

CENTRAL UNIVERSITY OF HARYANA

First Semester Term End Examinations January 2023

Programme: MA Economics

Session: 2022-23

Semester : III

Max. Time: 3 Hours

Course Title: Econometrics-I

Max. Marks: 70

Course Code: SAHS ECO 01 302 C 3104

Instructions:

1. *Question no. 1 has seven parts and students are required to answer any four. Each part carries three and half Marks.*
2. *Question no. 2 to 5 have three parts and student are required to answer any two parts of each question. Each part carries seven marks.*
3. *Use of one SIMPLE calculator is permitted. Appropriate statistical tables will be provided if asked.*

Q 1. Answer **any four** the following questions in brief: (4X3.5=14)

- a) Write the Classical Linear Regression Model (CLRM) assumptions for disturbance term U_i
- b) What are stochastic and non-stochastic relations? Explain with appropriate examples.
- c) Write the three goals of econometrics.
- d) Differentiate between R^2 and adjusted R^2 .
- e) Write the sources of problem of heteroscedasticity in an econometric model.
- f) Write the importance of BLUE properties of OLS estimators.
- g) Outline the Vector Inflation Test (VIF) for detecting the problem of multicollinearity.

Q 2. (2X7=14)

- a) 'Econometrics refers to the measurement of economic phenomena' - Justify this statement. Also write the methodology of econometrics analysis.
- b) Convert the following relation into econometrics relation-
Demand function: $Dx = \alpha + \beta_1 Px + \beta_2 Y$,
where Dx = quantity demanded, Px = price, and Y = income.
 - (i) What is the economic meaning of the coefficients involved in the above relationship?
 - (ii) What would you expect the sign and size of the coefficients to be in the above relationship?
- (c) Establish the inter-relationship between Mathematical economics, Economic statistics and Econometrics.

Q3.

(2X7=14)

- (a) Obtain the regression line from the following data of 20 pairs of observations on X and Y if $Y = f(X)$:

$$\sum X_i = 228, \sum Y_i = 3121, \sum X_i Y_i = 38927, \sum X_i^2 = 3204,$$

$$\sum x_i y_i = 3347.60, \sum x_i^2 = 604.80, \text{ and } \sum y_i^2 = 19837.$$

Also test the hypothesis $\hat{\beta} = 0$ at 5% significance level.

- (b) For the classical two variable linear regression model $Y_i = \alpha + \beta X_i + U_i$, derive the estimator of α and β using OLS method of estimation.
- (c) How does changing of scale affect the value of OLS estimator? Explain with suitable algebraic illustration.

Q 4.

(2X7=14)

- a) For the three variable regression model, $Y_i = \alpha + \beta_1 X_1 + \beta_2 X_2 + U_i$, use the following data of 28 observations to fit the regression line-

$$\sum y_i^2 = 1000, \sum x_1^2 = 200, \sum x_2^2 = 100, \sum x_1 y_i = 400, \sum x_2 y_i = (-) 100,$$

$$\sum x_1 x_2 = 0, \bar{Y} = 50, \text{ Mean of } X_1 = 15, \text{ and Mean of } X_2 = 15$$

Also test the hypothesis $\beta_1 = \beta_2 = 0$.

- b) What do you mean by multiple linear regression model? Why does one need to apply multiple regression model in empirical analysis of economic phenomenon. What precautions must be taken care off while applying multiple regression model.
- c) Prove that t test and F test are equivalent such that $t^2 = F$.

Q 5.

(2X7=14)

- a) What is autocorrelation? Outline the Durbin Watson 'd' statistics test for detecting the autocorrelation.
- b) What heteroscedasticity? Discuss consequences of presence of heteroscedasticity in the model $Y_i = \alpha + \beta X_i + U_i$.
- c) What is Multicollinearity? In the presence of multicollinearity in the model $Y_i = \alpha + \beta_1 X_1 + \beta_2 X_2 + U_i$, show that-
- (i) the estimates of coefficients will indeterminate.
- (ii) the variance of coefficients will be infinitely large.

CENTRAL UNIVERSITY OF HARYANA

Term End Examinations, January 2023

Programme: M.A. Economics **Session:** 2022-23
Semester: Third **Max. Time:** 03 Hours
Course Title: Public Economics-II **Max. Marks:** 70
Course Code: SAHS ECO 01 303 C 3104

Instructions:

1. Question no. 1 has seven sub parts and students need to answer any four. Each sub part carries three and half Marks.
2. Question no. 2 to 5 have three sub parts and students need to answer any two sub parts of each question. Each sub part carries seven marks.

Question No. 1.

(4X3.5=14)

- a) Briefly explain the sources of public debt.
- b) Write a note on automatic vs discretionary stabilizers.
- c) What do you mean by vertical and horizontal imbalances?
- d) Write the concept of crowding out in public economics.
- e) Write a note on Union, State and Concurrent list.
- f) Write the classical views on public debt.
- g) What are the recommendations of Mukherjee and Gadgil formula?

Question No. 2.

(2X7=14)

- a) What do you mean by public debt? Classify the public debt in different categories.
- b) Explain the various methods of public debt redemption and repayment.

Question No. 3.

(2X7=14)

- a) What do you understand by the term budget? Give its importance.
- b) What do you mean by budgetary deficit? State its implications for a developing economy.

- c) Discuss the various instruments of fiscal policy. Give their effects on inflation and deflation. Which instrument is the most appropriate?

Question No. 4.

(2X7=14)

- a) Explain the interdependence of fiscal and monetary policies.
- b) Explain the role of multiplier in determination of fiscal policy.
- c) Discuss the main problems of fiscal policy in achieving its objectives.

Question No. 5.

(2X7=14)

- a) Write the principles of multi unit finance.
- b) Explain the criteria of fund transfer from Ist to Xth finance commission adopted by finance commission under income tax distribution.
- c) Explain the criteria of fund transfer from Ist to Xth finance commission adopted by finance commission under the distribution of Grant-in-Aid.

CENTRAL UNIVERSITY OF HARYANA

Term End Examination January 2023

Programme: M.A.(Economics)

Session:2022-23

Semester: Third

Max. Time: 3 Hours

Course Title: Basic Economics

Max. Marks:70

Course Code: SAHS ECO 01 101 GE 3104

Instructions:

1. Question no. 1 has seven parts and students need to answer any four. Each part carries three and half marks.
2. Question no. 2 to 5 have three parts and students need to answer two parts of each question. Each part carries seven marks.

Q1.

(4*3.5 =14)

- a) Explain the relationship between TR, MR and AR.
- b) Why short run is AC curve is 'U' Shaped?
- c) Explain the terms GDP at factor cost and NNP at factor cost.
- d) Explain the term Growth and Development.
- e) What do you understand about the 'Economic system? What type of economic systems exist in the present world?
- f) Role of MNCs in Economic Growth of a country.

Q2.

(2*7=14)

- a) What do you understand about consumer equilibrium? Show consumer's equilibrium with the help of indifference curve analysis.
- b) Explain the Concepts of Consumer goods, Capital goods, Final and Intermediate goods.
- c) Define Price Elasticity of Demand. How is it measured?

Q3.

(2*7=14)

- a) Explain the functions of Central bank.
- b) Why international trade is important for the economic development of a nation.
- c) Explain the concept of Sustainable Development. Discuss the policies adopted for the promotion of Sustainable Development.

Q4

(2*7=14)

- a) Explain the concept of Perfect competition. Why a firm under perfect competition is called a price taker and not a price maker?
- b) Explain the basic concept of Absolute and Comparative advantage theories of international trade.
- c) Explain the role of WTO in international trade.

Q5.

(2*7=14)

- a) What is Fiscal Policy? Explain its instruments.
- b) Define poverty. Explain Headcount Ratio and Poverty Gap measures of poverty.
- c) Explain the role and functions of World Bank.

CENTRAL UNIVERSITY OF HARYANA

TERM END EXAMINATION JANUARY 2023

Program Name: M.A. (Economics)

Session: 2022-23

Course Title: Environmental Economics

Max Time: 3 Hours

Course Code: SAHS ECO 01 305 DCEC 3104

Max Marks: 70

Instructions:

- 1. Question no. 1 has seven parts and students need to answer any four. Each part carries three and half marks.*
- 2. Question no. 2 to 5 have three parts and student need to answer any two parts to each question. Each part carries seven marks.*

Q.1

(4*3.5=14)

- Write a short note on Natural Resource Economics?
- Define Sustainable Development and also explain evolution of the concept?
- What is Environmental Accounting? Discuss its various methods?
- Explain in brief COP 27?
- Explain term PANCHAMRIT in context of INDIA's Climate Action Plan?
- What is Market Failure and discuss reason behind it?
- Write a short note on Climate Change?

Q.2

(2*7=14)

- What is Environmental Economics? Explain its conceptual background?

(b) Discuss how Environmental Economics, Micro Economics, & Welfare Economics are related to each other?

(c) Differentiate between Environment Economics and Natural Resource Economics?

Q.3

(2*7=14)

(a) What is Kuznet's curve? Discuss Environment Kuznet's curve Hypothesis?

(b) Discuss measurement and indicators of Sustainable Development?

(c) Critically Examine relationship between environment and Economic Development?

Q.4

(2*7=14)

(a) What is Pareto optimality? Discuss market failure in presence of externality?

(b) Define Pigouvian tax? Compare Pigouvian and coasian solution for Environmental externalities?

(c) Discuss various Environmental policies implemented by Indian Government?

Q.5

(2*7=14)

(a) Explain in detail, how Climate Change is impacting various aspects of economy?

(b) Discuss various important environmental treaties, conventions, resolutions, protocols?

(c) What is Transboundary Environment Pollution? Write down steps taken to handle this pollution?

Central University of Haryana

Jant-Pali, Mahendergarh, Haryana

Name of Programme	:	M.A. ECONOMICS
Year & Semester	:	2023, Ist Semester
Course Name	:	Mathematics for Economic Analysis
Course Code	:	SAHS ECO 01 104 C 3104
Maximum Time	:	3 hours
Maximum Marks	:	70

Instructions:

1. Question no. 1 has seven sub parts and students need to answer any four. Each sub part carries three and half marks.
2. Question no. 2 to 5 have three sub parts and students need to answer any two sub parts of each question. Each sub part carries seven marks.

Question No. 1

(4×3.5 = 14)

- a) If $A = \{1, 2, 3, 4, 5\}$; $B = \{1, 4, 5, 6\}$; $C = \{7, 8, 9, 4, 5\}$ Verify that $(A \cup B) \cup C = A \cup (B \cup C)$.
- b) Define limit of a function.
- c) Differentiate $(5 - 2x)(2x^3 + 3)$ w.r.t. x .
- d) If the demand function is $p = 100 - 4q$, find the level of output at which total revenue is maximum and also find the maximum revenue.
- e) Define Symmetric and Skew Symmetric Matrix with the help of examples.
- f) What is the difference between definite and indefinite integration.
- g) What do you mean by Homogenous function.

Question No. 2

(2×7=14)

- a) Each student in a class of 40 Students studies at least one of the subjects English, Mathematics and Economics. 16 study English, 22 Economics and 26 Mathematics. 5 study English and Economics, 14 mathematics and Economics and 2 English, Economics and mathematics. Find the number of students who
 - (i). Study English and Mathematics.
 - (ii). Study English, Mathematics and not Economics.
- b) Find the value of k so that the given $f(x)$ is continuous at $x = 3$.

$$f(x) = \begin{cases} 2x - 1, & x < 3 \\ k, & x = 3 \\ x + 2, & x > 3 \end{cases}$$

- c) The demand function for a particular commodity is $y = 150 - 101x$ for $0 \leq x \leq 6$ where y is the price per unit and x is the number of units demanded. Determine the price and quantity for which the revenue is maximum.

Question No. 3

(2×7=14)

- a) Using calculus, prove that $E = \frac{AR}{AR-MR}$ with usual notations.
- b) The total revenue curve for the commodity is $TR = 12x + \frac{1}{2}x^2 - \frac{1}{3}x^3$. Find (a) the slope of average revenue function, (b) the level of output at which this function is maximum (c) verify that $AR = MR$ at the maximum point of AR curve.
- c) Consider the following national income determination model:

$$Y = C + I + G, \quad C = a + b(Y-T), \quad T = d + ty$$

Solve the model for Y , C and T using Cramer's rule.

Question No. 4

(2×7=14)

- a) For a monopolist, the demand law is $p = 50 - x^2$ and marginal cost $MC = 1 + x^2$. Find the consumer's surplus at the price which monopolist will like to fix. If there is pure competitive in this case, what will be the consumer's surplus at equilibrium price?
- b) The daily cost of operation a hospital is a linear function of the number of indoor patients (I) and outdoor patients (O) plus fixed costs (Z) i.e. $C = xL + yO + z$. find the values of costs X, Y and Z through a system of linear equations using the matrix method:

Days	C (in Rs.)	I	O
1	5200	30	20
2	5360	35	22
3	5650	15	45

- c) Define the term Quadratic Forms. Explain the different types of Quadratic Forms .

Question No. 5

(2×7=14)

- a) Write down the Cobb – Douglas production function. Verify Euler's theorem for the function.
- b) Find the optimum values of q_1 and q_2 when utility function is $U = q_1^{1.5}q_2$ and the budget constraint is $3q_1 + 4q_2 = 100$.
- c) Solve and discuss following Samuelson Multiplier – Accelerator Interaction model:

$$Y_t = C_t + I_t + G_t$$

$$C_t = 0.5Y_{t-1}$$

$$I_t = 2(C_t - C_{t-1})$$

$$G_t = 100$$