



Final Exam 2020-2021

First Session

Level: BS

Academic Year: 1st Year

Department: Data Science

Course Name: Principles of Economics

Time: 1h30

Teacher: Jassem AJAKA

Problem 1 (20 points): Economic Growth

Let's have the following data (source: IMF)

1. Calculate the rate of change in GDP between 2016 and 2017 for the different countries.
2. Write a sentence with the result obtained for the United States.
3. What is special about the situation in Japan? Can we then speak of economic growth?
4. What is the downside of measuring growth from current GDP?

GDP (Current \$, US\$ bn)	2016	2017	Change (%)
USA	18,569.10	19,390.60	
China	11,199.10	12,237.70	
Japan	4,939.40	4,872.10	
Germany	3,466.80	3,677.40	
UK	2,618.90	2,622.40	
India	2,263.50	2,597.50	
France	2,465.50	2,582.50	
Brazil	1,796.20	2,055.50	
Italy	1,850.00	1,934.80	
Canada	1,529.80	1,653.00	

Problem 2 (30 points): Profit Maximization

Let's take the following production schedule, costs, and revenues of a company.

1. Fill the empty columns and detail the calculation of 1 cell in each column
2. What is the number of workers that maximizes the profit of the company?
3. What is the horizon of this maximization (short of long term)?

Production Schedule			Costs				Revenues		Profit
Number of workers	Total product	Marginal product	Total fixed cost	Total variable cost	Total cost	Marginal cost	Total revenue	Marginal Revenue	Total profit
0	0		50	0			0		
1	7		50	90			105		
2	20		50	180			300		
3	38		50	270			570		
4	62		50	360			930		
5	90		50	450			1350		
6	110		50	540			1650		
7	129		50	630			1935		
8	138		50	720			2070		
9	144		50	810			2160		
10	148		50	900			2220		
11	145		50	990			2175		
12	135		50	1080			2025		

Problem 3 (30 points): Inflation, Deflator

Let's take an economy with 3 products: Apple, Orange and Banana. Suppose that the prices and produced quantities are as follow:

1. Calculate the Nominal GDP for each year
2. Calculate the Economic Growth
3. Calculate the Real GDP (Base Year 2000)
4. Calculate the Deflator and Inflation for each year (Base Year 2000)
5. Comment the obtained results in the previous question

	2000	2010	2015
Apple			
Price	2	3	3
Quantity	10	10	15
Orange			
Price	3	4.5	5
Quantity	5	6	7
Banana			
Price	2	5	6
Quantity	10	9	8

Problem 4 (20 points): Multiple Choice Questions

A) Which of the following is not required for a country to be producing at a point on its production possibility frontier?

- a) Full employment of labor.
- b) All producers using the latest technology.
- c) Stable prices.
- d) All producers having productive efficiency.

B) Which of the following statements is true?

- a) The production possibility frontier is steeper at the right end than the left because some resources are better suited to making some products than others.
- b) The production possibility frontier is straight because some resources are better suited to making some products than others.
- c) The production possibility frontier is steeper at the left end than the right because some resources are better suited to making some products than others.
- d) The production possibility passes the point which represents total wants in the economy.

C) All the following government policies are likely to increase the quantity of some products that are produced. But with one policy, this effect is a side-effect rather than the aim. Which policy is that?

- a) A policy intended to improve efficiency.
- b) The introduction of subsidies on some products.
- c) A policy intended to reduce unemployment.
- d) The introduction of taxes on the rich and transfers to the poor.

D) Which of the following predictions is not made by the supply and demand model?

- a) If there is excess demand, the price will rise.
- b) If there is excess supply, the price will fall.
- c) If there is no excess demand or excess supply, the market will be in equilibrium.
- d) A market which is out of equilibrium will always move rapidly to the equilibrium,