(i) Printed Pages : 12 Roll No. .....

(ii) Questions : 9 Sub. Code : 1 9 8 6

Exam. Code : 3 0 9

M.A. 3rd Semester

1125

ECONOMICS (In all Mediums)

Paper–MAECO–303&304, Opt(iii) : Basic Econometrics

Time Allowed : Three Hours] **[Maximum Marks : 80**

Note :– Attempt **five** questions in all including question no. **I** which is compulsory and selecting **one** question from each Unit. The use of Simple Non-scientific and Non-programmable calculator is allowed.

I. Write short notes (in 25-30 words each) on any **ten** of the following:

(i) What do you mean by the term Ordinary Least Square ?

(ii) What is the use of econometrics for an economist ?

(iii) Differentiate the terms heteroscedasticity and autocorrelation.

(iv) What do you mean by likelihood function ?

(v) Write down and briefly explain the likelihood function for a classical linear regression model.

(vi) Give any one test to detect the problem of Multicollinearity.

(vii) How the problem of autocorrelation is detected using the autoregressive model ?

(viii) When the DW-test becomes inconclusive ?

(ix) Discuss the major shortcomings of Autoregressive and distributed lag models.

(x) Which test will be used to detect the autocorrelation if the model is autoregressive ?

(xi) Define SPSS ? What types of windows are observed in user interface of SPSS ?

(xii) Which statistics are directly available to detect the problem of Autocorrelation in SPSS ?

(xiii) How tolerance ratio is different from Variance Inflation Factor (VIF) in SPSS ?

(xiv) What is the use of the estimates of standardized coefficients provided by SPSS ?

(xv) What are the major components of an ANOVA Table provided in SPSS ? $10 \times 2 = 20$

UNIT–I

II. Discuss in detail the rationale of econometrics ? What are the major dimensions of the subject ? 15

III. State and Prove Gauss Markov Theorem for General Linear Regression model :

$Y = XB + U;$

Where $Y = [y_{ij}]_{n\times 1}$, $X = [x_{ij}]_{n\times k}$, $B = [B_{ij}]_{k\times 1}$ and $U = [U_{ij}]_{n\times 1}$ are different matrices of given orders. 15

UNIT–II

IV. Discuss Consequences of Muticollinearity along with its remedial measures. 15

V. Discuss the methods to detect the problem of Heteroscedasticity. 15

UNIT–III

VI. Discuss the Adaptive Expectations and Partial Adjustment approaches of estimating ARDL models. 15

VII. How Almon's approach is better than other approaches of estimating ARDL approach ? Discuss the procedure to estimate ARDL models using Almon's approach. 15

UNIT–IV

VIII. Discuss the role of computer in econometrics modeling. Also discuss the procedure to estimate a multivariate regression model using SPSS. 15

IX. A consumption function is estimated with two independent variables income and interest rate. The SPSS output is given as follows :

Model Summary (Consumption)

R	R Square	Adjusted R Square	Std. Error of the Estimate
.64	.41	.24	.40

ANOVA (Consumption)

	Sum of Squares	df	Mean Square	F	Sig.
Regression	.78	2	.39	2.41	.160
Residual	1.13	7	.16		
Total	1.91	9			

Coefficients (Consumption)

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
	B	Std. Error	Beta			Lower bound	Upper bound
(Constant)	–.86	.68	.00	–1.26	.242	–2.46	.75
Income	.65	.32	2.06	2.04	.081	–.10	1.40
Interest-rate	.16	.10	1.74	1.72	.129	_.06	.39

Coefficients Correlations (Consumption)

Model		Income	Interest–rate
	Covariances	Interest–rate	.10