JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF MATHEMATICAL & ACTUARIAL SCIENCE

UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE (ACTUARIAL) WITH IT

2ND YEAR 1ST SEMESTER 2013/2014 ACADEMIC YEAR

CENTRE: MAIN

COURSE CODE: SAS 203

COURSE TITLE: ECONOMIC STATISTICS

EXAM VENUE: CR   **STREAM: (Actuarial)**

DATE: 14/4/2014   **EXAM SESSION: 2.00 – 4.00 PM**

TIME: 2 HOURS

<u>**Instructions:**</u>

1. **Answer question 1 (compulsory) and ANY other 2 questions.**
2. **Candidates are advised not to write on the question paper.**
3. **Candidates must hand in their answer booklets to the invigilator while in the examination room.**

Question One (Compulsory 30mks)

a) Define the term Index numbers. (2 marks)

b) State four uses of index numbers (4 marks)

c) State four characteristics of index numbers (4 marks)

d) State three problems encountered in the measurement of GDP (3armks)

e) Define GDP. What are the key words in the definition of GDP (4 marks)

f) Consider the following model of an economy

$C = 0.8(DI) + 400$

$I = 1800$

$G = 400$

$T = -400 + 0.25Y$

$X = 400$

$M = 200$

$Yp = 6,000$

(C = consumption expenditures, I = autonomous investment, G = government expenditures, T = tax revenues, X = exports, M = imports, DI = disposable income,

Y = real GDP, Yp = Potential GDP)

Required

Solve for equilibrium GDP and then compare this result to potential GDP. (8 marks)

Is this economy experiencing an output gap? (2 marks)

g) Which of the following are transfer payments?

(i) Net income earned from abroad

(ii) Interest on public debt paid by the Government

(iii) Bonus to the employees

(iv) Unemployment allowance

(v) Remittance by Pakistanis working abroad

(vi) Donations received from abroad.

(vii) Subsidies given by the Government to partners

(viii) Income tax paid by households to the .Government

(ix) Scholarships given to the poor students by the Government

(x) Foreign and given by USA to Pakistan.   (3 marks)

QUESTION TWO (20mks)

Use the table below to answer the following question

Government expenditures on goods and services	$ 500
Wages, salaries, and supplementary labour income	2,000
Depreciation	400
Investment	400
Consumption expenditure	2,200
Net exports	-50
Indirect taxes	150
Statistical discrepancy	0

a) Calculate the Gross Domestic Product and Net Domestic Product at market price(10 mks)
b) Construct Fisher's ideal index for the Following data. Test whether it satisfies time
   reversal test and factor reversal test.   (10mks)

Commodity	Base year		Current year	
	Quantity	Price	Quantity	Price
A	12	10	15	12
B	15	7	20	5
C	5	5	8	9

QUESTION THREE (20mks)

a). The fixed basket of Econoland consists of 10 units of A, 20 units of B, and 30 units of
C. Current prices are $1 per unit of A , $ 2 per unit of B, and $ 3 per unit of C. Base year
prices are $ 1 for each unit of A, B, and C. What is the CPI in the current year?(6 marks)
b). Highlight four uses of consumer price index.   (4 marks)

b). Calculate consumer price index by using Family Budget method for year 1993 with 1990 as base year from the following data. (10 marks)

Items	Weights	Price in 1990 (Rs.)	Price in 1993 (Rs.)
Food	35	150	140
Rent	20	75	90
Clothing	10	25	30
Fuel and lighting	15	50	60
Miscellaneous	20	60	80

QUESTION FOUR (20mks)

1. a) From the following data, construct an index for 1998 taking 1997 as base by the average of price relative using (a) arithmetic mean and (b) Geometric mean (10 marks)

Commodity	Price in 1997	Price in 1998
A	50	70
B	40	60
C	80	100
D	20	30

b). Why would it be useful to examine a country's balance of payments data. (2 marks)

c). Explain how each of the following transactions will be classified and recorded in the debit and credit of the U.S. balance of payments: (8 marks)

(1) A Japanese insurance company purchases U.S. Treasury bonds and pays out of its bank account kept in New York City.

(2) A U.S. citizen consumes a meal at a restaurant in Paris and pays with her American Express card.

(3) A Indian immigrant living in Los Angeles sends a check drawn on his L.A. bank account as a gift to his parents living in Bombay.

(4) A U.S. computer programmer is hired by a British company for consulting and gets paid from the U.S. bank account maintained by the British company.

QUESTION FIVE (20mks)

a) Define the balance of payments   (20 marks)

b) Use the table below to answer the following questions

The price of bread (rands/bread), meat (rands/kg), Cabbage (rands/cabbage) and wine (rands/bottle), as well as the quantities (in millions) consumed during 2006, 2007 & 2008 are given in the following table:-

	Price			Quantity		
	2006	2007	2008	2006	2007	2008
Bread	7.0	6.6	8.4	900	1000	900
Meat	44.0	46.0	59.0	600	600	700
Cabbage	7.0	7.3	9.6	5	6	5.5
Wine	30.4	30.4	32.1	90	90	100

Calculate the:-
1. Simple quantity index for meat in 2008 with 2006 as base year
2. Simple composite price index for 2007, with 2006 as base year
3. Lapeyres price index for 2008 with 2007 as base year
4. Paasche price index for 2008 with 2007 as base year
5. Fischer price index for 2008 with 2007 as base year
6. Simple composite quantity index for 2008 with 2007 as base year
7. Fischer quantity index for 2007 with 2006 as base year

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