2023

M.A. / M.Sc.

4th Semester Examination

ECONOMICS

PAPER : ECO-401

(Computer Application in Economics)

Full Marks : 40

Time : 2 hours

The figures in the right-hand margin indicate marks.
Candidates are required to give their answers in their own words as far as practicable.
Illustrate the answers wherever necessary.

1. Answer *any* **four** questions from the following : 2×4=8

   (a) What is the purpose of Shapiro-Wilk test? Write down the hypotheses of this test.

   (b) Define the multiple regression model. How can you estimate it in SPSS?

(c) What is ANOVA? Write down the steps of estimation of two-way ANOVA in SPSS.

(d) What do you mean by logit model? Write down the steps of estimation of this model in STATA.

(e) How do you distinguish between common sample and individual sample for multiple series case?

(f) How do you create work files in Eviews software?

(g) Write FORTRAN expressions for the following :

e^X, Remainder of M/N, $A > B$, absolute value of x.

(h) When are these commands used in C programming scanf(), printf()?

2. Answer *any* **four** questions from the following : 4×4=16

(a) Write down the steps to test the normality in SPSS. Estimate and interpret Z_{skw}, Z_{kut} and JB test statistics on the basis of the following information :

Skewness = –0·30, Kurtosis = 0·40, Standard Error of Skewness = 0·15, Standard Error of Kurtosis = 0·22, Chi-sq (0·05, 2) = 5·99.

(b) How to perform F-test and T-test in MS Excel? Given the following results, what can you conclude from F-test and T-test? 2+2

F-test two-sample for variances			T-test : two-sample assuming unequal variances		
	X1	*X2*		*X1*	*X2*
Mean	20244·1	194298	Mean	20244·1	194297·9
Variance	1·27E+08	1·17E+10	Variance	1·27E+08	1·17E+10
Observations	16	16	Observations	16	16
df	15	15	Hypothesized Mean		
F	0·0098		Difference	0	
P(F<=f) one-tail	9·89E-13		df	15	
			t Stat	-5·71364	
			P(T<=t) one-tail	2·05E-05	

(c) What is the importance of Post Hoc estimation in SPSS for ANOVA? Interpret the results of multiple comparison of ANOVA test given below :

Multiple Comparisons

yield

Tukey HSD

(I) fertilizer	(J) fertilizer	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1.00	2.00	-.17617	.15530	.495	-.5461	.1937
	3.00	-.59913*	.15530	.001	-.9690	-.2292
2.00	1.00	.17617	.15530	.495	-.1937	.5461
	3.00	-.42296*	.15530	.021	-.7928	-.0531
3.00	1.00	.59913*	.15530	.001	.2292	.9690
	2.00	.42296*	.15530	.021	.0531	.7928

* The mean difference is significant at the 0.05 level.

(d) Interpret the following results of the regression equation to find out the effectiveness of three types of medicine used to treat Covid patients.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	177.356	.110		1615.099	.000
	d1	-.369	.155	-.127	-3.858	.000
	d2	-.426	.155	-.302	-2.724	.008

Where, Dependent variable = Recovery rate of patients :

Independent Variables: D1 is dummy variable (Medicine A = 1, 0 otherwise); D2 is dummy variable (Medicine B = 1, 0 otherwise)

(e) What are the steps involved in estimating regression equation of Y on X using Eviews software?

(f) How do you carry on hypothesis testing using Eviews software?

(g) What is flowchart? Draw a flowchart to find the area of triangle.

(h) Write a program in FORTRAN to find the maximum among three numbers.

(Continued)

3. Answer *any* **two** questions from the following : 8×2=16

(a) Explain the summary statistics of a logit model estimated by STATA. Interpret the coefficients of one qualitative and one quantitative independent variables of a hypothetical logit model. 5+3

(b) Interpret the estimated results of multiple regression model given below where child mortality rate (cm) is regressed on female literacy rate (flr), per capita income (pcy) and total fertility rate (tfr).

Model Summary

Model	R	R Squares	Adjusted R Square	Std. Error of the Estimate
1	.865[a]	.747	.735	39.13127

a. Predictors: (Constant), tfr, pcy, flr

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	271802.617	3	90600.872	59.168	.000[a]
	Residual	91875.383	60	1531.256		
	Total	363678.000	63			

a. Predictors: (Constant), tfr, pcy, flr

b. Dependent Variable : cm

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	168.307	32.892		5.117	.000
	flr	-1.768	.248	-.605	-7.129	.000
	pcy	-.006	.002	-.198	-2.934	.005
	tfr	12.869	4.191	.256	3.071	.003

a. Dependent Variable : cm

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(c) What are the steps to be followed using Eviews to carry on Augmented Dickey-Fuller test? 8

(d) Write a program in C to find the arithmetic mean of n numbers. How can you perform the same using array in FORTRAN? 5+3

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