Economics and Business Information

Normal examination period
21 June 2017
Duration: 2h30m (150 minutes)

LISBON
SCHOOL OF
ECONOMICS &
MANAGEMENT
UNIVERSIDADE DE LISBOA
1st year
Academic year 2016-2017

Always use 3 decimal places.

GROUP I

1. You know the following information about the distribution of households in a given region by income level.

Table: Distribution of households by income level

Yearly income level (€)	% households
0 – 7.800	25
7.800-20.000	34
20.000-40.000	28
40.000-80.000	10
>=80.000	3

Source: statistical office

(1,50 val) a) Depict graphically the simple and cumulative frequencies of this distribution.

(1,00 val) b) Compute the mean and median value of the distribution.

(1,00 val) c) Compute the standard deviation and the coefficient of variation of this distribution.

(0,50 val) d) Taking into account the measures computed, analyse and explain the behaviour of the distribution in terms of symmetry.

(1,50 val) e) Analyse the behaviour of this distribution using the box and whiskers plot.

(1,50 val) f) Analyse the level of concentration of this distribution and discuss whether the level of inequality is high in this region.

GROUP II

1. Consider the following information on the evolution of GDP in a given country.

Table: Evolution of GDP

Year	2012	2013	2015	2016
Yearly rate of change (%)	-4.0	-1.1	1.6	1.4

Source: Sttaistical office

One also knows that the annual average growth rate between 2013 and 2015 was 1.3%.

(1,50 val)   a) Compute for the years from 2012 to 2016 the chain index.
(1,00 val)   b) Compute the average annual growth rate between 2012 and 2015.
(1,00 val)   c) Compute the cumulative growth between 2013 and 2016.
(1,00 val)   d) Knowing that the value of GDP in 2015 was 179,504.3*10^9 euros, compute its value in 2011.

GROUP III

1. One knows the following information about the evolution of GDP of a given country.

Table: Information on the evolution of GDP

	2015	2016
Yearly change at constant prices (%)	1.6	1.4
Price index (2011=100)	104,9	106,5

Source: Statistical office

You also know that the value of GDP in 2015, at current prices, was 173,079.1 * 10^9 €.

(1,00 val)   a) Compute the 2014 fixed base index of this variable at constant prices and tell which was the growth rate between 2014 and 2016.
(1,50 val)   b) Compute the nominal growth of this variable between 2015 and 2016.
(1,50 val)   c) Compute the value of this variable in 2016 at current prices and at previous year constant prices.
(1,50 val)   d) Compute your forecast for the value of this variable in 2017 at current prices and at 2015 prices if you expect that prices increase 1.4% and a real change of 2.5% in that year.

GROUP IV

1. A researcher is trying to analyse the relationship between GDP and immigrants remittances from that country. You have the information below.

Table: Information on immigrants remittances and Country's GDP

Remittances (million euros)	567,3	585,6	525,5	556,0	534,8	522,6	533,9
GDP (10^9 euros)	179929,8	176166,6	168398,0	170269,3	173079,1	179504,3	184933,7

Source: Statistical office

You also know that $\sigma_{GDP} = 5434,207$ e $\sigma_{GDP,remittances} = 4442,428$.

(1,75 xval) a) Compute the regression line equation that better represents the relationship between these two variables and comment it.
(1,25 val) b) Verify if the relationship between the two variables is strong.