NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

FACULTY OF MANAGEMENT SCIENCES

DEPARTMENT OF ACCOUNTING ECONOMICS AND FINANCE

QUALIFICATION:	**BACHELOR OF ECONOMICS HONOURS DEGREE**		
QUALIFICATION CODE:	08HECO	**LEVEL:**	8
COURSE CODE:	AEM810S	**COURSE NAME:**	APPLIED ECONOMETRICS
SESSION:	NOV 2019	**PAPER:**	THEORY
DURATION:	3 HOURS	**MARKS:**	100

SPECIAL EXAMINATION QUESTION PAPER	
EXAMINER(S)	Prof Tafirenyika Sunde
MODERATOR:	Dr Reinold Kamati

INSTRUCTIONS

1. Answer ALL the questions.
2. Write clearly and neatly.
3. Number the answers clearly.

PERMISSIBLE MATERIALS

1. Ruler
2. calculator

THIS QUESTION PAPER CONSISTS OF 3 PAGES

QUESTION 1 [25 marks]

Dependent Variable: LNREALGDP
Method: Least Squares
Date: 09/25/19 Time: 15:43
Sample (adjusted): 1967 2018
Included observations: 52 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Probability
Constant	0.386192	0.300629	1.284611	0.2051
LNREALGDP(-1)	0.960024	0.036916	26.00528	0.0000
LNMONEYSUPPLY	0.000535	0.001814	0.294775	0.7694
LNINFLATION	-0.019960	0.006725	-2.968265	0.0047
R-squared	0.957768	Mean dependent variable		8.745461
Adjusted R-squared	0.955129	S.D. dependent variable		0.100687
S.E. of regression	0.021328	Akaike info criterion		-4.783751
Sum squared resid	0.021835	Schwarz criterion		-4.633655
Log likelihood	128.3775	Hannan-Quinn criterion		-4.726207
F-statistic	362.8602	Durbin-Watson statistic		1.370054
Prob(F-statistic)	0.000000			

(a) Comment on the following measures. [18 marks]

i. Signs on the coefficients
ii. Significants of all the variables
iii. The standard errors of coefficients.
iv. Adjusted coefficient of determination
v. F-statistic for overall significance
vi. Durbin-Watson statistic

(b) State the estimated regression equation in the table above. [7 Marks]

QUESTION 2 [25 marks]

a) Use the output in the Table to answer the following questions: [18 Marks]

$$Y_t = 100 + 0.5Y_{t-1} + 0.2X_t + 0.1X_{t-1} + 0.3Z_t + 0.1Z_{t-1} + e_t$$

(i) What is the instantaneous multiplier of X?

(ii) What is the instantaneous multiplier of Z?

(iii) What is the cumulative short-run multiplier of X after one (1) period?

(iv) What is the cumulative short-run multiplier of Z after one (1) period?

(v) What is the long run multiplier of Y with respect to X?

(vi) What is the long run multiplier of Y with respect to Z?

b) Why is the ARDL model preferred over other types of models? [7 Marks]

QUESTION 3 [25 marks]

a) Discuss the circumstances under which the following methods of estimating regression equation are used. NB: You are expected to state what the abbreviation stands for before you answer the question.

(i) OLS
(ii) ECM
(iii) ARDL (p, q)
(iv) VAR (p)
(v) VECM.

QUESTION 4 [25 marks]

Suppose you want to test for the Dynamic Granger causality between GDP (Y) and money supply (M) whose model is given as follows:

$$\Delta Y_t = \lambda_0 + \sum_{i=1}^{n} \lambda_{1i}\Delta Y_{t-i} + \sum_{i=1}^{n} \lambda_{2i}\Delta M_{t-1} + \lambda_3 \epsilon_{1t-1} + \mu_{1t} \qquad (1)$$

$$\Delta M_t = \varphi_0 + \sum_{i=1}^{n} \varphi_{1i}\Delta Y_{t-i} + \sum_{i=1}^{n} \varphi_{2i}\Delta M_{t-1} + \varphi_3 \epsilon_{2t-1} + \mu_{2t} \qquad (2)$$

(a) By using the appropriate hypothesis, succinctly explain the four cases of **short run** causality for equations (1) and (2). [8 Marks]

(b) Explain any two cases of **joint short run and long run** causality [4 Marks]

(c) VAR Granger Causality/Block Exogeneity Wald Tests (VARBEWT)
Date: 09/25/19 Time: 15:58
Sample: 1966 2018
Included observations: 51

Dependent variable: LNREALGDP			
Excluded	Chi-sq	df	Prob.
LNMONEYSUPPLY	1.428585	2	0.4895
LNINFLATION	7.305608	2	0.0259
All	9.036528	4	0.0602
Dependent variable: LNMONEYSUPPLY			
Excluded	Chi-sq	df	Prob.
LNREALGDP	4.986444	2	0.0826
LNINFLATION	2.651898	2	0.2656
All	5.656891	4	0.2263
Dependent variable: LNINFLATION			
Excluded	Chi-sq	df	Prob.
LNREALGDP	9.338281	2	0.0094
LNMONEYSUPPLY	16.57249	2	0.0003
All	18.08139	4	0.0012

Fully interpret the Granger causality results in the Table above. [13 Marks]