CO3	Decision about the statistical significance of individual explanatory variable and also over all model.
CO4	Impacts for the violation of one of the important assumptions for application of OLS regression.
CO5	Students will acquire additional specialization topics are estimation of system of equations, estimation of panel data models, generalized method of moments, discrete response models, censored regression models and estimation of average treatment effects.

Mappingofcourseoutcomeswiththeprogramoutcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2	-	1	1	-	2	2	-	1
CO2	3	2	2	2	-	1	1	-	2	2	1	2
CO3	3	3	2	-	2	1	1	-	2	2	-	-
CO4	3	2	3	2	-	1	1	-	2	2	1	-
CO5	3	2	1	-	1	2	-	1	1	2	-	1

Unit 1: Nature of Econometrics and Economic Data
Definition of Econometrics – Steps in Empirical Economic Analysis - Econometric Model – The Role of Measurement in Economics – The Structure of Economic Data: Cross-Sectional data, Time Series data, Pooled Cross Section data, Panel Data.

Unit 2: Simple Regression Model
Two Variable Linear Regression Model: Assumptions, Estimation of Parameters, Tests of Significance and Properties of Estimators – Functional forms of Regression models – Log-linear models, Semi log- models and Reciprocal models – Choice of Functional Form.

Unit 3: The General Linear Model
Review of Assumptions, Estimation and Properties of Estimators: Un-biasness, BLUEs and Tests of significance of estimates – Analysis of Variance - **Dummay variables -** Nature of Dummy variables – Use of Dummy Variables – Errors in Variables and its consequences.

Unit 4: Auto-regressive and Distributed Lag Models
Introduction – Types of Lag schemes - Koyck's lag model, Almon's Lag scheme, Partial Adjustment and Expectations models - Causality in Economics – The Granger Causality Test.

Unit 5: Simultaneous Equation Models
Specification – Simultaneous Bias – Inconsistency of OLS Estimators - The concept of Identification, Rank and Order conditions for Identification – Indirect Least Squares - Two stage Least Squares (without proof), Problems.

TEXT AND REFERENCE BOOKS:

1. Johnston,J: Econometric Methods, McGraw-Hill Book Co., New York.
2. Maddala, G.S: Econometrics, McGraw-Hill Book Co., New York, 3rd Rd.
3. Gujarathi, D.N: Basic Econometrics, Fourth Edition, Tata McGraw-Hill, New Delhi.
4. Tintner,G: Econometrics, John Wiley & Sons, New York.
5. Wooldridge, Jeffery M: Econometrics, Cengage Learning India Pvt. Ltd, New Delhi.

MODEL PAPER

M.A. DEGREE EXAMINATION
THIRD SEMESTER
Branch: Econometrics
PAPER: 308 – INTRODUCTION TO ECONOMETRICS
(Revised Regulations CBSC from 2017-18)

Time: 3 Hours Max. Marks: 80

PART- A

Answer any FIVE questions. Each question carries 4 Marks
(Marks: 5 x 4 = 20 Marks)

1. Discuss the role of measurement in Economics.

2. Explain the method of Pooling of Cross Section and Time Series Data.
3. State the properties of OLS Estimators.
4. State the assumptions of the two variable linear model.
5. Derive the mean and variance of OLS estimator in general linear model.
6. What is Error in Variables linear model? What are its consequences?
7. What is a distributed lag model? Explain different lag schemes in lagged variable linear models.
8. Explain the method of Koyck's lag scheme.
9. Show that the OLS estimators are inconsistent in simultaneous equation models.
10. State the Rank and Order conditions for Identification.

PART- B

Answer ALL questions. Each question carries 12 Marks
(Marks: 5 x 12 = 60 Marks)

11. Explain the interrelationship among economics, mathematics and statistics in econometric approach.

(OR)

What are the basic principles of Econometric model building?

12. Formulate the classical linear regression model and discuss the properties of least squares estimators of a linear regression model.

(OR)

Explain the different Functional Forms of regression models

13. Show that the OLS estimators are BLUEs.

(OR)

What is multiple correlation coefficient? What are its uses and explain the difference between R^2 and adjusted R^2?

PTO

14. Explain Almon's method of estimation of parameters in lagged variables

(OR)

Explain the Partial Adjustment and Cagan's Adaptive Expectations models in distributed lag models

15. Explain the method of Indirect Least Squares.

(OR)

Explain the model specification, assumptions and procedure of 2SLS method of estimation without proof.

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EMT 309	INDIAN ECONOMY		4Credits

Course Objectives: The objective of this course is to provide the basic knowledge of Indian economyStructure of the Indian Economy, Agricultural Sector, Industrial Sector, Tertiary and Foreign Sectors and Planning and Development of the Indian economy that is with the study of the subject in a Master's programme.

CourseOutcomes: Attheendofthecourse, thestudentwillbeableto

CO1	Students will develop ideas of the basic characteristics of Indian economy, its potential on natural resources.Understand the importance, causes and impact of population growth and its distribution, translate and relate them with economic development.
CO2	Understand agriculture as the foundation of economic growth and development, analyse the progress and changing nature of agricultural sector and its contribution to the economy as a whole. Students will obtain information regarding various agricultural issues in India and remedies for it
CO3	Students will aware about recent economic affairs such as demonetization, universal basic income, cashless economy, skill and training development schemes, make in India etc
CO4	Students will get benefit about various economic issues at local, national and global level.
CO5	Grasp the importance of planning undertaken by the government of India, have knowledge on the various objectives, failures and achievements as the foundation of the ongoing planning and economic reforms taken by the government.

Mappingofcourseoutcomeswiththeprogramoutcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2	-	1	1	-	2	2	-	1
CO2	3	2	2	2	-	1	1	-	2	2	1	2
CO3	3	3	2	-	2	1	1	-	2	2	-	-
CO4	3	2	3	2	-	1	1	-	2	2	1	-
CO5	3	2	1	-	1	2	-	1	1	2	-	1

Unit 1: Structure of the Indian Economy

Indian Economy on the Eve of Independence- Basic Characteristics of the Indian Economy as Developing Economy- Major issues of Development in Indian Economy- Growth and Structural Changes in the Indian Economy- Population-Poverty –Measurement of Poverty, Anti PovertyProgrammes - Inequality- Natural Resources-Infrastructure- Human Development in India-Prices, Price Policy and Economic Growth- Balanced Regional Development-Unemployment in India.

Unit 2: Agricultural Sector

Role Agriculture in Indian Economy- Share of Agriculture - Interrelationship between Agriculture and Industry –Land Tenure System - Farm Size and Productivity -Institutional and Technological Aspects-New Agricultural Policy-Food Security in India-Rural Credit- Agricultural Marketing- Regional Disparities in Indian Agriculture- Irrigation and other Agricultural Inputs.

Unit 3: Industrial Sector

Industrial Structure and Economic Growth- Large and MSMEs - Industrial Labour Problems and Labour Policy -Industrial Sickness Causes and Remedial Measures- Economic Reforms and Industrial Growth-Pattern of Industrialization-Public and Private Industrial Finance in India- Unorganized Sector and Informalisation of the Indian Economy.

Unit 4: Tertiary and Foreign Sectors

Service Sector - Role, Growth and Structure of Service Sector in India –Growth, Composition and Direction of India's Foreign Trade – Trade Policy and its Reforms in India – India's Balance of Payments - WTO and Indian Economy.

Unit 5: Planning and Development

Objectives and Strategy of Planning- Public Sector and Indian Planning- Re-Organization of Planning Commission (NITI Aayog) - Privatization and Globalization and its impact on India-Government Subsides in India **-** Problems of Capital Formation- Foreign Capital, Foreign aid and Economic Development in India.

TEXT AND REFERENCE BOOKS:

7. Ghosh. Alak, Indian Economy –Its Nature and Problems, A New Look Indian Economics, Calcutta, The World Press Private Limited, 1989.
8. Jalan.B, The Indian Economy Problems and Prospects, Viking Publications, New Delhi, 2006.
9. RuddarDatt and Sundaram. K.P.M, S.Chand and Company, New Delhi, 2008.
10. S.K.Misra and V.K. Puri, Indian Economy, Himalaya Publishing House, New Delhi, 2006.
11. Sen R.K and B.Chatterjee, Indian Economy-Agenda for 21st Century, Deep and Deep Publications, New Delhi, 2001.
12. Uma Kapila, Indian Economy Since Independence, Agricola Publications Academy, New Delhi, 1998.

Model Paper

M. A. DEGREE EXAMINATION
THIRD SEMESTER
Branch: Econometrics
Paper: EMT 309: INDIAN ECONOMY
(Revised Regulations CBSC from 2017-18)

Time: 3 Hours Max: Marks: 80

PART- A

Answer any FIVE questions. Each question carries 4 Marks
(Marks: 5 x 4 = 20 Marks)

10. State the major structural changes in Indian economy since its independence.
11. What are the basic characteristics of a developing economy?
12. Write a short note on new agricultural policy.
13. Explain the concept of food security.
14. Write a short note on the source of industrial finance in India.
15. What are the major problems of industrial labour in India.
16. Write a short note on GATT.
17. Describe broad structure of India's foreign trade in recent years.
18. What are the major objectives of planning in India?
10. What are the problems of capital formation in India?

PART- B

Answer ALL questions. Each question carries 12 Marks
(Marks: 5 x 12 = 60 Marks)

11. What do you mean by anti-poverty Programmes? Briefly describe about anti-Poverty programmesimplementedin India after 1970s.

Or

Critically examine the Indian economic development during five-year plans.

12. Explain inter relationship between agriculture and industry.

Or

Examine the controversy in India between the farm size and productivity.

13. What are the causes of industrial Sickness in India? Suggest some remedial measures.

Or

Evaluate the importance of Micro, Small and Medium Scale Enterprises (MSMEs) in the Indian economy.

14. Examine methods of correcting disequilibrium in India's BOP.

Or

Evaluate the impact of WTO on agriculture in India.

15. Explain the concepts of Privatization and Globalization and their impact on India.

Or

Discuss the role of foreign capital and foreign aid in India's Economic development.

EMT 310	**ECONOMICS OF INSURANCE**		**4Credits**

Course Objectives: The objective of this course is to provide the basic knowledge of Economics of Insurance, Element of Risk and Risk Management, Life and Health Insurance, Risk and Insurance, General and Other Types of Insurance and Regulation of Insurance are explained.

CourseOutcomes: Attheendofthecourse, thestudentwillbeableto

CO1	Demonstrate knowledge of insurance contracts and provisions, and the features of property-liability insurance, life and health insurance, and employee benefit plans.
CO2	Demonstrate knowledge of the operation and management of insurance entities, and the economic implications of organizational design and structure.
CO3	Develop skills to facilitate insurance product cost and pricing, marketing, and distribution.
CO4	Develop practical skills through professional development seminars, internships, and/or a practicums in insurance and risk management.
CO5	Examine the role of public policy including social insurance in personal financial planning and risk management.

Mappingofcourseoutcomeswiththeprogramoutcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2	-	1	1	-	2	2	-	1
CO2	3	2	2	2	-	1	1	-	2	2	1	2

CO3	3	3	2	-	2	1	1	-	2	2	-	-
CO4	3	2	3	2	-	1	1	-	2	2	1	-
CO5	3	2	1	-	1	2	-	1	1	2	-	1

Unit 1: Element of Risk and Risk Management

Fundamental of Risk and Uncertainty – Classification of Risk – Risk Pooling and Risk Transfer - Concept of Risk Management – Essentials and Elements of Risk Management – Risk Assessment and Risk Control.

Unit 2: Risk and Insurance

Definition of Insurance – Role and Functions of Insurance – General and Specific Principles of Insurance Contract – Insurance and Economic Development – Insurance as Financial Intermediaries and Investment Institutions – Classification of Insurance - The Concept of Re-insurance.

Unit 3: Life and Health Insurance

Fundamental Principles of Life and Health Insurances – Functions of Life and Health Insurances – Plans of Life and Health Insurance – The Process of Underwriting Life and Health Insurance- Group Insurance

Unit 4: General and Other Types of Insurance

Definition of General Insurance – Marine, Motor Vehicular, Fire and other types of Insurances – Physical and Moral Hazards in General Insurance – The General Insurance Corporation (GIC Re) and General Insurance Companies, NOUN – Growth of General Insurance business in India.

Unit 5:Regulation of Insurance

Organization and Growth of LIC - Monopoly of LIC - Need for Insurance Regulation in India - Functions and Duties of Insurance Regulation and Development Authority (IRDA) of India — Entry of Private and Foreign Insurance Companies – Implications – Prospects of Insurance Companies.

TEXT AND REFERENCE BOOKS:

9. Misra, M. N. and V. K. Puri, (2008), Insurance Principles and Practice, New Delhi: S. Chand.
10. Periasamy, P. (2007), Principles and Practice of Insurance, Mumbai: Himalaya Publishing House.
11. Palande, P. S., Shah, R. S. andLunawal, M. L. (1983), Insurance in India, Changing Policies and Emerging Opportunities, New Delhi: Response Books, A Division of Sage Publications.
12. Bhole, L. M. (1990), The Indian Financial System, New Delhi: Tata McGraw Hill.
13. Black, K. Jr. and H. D. (2000), Life and Health Insurance, New Jersey: Prentice Hall.
14. Bailey, R. (1999), Underwriting and Life and Insurance, Atlanta: LOMA.
15. Bickelhaupt. D. L. (1992), General Insurance, Burr Bridge: Irwin Inc.
16. Hedad, G. L. AND HornI.I. (1991), Essentials of Risk Management, Vol. I Insurance Institute of America.

Model Paper

M. A. DEGREE EXAMINATION
THIRD SEMESTER
Branch: Econometrics
Paper: EMT 310: ECONOMICS OF INSURANCE
(Revised Regulations CBSC from 2017-18)

Time: 3 Hours Max: Marks: 80

PART- A

Answer any FIVE questions. Each question carries 4 Marks
(Marks: 5 x 4 = 20 Marks)

16. Define the concept of Risk and distinguish it from the Concept of Uncertainty.

17. What is Risk Pooling?

18. Define Insurance.

19. Explain the concept of Reinsurance.

20. State the functions life insurance.

21. Give a brief account of any two life insurance products available in India.

22. Mention various types of General Insurance.

23. Explain the concept of Utmost Good faith.

24. Give a brief account on LIC of India.

25. What is IRDA? State its functions briefly.

PART- B

Answer ALL questions. Each question carries 12 Marks
(Marks: 5 x 12 = 60 Marks)

26. Explain the concept of Risk Management and examine the essentials of Risk Management.

Or

Explain the concepts of Risk Assessment and Risk Control. Examine different methods of effective Risk Management.

27. Is Insurance a contract? If so, discuss General and Specific Principles of Insurance Contract.

Or

Elucidate the relationship between Insurance and Economic Development.

28. Critically examine various life insurance products being marketed in India.

Or

What are the functions of Health Insurance? State the relevance of various Health Insurance policies in the Indian Context.

29. Enumerate the problems faced in the marketing of General Insurance policies in India.

Or

Examine the principles of Physical and Moral Hazards in General Insurance with special reference to India.

30. Do you think that there was a need for the entry of private and foreign insurance companies in Insurance business in India? Justify your answer.

Or

Critically examine the functioning of Insurance Regulatory and Development Authority in India.

EMT 401	**INTERNATIONAL TRADE AND FINANCE**		**4Credits**
Course Objectives: The course has a strong focus on International trade and the accompanying financial transactions are generally conducted for the purpose of providing a nation with commodities it lacks in exchange for those that it produces in abundance; such transactions, functioning with other economic policies, tend to improve a nation's standard of living.			
CourseOutcomes: Attheendofthecourse, thestudentwillbeableto			
CO1	Identify the basic difference between inter-regional and international trade, understand how international trade has helped countries to acquire goods at cheaper cost and explain it through the various international trade theories.		
CO2	Show the benefits of international trade in a way how nations with strong international trade have become prosperous and have the power to control world economy and how global trade can be one of the major contributors of reducing poverty.		
CO3	Explain how restrictions to international trade would limit a nation in the services and goods produced within its territories and at the same time explain that a rise in international trade is essential for the growth of globalization.		
CO4	Show the importance of maintaining equilibrium in the balance of payments and suggests suitable measures to correct disequilibrium as well.		

CO5	Be aware of the changes in the composition as well as direction of foreign trade after international trade and know the causes and effects of deficits in the balance of payments, measures adopted to correct the deficits and identify the need for having trade reforms.

Mappingofcourseoutcomeswiththeprogramoutcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2	-	1	1	-	2	2	-	1
CO2	3	2	2	2	-	1	1	-	2	2	1	2
CO3	3	3	2	-	2	1	1	-	2	2	-	-
CO4	3	2	3	2	-	1	1	-	2	2	1	-
CO5	3	2	1	-	1	2	-	1	1	2	-	1

Unit 1: Old and New Theories of International Trade

Comparative advantage in Ricardian, Haberler and Heckscher–Ohlin Theories – Factor Price Equalization Theorem - Intra Industry Trade – Neo-Chamberlin and Neo-Heckscher-Ohlin Theorems - Product Cycle and Technology Gap and Strategic Trade theories.

Unit 2: Free Trade and Protection

Free Trade vs. Protection – Theory of Tariffs –The Political Economy of Non-tariff Barriers - Terms of Trade – Secular Deterioration (Singer-Prebisch) Thesis -Immiserizing Growth- The Concept of Customs Union - Regional Trade Agreements - EU and SAARC.

Unit -3: Balance of Payments and adjustment Mechanism

Balance of Payments Accounts –Adjustment of Deficit in Balance of Payments – Traditional Elasticity and Absorption Approaches - Theories of policy mix - BOP adjustments with capital mobility – Foreign Trade Multiplier.

Unit 4: Theories of Exchange rate determination

Exchange rate under free market – Spot and Forward Rates -Exchange rate adjustments under capital mobility - Floating Rates and their implications for developing countries - Currency Boards - Import and Exchange Controls and Multiple Exchange Rates.

Unit 5: **Global Institutions**

The Bretton Woods System - IMF and World Bank – Collapse of Bretton Woods System – New International Monetary Order – WTO – Issues at the recent WTO ministerial Conferences-Multinational Corporations - Implications for Developing countries.

TEXT AND REFERENCE BOOKS:

1) Paul Krugman& Maurice Obstfeld (6th ed.) International Economics, (Chapters 2-11) Addison Wesley, 2003.
2) Caves, R. and Jones, R. World trade and payments (chapters 4, 6, and 7). Boston: Little, Brown and Company, 1977.
3) Sodersten, B. and Reed, G. International economics (chapters 1-11, 13-16, 19, 20, 22-24, 26 & 27). Macmillan Company, 1994.
4) Pilbeam, K. International finance (chapters 4-15). Macmillan, 1994.
5) Turnovsky, S. J. Macroeconomic analysis and stabilization policy (chapters 9-12). Cambridge University Press, 1977.
6) Dixit, A. and Norman, V. The theory of international trade. Cambridge University Press, 1980.
7) Grossman, G. M. and Rogoff, K., eds. Handbook of international economics. Vol III. Elsevier, 1995.
8) Kierzkwoski, H., ed. Protection and competition in international trade. New York: Blackwell, 1987.
9) Bhagwati, J, ArvindPanagariya, & T.N. Srinivasan: Lectures on International Trade, 2nd ed. MIT Press 2001.
10) Grossman, G. M. and Rogoff, K., eds. Handbook of international economics. Vol III. Elsevier, 1995.

Model Paper

M. A. DEGREE EXAMINATION

FOURTH SEMESTER

Branch: Econometrics

Paper: EMT 401: INTERNATIONAL TRADE AND FINANCE

(Revised Regulations CBSC from 2017-18)

Time: 3 Hours Max: Marks: 80

PART- A

Answer any FIVE questions. Each question carries 4 Marks

(Marks: 5 x 4 = 20 Marks)

31. Define the concept of Comparative Advantage and explain how comparative advantage is proved in the Ricardian Theory of Comparative Advantage.
32. Explain the Concept of intra-industry Trade. How do you measure it?
33. Explain the concept of Immiserizing Growth.
34. Distinguish between the concepts of Trade Creation and Trade Diversion.
35. State the Marshall – Lerner Condition for Devaluation.
36. What do you mean by Policy Mix?

37. What is Spot rate of Exchange? How is it different from the Forward Rate of Exchange?
38. What do you understand by Multiple Exchange Rates?
39. Write a Short note on Bretton Woods Twins.
40. What is Multilateralism?

PART- B

Answer ALL questions. Each question carries 60 Marks

(Marks: 5 x 12 = 60 Marks)

11. Critically examine the Heckscher-Ohlin Theory of International Trade.

Or

Explain Neo-Chamberlin Model of International Trade.

12. Discuss the relative merits and demerits of Free Trade.

Or

Analyse the effects of Tariff with partial and general equilibrium approaches.

13. Explain the Absorption Approach to Devaluation.

Or

Explain how adjustment in balance of payments takes place under fixed exchange rates.

14. Discuss the exchange rate adjustments with free mobility of capital.

Or

Discuss the relative merits and demerits of Fixed and Flexible Exchange Rates.

15. Critically examine the role of IMF in ensuring adequate international liquidity under Bretton Woods' system.

Or

Assess the role of World Trade Organization in liberalizing international trade since 1995.

EMT 402	**ENVIRONMENTAL ECONOMICS**		**4Credits**

Course Objectives: The main objective of environmental economics is to maintain a balance between economic development and environmental quality. In order to achieve it, environmental economists have to explore the various socio-economic possibilities to reduce pollution and uplift the standard of living of the people.Environmental economics is a distinct branch of economics that acknowledges the value of both the environment and economic activity and makes choices based on those values. The goal is to balance the economic activity and the environmental impacts by taking into account all the costs and benefits.

CourseOutcomes: Attheendofthecourse, thestudentwillbeableto	
CO1	Realize the importance and influence of environment on the economy including the quality of manpower. Arouse their feelings to make cleaner environment so as to achieve harmonious development.
CO2	Understand that environmental problem is not the problem of a single country or region but a global problem/issue. Hence, policy formulation may be for all countries.
CO3	Demonstrate the scientific management of waste materials; realize the role and importance of individuals to keep the environment clean.
CO4	Understand the causes and victims of environmental pollution like poverty, population explosion, and over-use of resources, careless or unscientific dump/management of wastes.
CO5	Suggest appropriate measures to correct environmental degradation, aware of those ingredients such as healthy climate, quality of human beings, domestic and other natural habitats and biodiversity levels, productivity and productions, sustainability, etcare all influenced by environment.

Mappingofcourseoutcomeswiththeprogramoutcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2	-	1	1	-	2	2	-	1
CO2	3	2	2	2	-	1	1	-	2	2	1	2
CO3	3	3	2	-	2	1	1	-	2	2	-	-
CO4	3	2	3	2	-	1	1	-	2	2	1	-
CO5	3	2	1	-	1	2	-	1	1	2	-	1

Unit 1: Nature and Scope of Environmental Economics

Nature and Scope of Environmental Economics – Economic Growth and Environmental degradation – Environmental Kuznets Curve - Limits to Economic Growth - Sustainable Development – Environmental Quality and Economic Development.

Unit 2: Environmental Degradation and Resource Depletion

Natural Resources – Renewable and Non-renewable Resources – Approaches to the use of Natural Resources – Theories of Natural Resources - Depletion of Natural Resources – Tragedy of Commons – Causes of Environmental Degradation.

Unit 3: Sources and Effects of Pollution

Sources and Types of Pollution – Soil, Air, Water Pollution - Industrialization and Environmental Pollution – Urban Solid-waste and other sources of Pollution – Aqua Culture, Coastal and Marine Pollution - Economic Effects of Pollution.

Unit 4: Environmental Principles and Policies

Environmental Regulation and Control of Pollution – Polluter Pays Principle - Hedonic Pricing Principle – Pigovian Analysis of taxes and Subsidies - Pollution Permits – Environmental Institutions - Environmental Policy – Objectives – National Environmental Policy of 2006 - Pollution Control Policies in India.

Unit 5: Environmental Laws and Management Strategies

Environmental Laws and Regulations – The Air Act, The Water Act, The Environmental Protection Act, The Wildlife Protection Act in India - Environment Management Strategies – Development of Clean Production Technologies - Forest Conservation, Management and Conservation of Common Property Resources and Environmental Education – Social Forestry – Community Participation.

TEXT AND REFERENCE BOOKS:

1) Bhattacharya, R.N. (Ed), 2001, Environmental Economics; An Indian Perspective, Oxford University press, New Delhi.
2) Sankar,U. (Ed), 2001, Environmental Economics, Oxford University press, New Delhi.
3) Baumol, W.J. and W.E. Oates, 1998, the theory of Environmental policy, (2nd Edition), Cambridge University press, Cambridge.
4) Anil Kumar, 1990 Environmental Protection and Industrial Development, Ashish Publishing House, New Delhi;
5) Mussen, A.M. 1999, Principles of Environmental Economics, Rutledge, London
6) Kolstad, C.D., 1999, Environmental Economics, Oxford University press, Baltimore.
7) Sengupta, R.P.2001, Ecology and Economics: An approach to sustainable development, Oxford University press, New Delhi.

Model Paper

M. A. DEGREE EXAMINATION

FOURTH SEMESTER

Branch: Econometrics

Paper: EMT 402- ENVIRONMENTAL ECONOMICS

(Revised Regulations CBSC from 2017-18)

Time: 3 Hours Max: Marks: 80

PART- A

Answer any FIVE questions. Each question carries 4 Marks
(Marks: 5 x 4 = 20 Marks)

1. What is Environmental Kuznets Curve?
2. Explain the concerpt of Sustainable Development.
3. Distinguish between Renewable and non-renewable resources.
4. Explain the concept of 'Tragedy of Commons'.
5. What are the different sources of Air pollution?
6. List out the Economic effects of pollution.
7. Explain the rationale behind the 'Polluter Pays Principle'.
8. What are Pigouvian taxes?
9. State the salient features of Air Act
10. What is Social Forestry?

PART- B

Answer ALL questions. Each question carries 12 Marks
(Marks: 5 x 12 = 60 Marks)

11. Discuss the nature and scope of Environmental Economics.

Or

Elucidate the relationship between Economic Development and Environmental Quality.

12. Discuss the issues involved in the management of ground water.

Or

Explain the cuases of Environmental Degradation in India.

13. To what extent industrialisation is responsible for air pollution in India. Substantiate your answer.

Or

Explain methods of managing urban solid waste in India.

14. Explain the method of Hedonic pricning method of Environment. How do you apply it to control Water Pollution in India?

Or

Discuss the objectives and major provisions of National Environmental Policy 2006.

15. Examine the major provisions of the Envionmental (Protection) Act 1986 enacted after the Bhopal Tragedy in India.

Or

Explain the rationale behind the 'Polluter Pays Principle'

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EMT 403	**APPLIED ECONOMETRICS**		**4Credits**

Course Objectives: The objective of this course is to provide the basic knowledge of an advanced theoretical understanding of consumer behaviour and decision-making. To develop a theoretical understanding of strategic behaviour of economic agents. .	
CourseOutcomes: Attheendofthecourse, thestudentwillbeableto	
CO1	Student will be able to develop a sound understanding of the core microeconomic concepts that economists use to understand the process of decision-making by an economic agent(s).
CO2	The student should be able to apply mathematical tools and techniques to study behaviour of economic agents.
CO3	Students will be able to identify strategic behaviour of economic agents and formulate them in a game theoretic framework.
CO4	Student can explore Macro econometric models; Klein-Goldberger Model for USA, Agarwal, K. Krishna Murthy and N.V. A. Narasimhan Models.
CO5	To gain knowledge in Applications of Single and Simultaneous Equation Models for macroeconomic variables.

Mappingofcourseoutcomeswiththeprogramoutcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2	-	1	1	-	2	2	-	1
CO2	3	2	2	2	-	1	1	-	2	2	1	2
CO3	3	3	2	-	2	1	1	-	2	2	-	-
CO4	3	2	3	2	-	1	1	-	2	2	1	-
CO5	3	2	1	-	1	2	-	1	1	2	-	1

Unit 1: Demand Analysis

Demand functions – Restrictions to be satisfied by Demand functions - Single Equation models, Engel Functions and Curves, Specification of Functional forms and Estimation – Linear Expenditure System - Review of Empirical Studies.

Unit 2: Consumption Function

Theories of Consumption Function – Alternative specifications – Absolute Income Hypothesis, Relative Income Hypothesis, Life Cycle Hypothesis, Permanent Income Hypothesis – Problems of Estimating the Consumption Function – Review of some empirical studies.

Unit 3: Production Functions
Single Equation Estimation of production functions - Cobb-Douglas, CES, Translog – Specifications and Estimation issues – Review of Empirical studies – Functional forms and Estimation of Cost Functions - Estimation of Factor demand Equations - Empirical Studies.

Unit 4: Macro Econometric Models
Nature ofSimultaneous Macro Econometric Models – Klein-Goldberger Model for USA - Brookings Model – Macro Econometric models for India – Agarwal, K. Krishna Murthy and N.V. A. Narasimhan Models.

Unit 5: Other Applications of Single and Simultaneous Equation Models
Models of Money Demand and Supply – Estimation of Demand for Money Function – Application in Industrial Organization, Labour Economics and Health Systems – Review of Empirical Studies.

TEXT AND REFERENCE BOOKS:

1. Intriligator, M. D. (1978) Econometric Models, Techniques and Applications, North-Holland.
2. ICSSR Survey of Economics – Vol.7 (Econometrics) Allied Publishers
3. Deaton A. and John Muellbauer, Economics and Consumer Behaviour –Cambridge University Press, 1987
4. Killingsworth Mark R.- Labour Supply, Cambridge University Press 1985
5. MeghnadJ.Desai 1973 – Macro-economic models for India: A Survey – Sankhyaseries-B 85 – PP 169-205

Model Paper
M. A. DEGREE EXAMINATION
FOURTH SEMESTER
Branch: Econometrics
Paper: EMT 403: APPLIED ECONOMETRICS
(Revised Regulations CBSC from 2017-18)

Time: 3 Hours Max: Marks: 80

PART- A
Answer any FIVE questions. Each question carries 4 Marks
(Marks: 5 x 4 = 20 Marks)

1. Distinguish between Cross Section and Time series data.
2. What is an Engel function? How do you derive it from the Household's utility function?
3. Explain the concept of Absolute Income Hypothesis.
4. State briefly the problems involved in estimating the Consumption Function.

5. List out different methods of estimating Cobb-Douglas Production Function.
6. What is Elasticity of Cost? What are its uses?
7. Discuss the nature of Simultaneous Equations Model.
8. State the essence of the Agarwal's Macro-econometric Model for India.
9. Explain the uses of Simultaneous Equations in Health System.
10. Construct a Simultaneous Equations Model relating to Labour economics.

PART- B

Answer ALL questions. Each question carries 10 Marks
(Marks: 5 x 12 = 60 Marks)

11. Examine the restrictions to be satisfied by Demand Function such as $x_j = x_j (p_1, p_2, I), j = 1, 2.$

Or

Describe the nature of different Engel forms utilized by researchers to analyse family budget studies with special reference to some of the empirical studies.

12. Elucidate various functional forms used in the estimation of Consumption Function.

Or

Review the empirical studies on Consumption Function in India.

13. Enumerate the problems of estimating Aggregate Production Function.

Or

Explain the properties of CES Production Function and its applications in Industrial sector.

14. Examine the trends in Macro-econometric model building and illustrate the problems involved in macro-econometric model building.

Or

Make a comparison of K. Krishna Murthy's Macro-econometric Model with that of N. V. A. Narasimham.

15. Examine the applications of Simultaneous Equations in the models of Demand for and Supply of Money.

Or

Describe the application of Simultaneous equations in Industrial Organizations.

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EMT 404	OPTIMIZATION IN ECONOMICS		4Credits
Course Objectives: The objective of the course is to provide knowledge on Optimization in Economic. Optimization techniques are very crucial activities in managerial decision-making process. Expressing relationships through equations is very useful in economics as it allows the usage of powerful differential technique, in order to determine the optimal solution of the problem.			

CourseOutcomes: Attheendofthecourse, thestudentwillbeableto	
CO1	Knowledge of several models will enhance the applicability of the knowledge to actual data solving and getting appropriate conclusions.
CO2	Be able to understand the characteristics of different types of decision-making environments and the appropriate decision making approaches and tools to be used in each type.
CO3	This course will sharpen the quantitative skills of a student and help them understand applications of Operations research in varied fields like manufacturing, Finance, purchasing and procurement, assigning and allocation of resources for optimum result.
CO4	Be able to design new simple models, like: CPM, PERT to improve decision –making and develop critical thinking and objective analysis of decision problems.
CO5	Students will be able to identify and develop operational research models from verbal description of real system.

Mappingofcourseoutcomeswiththeprogramoutcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2	-	1	1	-	2	2	-	1
CO2	3	2	2	2	-	1	1	-	2	2	1	2
CO3	3	3	2	-	2	1	1	-	2	2	-	-
CO4	3	2	3	2	-	1	1	-	2	2	1	-
CO5	3	2	1	-	1	2	-	1	1	2	-	1

Unit 1: Transportation Problem

Nature and Matrix form of TP – Transportation Table – Types of Transportation Problem – Balanced Transportation Problem, Unbalanced Transportation Problem – Methods to solve Transportation Problem - The Initial Basic Feasible solution: North-West Corner Rule and Vogel's Approximation method – Moving towards optimality, the Transportation Algorithm.

Unit 2: Assignment Problem: Assignment problem, Transportation problemand Linear Programming – Types of Assignment problem – Properties of Optimal Solution – Solving the Assignment Problem by Hungarian Algorithm – The Auction Algorithm for Assignment Problem – Branch and Bond Techniques for Assignment Problem.

Unit 3 : Game Theory: Basic concepts -Two–person Zero Sum Games - The Maximum Minimax Principle – Games without Saddle Points – Mixed Strategies – Graphical solution of 2 x n and m x 2 Games – Dominance property – The Modified Dominance Property – Reducing the Game Problem as a Linear Programming Problem.

Unit 4 : Inventory Management
Introduction - Inventory control - Techniques of Inventory control with known demand - Economic Lot Size Problems –The fundamental Problem of Economic Order Quantity (EOQ), The Problem of EOQ with Uniform Demand, and The Problem of EOQ with Finite Rate of Replenishment - Problem of EOQ with Shortage.

Unit 5: Simulation
Introduction – Elements of a Simulation Model – Event – Types of Simulation – Generation of Random Phenomena – Monte Carlo Technique – Generation of Uniform (0,1) Random Observations – Simulation languages.

TEXT AND REFERENCE BOOKS:

1. KantiSwarup, P.K.Gupta and Man Mohan: Operations Research, Sultan Chand and sons, New Delhi.
2. Panneerselvam, R: Operations Research, Eastern Economy Edition, Prentice Hall of India, New Delhi, 2007.
3. Srinivasan, G., Operations Research _Principles and Applications, Second Edition, Prentice Hall of India, New Delhi, 2012.
4. Richard, Brown and Govindaswamy, N., Schaum's Outlines Series Operations Research, Second Edition, 2012.
5. Gupta, P.M. and D.S.Hira: Operations Research, Sultan Chand and Sons, New Delhi.
6 Harven, Wagner: Operations Research.
7 Starr and Miller: Inventory Control.

Model Paper

M. A. DEGREE EXAMINATION

FOURTH SEMESTER

Branch: Econometrics

Paper EMT 404 – OPTIMIZATION IN ECONOMICS

(Revised Regulations CBSC from 2017-18)

Time: 3 Hours Max: Marks: 80

PART- A

Answer any FIVE questions. Each question carries 4 Marks

(Marks: 5 x 4 = 20 Marks)

1. Explain the mathematical formulation of the Transportation Problem with an example.
2. Distinguish between Balanced and Unbalanced Transportation Problem.
3. What is a Game Theory? List out the assumptions made in the theory of Games.

4. Explain the Maxi-min principle used in Game theory.
5. Define Inventory. What are the advantages and disadvantages of having inventories?
6. Explain the different costs that are involved in inventory problems.
7. Explain the concepts of Network: (i) Activities and (ii) Nodes.
8. Explain the rules for constructing the Networks.
9. Explain the concept of Simulation.
10. Explain the Event-type Simulation with the help of an illustration.

PART- B

Answer ALL questions. Each question carries 12 Marks

(Marks: 5 x 12 = 60 Marks)

11. Explain how the initial basic feasible solution to the Transportation Problem is determined using Vogel's approximation method.

Or

Determine an initial basic feasible solution to the following Transportation Problem using North West Corner Rule:

	D1	D2	D3	D4	Availability
O1	6	4	1	5	14
O2	8	9	2	7	16
O3	4	3	6	2	5
Requirement	6	10	15	4	35

12. Define Saddle point and value of the Game. Determine the value of the game whose pay-off is given by:

		Player B	
		-5	2
Player A			
		-7	-4

Or

Explain the Dominance property and use the dominance property to solve the game theory whose pay off matrix is given by:

		Player B	
		I	II
	I	9	2
Player A	II	8	6

III 6 4

13. Explain the fundamental problem of EOQ.

Or

Explain the problem of EOQ with finite rate of replenishment.

14. What is a Network? Explain the constraints in Network.

Or

Explain the Critical Path Method (CPM).

15. Explain the different methods to generate Uniform (0, 1) Random observations.

Or

Explain the procedure involved in the generation of a sequence of random observations from any specified probability distribution.

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EMT 405: TIME SERIES ECONOMETRICS

Time series Econometrics can be useful to see how a given asset, security, or economic variable changes over time. It can also be used to examine how the changes associated with the chosen data point compare to shifts in other variables over the same time period.

Course Objectives

The objective of the course is to provide knowledge on Econometric applications of Economic theory Especially time series econometrics.

- This course explains concepts of Panel data regression models and what are the challenges faced during the Time series analysis.
- This course describes the concept of Stationarity and non-stationary stochastic process and their test. Discuss about Spurious regression.
- This course explores the concept of Co-integration, Vector Error correction Model (VECM), Granger Causality test.
- The course discovers Linear time series Models; MA, AR, ARMA and ARIMA models, also discuss VAR Models.

EMT 405	TIME SERIES ECONOMETRICS		4Credits

Course Objectives: The objective of the course is to provide knowledge on Econometric applications of Economic theory, especially time series econometrics.

CourseOutcomes: Attheendofthecourse, thestudentwillbeableto

CO1	Students will acquire additional specialization through the Time series Econometrics Analysis.
CO2	Skill to judge the reliability of estimation in case of Stationarity and Non-Stationarity test, Co-integration test.
CO3	Forecasting with a single-equation linear regression model, and Forecasting with a multi-equation econometric model
CO4	Student can evaluate Univariate Time Series Models like MA, AR, ARMA and ARIMA models.
CO5	Student will be able to calculate VAR model which most important in macro-economic models.

Mappingofcourseoutcomeswiththeprogramoutcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2	-	1	1	-	2	2	-	1
CO2	3	2	2	2	-	1	1	-	2	2	1	2
CO3	3	3	2	-	2	1	1	-	2	2	-	-
CO4	3	2	3	2	-	1	1	-	2	2	1	-
CO5	3	2	1	-	1	2	-	1	1	2	-	1

Unit 1: Basic concepts

Introduction – Stationary Stochastic Process – Non-stationary Stochastic Process; Unit root Stochastic Process, Integrated Stochastic Process, tests of Stationarity.

Unit 2: Co-integration

Integrated Variables, Unit root tests - Dickey-Fuller tests; Co-integration and error correction mechanism – Engle–Granger, Johansen and Juselius Co-integration tests – ARDL Co-integration Tests.

Unit 3: Forecasting

Nature and uses of Forecasts – Forecasting with a single-equation linear regression model -Forecasting with a multi-equation econometric model - Evaluation of the forecasting power of a model – Conditional and Unconditional Forecasting – Single and Double exponential smoothing – Box-Jenkins Model.

Unit 4: Linear Time Series Models
Univariate Time Series Models - Moving Average Models - Auto Regressive Models - Mixed Auto Regressive Moving Average Models – ARIMA models.

Unit 5: Vector Auto-regressions and Models for Volatility
Estimation and Forecasting with VAR, VAR and Causality, Some problems with VAR Modeling, Measuring Volatility - The ARCH (p) models – ARCH tests – GARCH (p, q) model – Asymmetric GARCH models.

TEXT AND REFERENCE BOOKS:

1. Gujarathi, D.N, Basic Econometrics, Fourth Edition, Tata McGraw Hill, New Delhi, 2004.
2. Koutsoyiannis, A, Theory of Econometrics, The Macmillan Press Ltd., Hong Kong, Second Edition, 1983.
3. Robert S.Pindyck and Daniel L. Rubinfeld, Econometric Models and Economic Forecasts, McGraw Hill Book Company, 1988
4. Francis Diebold, Elements of Forecasting, South Western College Publishing, 1998.
5. Newbold and Bos, Introductory Business and Economic forecasting (second edition), South Western College Publishing, 1994.
6. William H. Green, Econometric Analysis, Pearson's Education, fifth Edition, 2003.
7. Hamilton, J.D, Time Series Analysis, Princeton, N.J., Princeton University Press, 1994.

Learning Objectives

After successfully completing the course Time Series Econometrics the graduate is able to:

At the end of the course the students will acquire additional specialization through the Time series Econometrics Analysis. Skill to judge the reliability of estimation in case of Stationarity and Non-Stationarity test, Co-integration test. Students will be able to execute in-depth analysis of VECM model and Granger Causality test. Student can perform the Forecasting with a single-equation linear regression model, and Forecasting with a multi-equation econometric model. Student can evaluate Univariate Time Series Models like MA, AR, ARMA and ARIMA models. Finally, student will be able to calculate VAR model which most important in macro-economic models.

MODEL PAPER
M.A. DEGREE EXAMINATION

FOURTH SEMESTER

Branch: Econometrics

PAPER: EMT 405 – TIME SERIES ECONOMETRICS

(Revised Regulations CBSC from 2017-18)

Time: 3 Hours Max. Marks:80

PART- A

Answer any FIVE questions. Each question carries 4 Marks

(Marks: 5 x 4 = 20 Marks)

1. Explain the concept of stationary stochastic process.
2. Explain the concept of unit root stochastic process.
3. Discuss the concept of Co-integration.
4. Explain the Johansen test for Co-integration.
5. Explain the nature and uses of forecast.
6. Explain the concept of Unconditional Forecasting.
7. State the properties of Moving Average models.
8. State the properties of Auto Regressive models.
9. Explain the ARCH model.
10. What is a VAR model? How do you measure the volatility in VAR models?

PART- B

Answer ALL questions. Each question carries 60 Marks

(Marks: 5 x 12 = 60 Marks)

11. Explain Trend stationary and Difference stationary stochastic processes with an example.

(OR)

Explain any two tests for stationarity of the stochastic process.

12. Describe the Engle-Granger and Augmented Engle-Granger tests used in testing for Co-integration in the econometric estimation of regression equation.

(OR)

Explain the ARDL Co-integrating test.

13. Explain the procedure for 'Forecasting' with serially correlated errors.

(OR)

Explain Conditional forecasting.

14. State the properties of ARMA process in econometric analysis.

(OR)

State the properties of homogeneous non-stationary Processes of order'd'.

15. Describe the DF and ADF tests used in testing for unit roots in the econometric estimation of regression equation.

(OR)

Explain the VAR and GARCH models in econometric analysis.

➢

EMT 406: PRACTICAL-IV	TIME SERIES ECONOMETRICS AND OPTIMIZATION IN ECONOMICS		4Credits

Course Objectives: The course has a strong focus on Practical skills and train students in the collection and analysis of the data using their software skills Especially, EViews for Time series analysis.The entire Practical course divided into two parts first part can made Time series analysis through EViews software and second part will be covered Optimization technique in Economics.

CourseOutcomes: Attheendofthecourse, thestudentwillbeableto

CO1	Able to get application knowledge of tatistical packages like SPSS, E-Views to apply economic data.
CO2	At the end of this course student will gain practical knowledge of Time Series Analysis by using EViews.
CO3	Student gained and evaluate Stationarity test by using ADF Test.
CO4	fter complete this course student will able to test of Spurious Regression, Co-integration test and Granger Causality test.
CO5	Finally, student will be able to made feasible solution in optimization.

Mappingofcourseoutcomeswiththeprogramoutcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2	-	1	1	-	2	2	-	1
CO2	3	2	2	2	-	1	1	-	2	2	1	2
CO3	3	3	2	-	2	1	1	-	2	2	-	-
CO4	3	2	3	2	-	1	1	-	2	2	1	-
CO5	3	2	1	-	1	2	-	1	1	2	-	1

Concepts are covered in this Practical Approach follows;

- Unit root test [ADF-Augmented Dicky-Fuller test].
- Spurious Regression.
- Co-integration Test.
- Vector Error Correction Mechanism [VECM].

- Granger Causality test.
- VAR Model.
- ARMA and ARIMA Model.
- Optimization-Transportation problem; Balanced Transportation Problem, Unbalanced Transportation Problem North-West Corner Rule.
- Assignment problem; Hungarian Algorithm Branch and Bond Techniques for Assignment Problem.

SRI VENKATESWARA UNIVERSITY: TIRUPATI
BRANCH IV (B) - ECONOMETRICS
Semester-IV: 406-PRACTICAL EXAMINATION

Time: 3 Hours **Max. Marks: 80**

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Answer any Four Questions. All Questions carry equal marks `[4x20=80]`

6. The following time series data relates to capital, revenue receipts and expenditure of the union Govt. of India data and also GDP at market prices time series data have the base year 2011-12 (in crores of rupees) during the period from 1988-89 to 2014-15.

Year	GDP Base year (2011-12)	Total Receipts	Total Expenditure	Year	GDP Base year (2011-12)	Total Receipts	Total Expenditure
1988-89	2063458	73469	79111	2002-03	4319293	411365	413248
1989-90	2186180	82316	92908	2003-04	4662417	475146	471203
1990-91	2307151	93951	105298	2004-05	5028361	506382	498252
1991-92	2331534	104559	111414	2005-06	5495238	526626	505738
1992-93	2459357	110306	122618	2006-07	6004315	578869	583387
1993-94	2576196	130893	141853	2007-08	6592818	739842	712671
1994-95	2747743	159778	160739	2008-09	6849344	840122	883956
1995-96	2955870	168468	178275	2009-10	7430151	1025874	1024487
1996-97	3179025	187823	201007	2010-11	8192480	1190899	1197328
1997-98	3307769	232963	232053	2011-12	8736329	1320355	1304365
1998-99	3512335	279549	279340	2012-13	9213017	1461384	1410372
1999-00	3809588	297189	298053	2013-14	9801370	1578618	1559447

2000-01	3961020	324414	325592	2014-15	10536984	1663673	1663673
2001-02	4156862	363806	362310				

Check the given time series data is a stationary series or not by using **Augmented Dickey-Fuller** test (unit root test) by using Eviews.

7. The following quarterly time series data shows USA people **Personal Disposable Income (PDI),** and **Personal Consumption Expenditure (PCE)** in terms of billions of dollars 1987, during the 1970-I to 1981-iv.

Year	Q	PDI	PCE	Year	Q	PDI	PCE	Year	Q	PDI	PCE
1970	I	1990.60	1800.50	1974	I	2334.70	2050.80	1978	I	2587.30	2347.10
	II	2020.10	1807.50		II	2304.50	2059.00		II	2631.90	2394.00
	III	2045.30	1824.70		III	2315.00	2065.50		III	2653.20	2404.50
	iv	2045.20	1821.20		iv	2313.70	2039.90		iv	2680.90	2421.60
1971	I	2073.90	1849.90	1975	I	2282.50	2051.80	1979	I	2699.20	2437.90
	II	2098.00	1863.50		II	2390.30	2086.90		II	2697.60	2435.40
	III	2106.60	1876.90		III	2354.40	2114.40		III	2715.30	2454.70
	iv	2121.10	1904.60		iv	2389.40	2137.00		iv	2728.10	2465.40
1972	I	2129.70	1929.30	1976	I	2424.50	2179.30	1980	I	2742.90	2464.60
	II	2149.10	1963.30		II	2434.90	2194.70		II	2692.00	2414.20
	III	2193.90	1989.10		III	2444.70	2213.00		III	2722.50	2440.30
	iv	2272.00	2032.10		iv	2459.50	2242.00		iv	2777.00	2469.20
1973	I	2300.70	2063.90	1977	I	2463.00	2271.30	1981	I	2783.70	2475.50
	II	2315.20	2062.00		II	2490.30	2280.80		II	2776.70	2476.10
	III	2337.90	2073.70		III	2541.00	2302.60		III	2814.10	2487.40
	iv	2382.70	2067.40		iv	2556.20	2331.60		iv	2808.80	2468.60

Find the following objectivesbyusingEviews

I. Calculate stationarity test by using ADF

II. If the data has non-stationary series then find out whether the functional relationship between PDI and PCE has spurious regression (Non-sense regression) or not.

8. The following quarterly time series data shows USA people ***Personal Disposable Income (PDI),Personal Consumption Expenditure (PCE)***and***Gross Domestic Product (GDP)*** in terms of billions of dollars 1987, during the 1970-I to 1981-iv.

Year	Q	GDP	PDI	PCE	Year	Q	GDP	PDI	PCE	Year	Q	GDP	PDI	PCE
1970	I	2872.8	1990.6	1800.5	1974	I	3259.4	2334.7	2050.8	1978	I	3591.8	2587.3	2347.1
	II	2860.3	2020.1	1807.5		II	3267.6	2304.5	2059		II	3707	2631.9	2394
	III	2896.6	2045.3	1824.7		III	3239.1	2315	2065.5		III	3735.6	2653.2	2404.5
	iv	2873.7	2045.2	1821.2		iv	3226.4	2313.7	2039.9		iv	3779.6	2680.9	2421.6
1971	I	2942.9	2073.9	1849.9	1975	I	3154	2282.5	2051.8	1979	I	3780.8	2699.2	2437.9
	II	2947.4	2098	1863.5		II	3190.4	2390.3	2086.9		II	3784.3	2697.6	2435.4
	III	2966	2106.6	1876.9		III	3249.9	2354.4	2114.4		III	3807.5	2715.3	2454.7
	iv	2980.8	2121.1	1904.6		iv	3292.5	2389.4	2137		iv	3814.6	2728.1	2465.4
1972	I	3037.3	2129.7	1929.3	1976	I	3356.7	2424.5	2179.3	1980	I	3830.8	2742.9	2464.6
	II	3089.7	2149.1	1963.3		II	3369.2	2434.9	2194.7		II	3732.6	2692	2414.2
	III	3125.8	2193.9	1989.1		III	3381	2444.7	2213		III	3733.5	2722.5	2440.3
	iv	3175.5	2272	2032.1		iv	3416.3	2459.5	2242		iv	3808.5	2777	2469.2
1973	I	3253.3	2300.7	2063.9	1977	I	3466.4	2463	2271.3	1981	I	3860.5	2783.7	2475.5
	II	3267.6	2315.2	2062		II	3525	2490.3	2280.8		II	3844.4	2776.7	2476.1
	III	3264.3	2337.9	2073.7		III	3574.4	2541	2302.6		III	3864.5	2814.1	2487.4
	iv	3289.1	2382.7	2067.4		iv	3567.2	2556.2	2331.6		iv	3803.1	2808.8	2468.6

Using the above time series data, examine **Johansen Cointegration** test to study the co-integration between PCE,PDI and GDP by using Eviews.

9. Consider the problem of assigning four sales persons to four different sales regions as shown in below table such that the total sales are maximized.

	Sales	**Sales**	**Sales**	**Sales**

	Region-I	Region-II	Region-III	Region-IV
Salesman-I	10	22	2	14
Salesman-II	16	18	22	10
Salesman-III	24	20	12	18
Salesman-IV	16	14	24	20

The cell entries represent annual sales figures in lakhs of rupees. Find the optimal allocation of the sales persons to different regions by using Hungarian Method.

10. Determine an initial basic feasible solution to the following transportation problem using NWCR.

	D1	D2	D3	D4	Supply
O1	6	4	1	5	14
O2	8	9	2	7	16
O3	4	3	6	2	5
Demand	**6**	**10**	**15**	**4**	**35**

11. The following table gives the output in tones (Q), the labour in hours (L), and capital input in machine hours (K) of 14 firms in an industry.

Firm	Q	L	K
1	240	1480	410
2	400	1660	450
3	110	1150	380
4	530	1790	430
5	590	1880	480
6	470	1860	450
7	450	1940	490

8	160	1240	395
9	290	1240	430
10	490	1850	460
11	350	1570	435
12	550	1700	470
13	560	2000	480
14	430	1850	440

1. Fit the given data to the Cobb-Douglas Production function

$$Q = b_1 L^{b_2} K^{b_3} e^{u}$$

2. Examine the returns to scale
3. Comment on the individual input regression coefficients
4. Comment on to the overall significance of the regression $Q = f(L, K)$
5. Estimate Marginal propensity of Capital and Labour
   [at the mean values of output, Capital and Labour]

EMT 407:PROJECT

A project objective describes the desired results of a project, which often includes a tangible item. An objective is specific and measurable, and must meet time, budget, and quality constraints. ... A project may have one objective, many parallel objectives, or several objectives that must be achieved sequentially.

Project objectives are what you plan to achieve by the end of your project. This might include deliverables and assets, or more intangible objectives like increasing productivity or motivation. Your project objectives should be attainable, time-bound, specific goals you can measure at the end of your project.

Goals and objectives are statements that describe what the project will accomplish, or the business value the project will achieve. Goals are high level statements that provide overall context for what the project is trying to achieve, and should align to business goals. In brief, project management objectives are the successful development of the project's procedures of initiation, planning, execution, regulation and closure as well as the guidance of the project team's operations towards achieving all the agreed upon goals within the set scope, time, quality and budget standards.

Learning Outcomes

The use effectively oral, written and visual communication. identify, analyze, and solve problems creatively through sustained critical investigation. integrate information from multiple sources. Demonstrate an awareness and application of appropriate personal, societal, and professional ethical standards.The value of any project cannot be measured without defining success. It requires focus on outcomes. Outcomes are the events, occurrences, or changes in conditions, behavior, or attitudes that indicate progress toward a project's goals. Outcomes are specific, measurable, and meaningful.Good outcome statements are specific, measurable, and realistic." Think carefully about what you can realistically accomplish given the groups you want to reach and the scope of your resources. Develop outcomes as follows: Outcomes should describe what you want to happen after your activity is completed.

EMT 408	**OPTIMIZATION IN ECONOMICS**		**4Credits**

Course Objectives: The objective of the course is to provide knowledge on Optimization in Economic. Optimization techniques are very crucial activities in managerial decision-making process. Expressing relationships through equations is very useful in economics as it allows the usage of powerful differential technique, in order to determine the optimal solution of the problem.

CourseOutcomes: Attheendofthecourse, thestudentwillbeableto

CO1	Knowledge of several models will enhance the applicability of the knowledge to actual data solving and getting appropriate conclusions.
CO2	Be able to understand the characteristics of different types of decision-making environments and the appropriate decision making approaches and tools to be used in each type.
CO3	This course will sharpen the quantitative skills of a student and help them understand applications of Operations research in varied fields like manufacturing, Finance, purchasing and procurement, assigning and allocation of resources for optimum result.
CO4	Be able to design new simple models, like: CPM, PERT to improve decision –making and develop critical thinking and objective analysis of decision problems.
CO5	Students will be able to identify and develop operational research models from verbal description of real system.

Mappingofcourseoutcomeswiththeprogramoutcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2	-	1	1	-	2	2	-	1
CO2	3	2	2	2	-	1	1	-	2	2	1	2

CO3	3	3	2	-	2	1	1	-	2	2	-	-
CO4	3	2	3	2	-	1	1	-	2	2	1	-
CO5	3	2	1	-	1	2	-	1	1	2	-	1

Unit 1: Transportation Problem

Nature and Matrix form of TP – Transportation Table – Types of Transportation Problem – Balanced Transportation Problem, Unbalanced Transportation Problem – Methods to solve Transportation Problem - The Initial Basic Feasible solution: North-West Corner Rule and Vogel's Approximation method – Moving towards optimality, the Transportation Algorithm.

Unit 2: Assignment Problem: Assignment problem, Transportation problemand Linear Programming – Types of Assignment problem – Properties of Optimal Solution – Solving the Assignment Problem by Hungarian Algorithm – The Auction Algorithm for Assignment Problem – Branch and Bond Techniques for Assignment Problem.

Unit 3 : Game Theory: Basic concepts -Two–person Zero Sum Games - The Maximum Minimax Principle – Games without Saddle Points – Mixed Strategies – Graphical solution of 2 x n and m x 2 Games – Dominance property – The Modified Dominance Property – Reducing the Game Problem as a Linear Programming Problem.

Unit 4 : Inventory Management

Introduction - Inventory control - Techniques of Inventory control with known demand - Economic Lot Size Problems –The fundamental Problem of Economic Order Quantity (EOQ), The Problem of EOQ with Uniform Demand, and The Problem of EOQ with Finite Rate of Replenishment - Problem of EOQ with Shortage.

Unit 5: Simulation

Introduction – Elements of a Simulation Model – Event – Types of Simulation – Generation of Random Phenomena – Monte Carlo Technique – Generation of Uniform (0,1) Random Observations – Simulation languages.

TEXT AND REFERENCE BOOKS:

1. KantiSwarup, P.K.Gupta and Man Mohan: Operations Research, Sultan Chand and sons, New Delhi.
2. Panneerselvam, R: Operations Research, Eastern Economy Edition, Prentice Hall of India, New Delhi, 2007.
3. Srinivasan, G., Operations Research _Principles and Applications, Second Edition, Prentice Hall of India, New Delhi, 2012.

4. Richard, Brown and Govindaswamy, N., Schaum's Outlines Series Operations Research, Second Edition, 2012.
5. Gupta, P.M. and D.S.Hira: Operations Research, Sultan Chand and Sons, New Delhi.
6 Harven, Wagner: Operations Research.
7 Starr and Miller: Inventory Control.

Learning Outcomes

After successfully completing the course Optimization in Economics the graduate is able to:

At the end of the course the students find the values of decision variables that result in a maximum or minimum of a function called objective function, the objective function which is used as a measure of effectiveness of a decision. Students can make the process of making a trading system more effective by adjusting the variables used for technical Optimization analysis.

Model Paper

M. A. DEGREE EXAMINATION

FOURTH SEMESTER

Branch: Econometrics

Paper EMT 408 – OPTIMIZATION TECHNIQUES IN ECONOMICS

(Revised Regulations CBSC from 2017-18)

Time: 3 Hours Max: Marks: 80

PART- A

Answer any FIVE questions. Each question carries 4 Marks

(Marks: 5 x 4 = 20 Marks)

15. Explain the mathematical formulation of the Transportation Problem with an example.
16. Distinguish between Balanced and Unbalanced Transportation Problem.
17. What is a Game Theory? List out the assumptions made in the theory of Games.
18. Explain the Maxi-min principle used in Game theory.
19. Define Inventory. What are the advantages and disadvantages of having inventories?
20. Explain the different costs that are involved in inventory problems.
21. Explain the concepts of Network: (i) Activities and (ii) Nodes.
22. Explain the rules for constructing the Networks.
23. Explain the concept of Simulation.
24. Explain the Event-type Simulation with the help of an illustration.

PART- B

Answer ALL questions. Each question carries 12 Marks
(Marks: 5 x 12 = 60 Marks)

25. Explain how the initial basic feasible solution to the Transportation Problem is determined using Vogel's approximation method.

Or

Determine an initial basic feasible solution to the following Transportation Problem using North West Corner Rule:

	D1	D2	D3	D4	Availability
	O1	6	4	1	5	14
	O2	8	9	2	7	16
	O3	4	3	6	2	5
Requirement	6	10	15	4	35	

26. Define Saddle point and value of the Game. Determine the value of the game whose pay-off is given by:

		Player B	
		-5	2
Player A			
		-7	-4

Or

Explain the Dominance property and use the dominance property to solve the game theory whose pay off matrix is given by:

		Player B	
		I	II
	I	9	2
Player A	II	8	6
	III	6	4

27. Explain the fundamental problem of EOQ.

Or

Explain the problem of EOQ with finite rate of replenishment.

28. What is a Network? Explain the constraints in Network.

Or

Explain the Critical Path Method (CPM).

15. Explain the different methods to generate Uniform (0, 1) Random observations.

Or

Explain the procedure involved in the generation of a sequence of random observations from any specified probability distribution.

EMT 409	**DATA BASE FOR THE INDIAN ECONOMY**		**4Credits**

Course Objectives: The main objective of this course is data warehouse of the Department of Statistics and Information Management (DSIM), under the Reserve Bank of India. The entire statistics have been presented in seven subject areas - Real Sector, Corporate Sector, Financial Sector, Financial Market, External Sector, Public Finance, Socio-Economic Indicators.

CourseOutcomes: Attheendofthecourse, thestudentwillbeableto

CO1	Develop ideas of the basic characteristics of Indian economy, its potential on natural resources
CO2	Understand the importance, causes and impact of population growth and its distribution, translate and relate them with economic development.
CO3	Students can able to describe the knowledge or skills students should acquire by the end of a particular assignment, class, course, or program, and help students understand why that knowledge and those skills will be useful to them
CO4	Creating new knowledge (Cognitive) Developing feelings and emotions (Affective) Enhancing physical and manual skills (Psychomotor).
CO5	Students can also be scaffolded so that they continue to push student learning to new levels in any of these three categories.

Mappingofcourseoutcomeswiththeprogramoutcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2	-	1	1	-	2	2	-	1
CO2	3	2	2	2	-	1	1	-	2	2	1	2

CO3	3	3	2	-	2	1	1	-	2	2	-	-
CO4	3	2	3	2	-	1	1	-	2	2	1	-
CO5	3	2	1	-	1	2	-	1	1	2	-	1

Unit 1: Census – Demographic Indicators – Definitions – schedules – Dissemination – Database – Tpes – Other data sets from Census – Economic census – Education census – Agricultural census – Major Results of Recent Census Data in India.

Unit 2: National Income Accounting – Base year – Methods of Estimation – Types of Reporting – Balance of Payments (BOP) and National Income) (NI) – State Domestic Product – District Domestic Product - District Census Handbooks.

Unit 3: NSSO – Large and Small samples – NSSO Rounds on Consumption Expenditure, Employment and Unemployment Status in India – Major Findings of Recent NSS reports on Poverty,Inequality and Unemployment – Annual Survey of Industries (ASI) – Coverage – Definition of Terms – price and wage statistics Major Findings of Recent reports – Socio-economic statistics – National Family Health Survey (NFHS) – Health and Morbidity Data.

Unit 4: RBI – Balance sheet approach – Financial and Banking statistics – Money supply Indicators and Statistics on Money Supply in India – Foreign Exchange Reserves – Exchange rate – Stock Market Statistics – Non-banking Financial Institutions data.

Unit 5: Govt. and International data – Ministry of Commerce Data on Exports and Imports – Data in Annual Economic Surveys from the Ministry of Finance - Data from World bank, IMF, ILO, WTO, UNCTAD, UN and other international agencies – Specific data bases such as World Value Surveys – Penn World Tables - Gallop Poll.

Books for Reference:

1. Websites and reports of respective ministries and organizations, like Directorate of Census Operations, CSO, NSSO, GOI, SEBI, RBI.
2. Reports of Statistics Departments in State Governments.
3. Reports of UN Organisations.
4. Annual Economic Surveys, Minstry of Finance, Government of India.
5. http://www.commerce.nic.in/eidb/iecnttopn.asp

Model Paper

M. A. DEGREE EXAMINATION

FOURTH SEMESTER

Branch: Econometrics
Paper: EMT: 409- DATA BASE FOR INDIAN ECONOMY
(Revised Regulations CBSC from 2017-18)

Time: 3 Hours Max: Marks: 80

PART- A

Answer any FIVE questions. Each question carries 4 Marks
(Marks: 5 x 4 = 20 Marks)

1. State the major structural changes in Indian economy since its independence.
2. What are the basic characteristics of a developing economy?
3. Write a short note on new agricultural policy.
4. Explain the concept of food security.
5. Write a short note on the source of industrial finance in India.
6. What are the major problems of industrial labour in India.
7. Write a short note on GATT.
8. Describe broad structure of India's foreign trade in recent years.
9. What are the major objectives of planning in India?
10. What are the problems of capital formation in India?

PART- B

Answer ALL questions. Each question carries 12 Marks
(Marks: 5 x 12 = 60 Marks)

11. What do you mean by anti-poverty Programmes? Briefly describe about anti-Poverty programmes implemented in India after 1970s.

Or

Critically examine the Indian economic development during five-year plans.

12. Explain inter relationship between agriculture and industry.

Or

Examine the controversy in India between the farm size and productivity.

13. What are the causes of industrial Sickness in India? Suggest some remedial measures.

Or

Evaluate the importance of Micro, Small and Medium Scale Enterprises (MSMEs) in the Indian economy.

14. Examine methods of correcting disequilibrium in India's BOP.

Or

Evaluate the impact of WTO on agriculture in India.

15. Explain the concepts of Privatization and Globalization and their impact on India.

Or

Discuss the role of foreign capital and foreign aid in India's Economic development.

EMT 410	ACTUARIAL STATISTICS		4Credits

Course Objectives: The objective of the course is to provide knowledge on Actuarial Statistics. Actuarial analysis is an essential task performed by insurance companies to analyze data and estimate the probability of an insurance claim being filed for a given event. This work allows insurance companies to predict with areas on able degree of accuracy the amount of claims they will pay out, which helps them determine what premiums they must charge to remain profitable.

CourseOutcomes: Attheendofthecourse, thestudentwillbeableto

CO1	To learn and gain the knowledge about the impact of economic and social conditions in the financial sector.
CO2	To create awareness about the financial terminology and calculations in the policy designing
CO3	To skill development and honed by successful actuaries include an excellent business communications in sense with knowledge of finance, accounting, and economics.
CO4	Actuaries often required keen analytical and problem solving skills using mathematics and statistics.
CO5	Actuaries can ability to work with reliability and relevance by using the analytical and scientific reports generated by the researchers

Mappingofcourseoutcomeswiththeprogramoutcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2	-	1	1	-	2	2	-	1
CO2	3	2	2	2	-	1	1	-	2	2	1	2
CO3	3	3	2	-	2	1	1	-	2	2	-	-
CO4	3	2	3	2	-	1	1	-	2	2	1	-
CO5	3	2	1	-	1	2	-	1	1	2	-	1

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Unit -1 Theory of Interest rates, Rate of Interest, Nominal rate of interest. Accumulation factors. Force of interest, present values, Stoodley formula for the force of interest, Present value of cash flows, Valuing cash flows - Basic Annuities Certain, Present values and accumulation, Concepts of different annuities, Continuously payable annuities, Varying annuities.

Unit- 2 Utility Theory, Insurance and Utility Theory, Models for individual claims and their sums, Approximations for the distribution of the sum - Application to Insurance - Survival function, time until death for a person age X, Accurate future Life time, Force of Mortality.

Unit-3 Life Table and its Relation with Survival Function – Examples - The Deterministic Survivorship group, Recursion formulas, Assumptions for traditional ages, Analytical Laws of Mortality, Select and Ultimate tables.

Unit – 4 Life Insurance: Insurance payable at the moment of death and at the end of the year of death – Level benefit insurance, Endowment insurance, Deferred insurance and Varying benefit insurance. Life Annuities. Single payment, Continuous Life annuities, Discrete life Annuities - life annuities with monthly payments, Complete annuities – Immediate and Apportionable annuities – due.

Unit 5: Multiple life functions, Joint life and Last Survivor status, Insurance and Annuity benefits through multiple life function, Evolution for Special Mortality laws - Multiple decrement models, associated single decrement tables, Central of multiple decrement, Central force assumptions for multiple decrements. Uniform distribution assumption for multiple decrements.

TEXT AND REFERENCE BOOKS:

1) Bowes, N.L., Gerber, H.U., Hickman, J.C, Jones, D.A., and nesbitt, C., J .(1986). Actuarial Mathematics. Society of Actuaries, Lthaca, lllins, U/S.A. 2nd ed(1997) C.H.1,2,3,4,5,9&10.
2) McCutchheon, J.J. and Scott, W.F., An introduction to Mathematics of finance.
3) Spurgeoin,E.T .(1972). Life Contingencies. Cambridge University Press.
4) Nall, A (1977), Life Contingencies. Heinemann.

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Model Paper

M.A DEGREE EXAMINTION

FOURTH SEMESTER

BRANCH: ECONOMETRICS

Paper-410: ACTUARIAL STATISTICS

(Under CBCS Revised Syllabus from 2017-18)

Time: 3 Hours Max. Marks: 80

Section-A

Answer any FIVE questions
Each question carries 4 marks
(5X4=20)

1. What is Life Insurance
2. Explain the Theory of Interest rates
3. State any four Assumptions for traditional ages.
4. What is Special Mortality laws.
5. DefinetheUtility Theory
6. Explain the Endowment insurance
7. What are the causes of Endowment insurance
8. Explain the Analytical Laws of Mortality
9. What isEndowment insurance
10. Write a short note on Level benefit insurance

Section- B

Answer ALL the questions
Each question carries 12 marks
(5X12=60)

11. (a) Explain the Survival function, time until death for a person age X, Accurate future Life time,Force of Mortality

Or

(b) Elucidate the Assumptions for traditional ages, Analytical Laws of Mortality, Select and Ultimate tables.

12. (a) Critically examine the Central of multiple decrements, Central force assumptions for multiple decrements.

Or

(b) Explain the Multiple life functions, Joint life and Last Survivor status, Insurance

13. (a) critically Analyse the Insurance and Utility Theory

Or

(b) Discuss the ‘Evolution for Special Mortality laws

14. (a) Define Present values and accumulation, Concepts of different annuities,

Or

(b) Explain the Models for individual claims and their sums.

15. (a) Critically examine the Evolution for Special Mortality laws - Multiple decrement models

Or

(b) Discuss the major Concepts of different annuities, Continuously payable annuities, Varying annuities.

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