

LC 2014: PAPER 2

QUESTION 7 (45 MARKS)

Question 7 (a)

Pensioners

Students

MARKING SCHEME NOTES

Question 7 (a) [Scale 10B (0, 5, 10)]

5: • One correct category only

Question 7 (b)

Table 1										
Labour Force Statistics 2004 to 2013 - Persons aged 15 years and over (000's)										
Year	At work			Unemployed			Not in labour force			Total
	M	F	Total	M	F	Total	M	F	Total	
2004	1045.9	738.9	1784.8	79.6	31.6	111.2	457.1	854.2	1311.3	3207.3
2005	1087.3	779.7	1867.0	81.3	33.5	114.8	459.5	846.6	1306.1	3287.9
2006	1139.8	815.1	1954.9	80.6	38.1	118.7	457.6	844.9	1302.5	3376.1
2007	1184.0	865.6	2049.6	84.3	39.2	123.5	472.4	852.7	1325.1	3498.2
2008	1170.9	889.5	2060.4	106.3	41.0	147.3	494.8	872.5	1367.3	3575.0
2009	1039.8	863.5	1903.3	234.0	82.4	316.4	505.6	874.9	1380.5	3600.2
2010	985.1	843.5	1828.6	257.6	98.2	355.8	529.2	884.6	1413.8	3598.2
2011	970.2	843.2	1813.4	260.7	103.4	364.1	540.1	881.5	1421.6	3599.1
2012	949.6	823.8	1773.4	265.2	108.0	373.2	546.5	896.9	1443.4	3590.0
2013	974.4	829.0	1803.4	227.7	102.3	330.0	557.8	895.0	1452.8	3586.2

CALCULATE QUANTILES AND INTERQUARTILE RANGE FROM AN ORDERED SET OF DATA

The median divides the data into two halves. To divide the data into quarters, you then find the medians of these two halves.

If you have an **even** number of values, where the first median was the average of the two middle values, then you include the middle values in your quartile computations.

If you have an **odd** number of values, where the first median was an actual data point, then you do not include that value in your quartile computations. That is, to find the quartiles, you're only looking at the values that haven't yet been used.

Write out as an ordered list the numbers of people at work between 2004 and 2013.

1 773 400, 1 784 800, **1 803 400**, 1 813 400, **1 828 600**, **1 867 000**, 1 903 300, **1 954 900**, 2 049 600, 2 060 400

 Lower quartile Q_1
  Median Q_2
  Upper quartile Q_3

$$\text{Median } Q_2 = \frac{1\,828\,600 + 1\,867\,000}{2} = 1\,847\,800$$

Upper quartile $Q_3 = 1\,954\,900$

Lower quartile $Q_1 = 1\,803\,400$

Interquartile range $Q_3 - Q_1 = 1\,954\,900 - 1\,803\,400 = 151\,500$

MARKING SCHEME NOTES

Question 7 (b) [Scale 5C (0, 2, 3, 5)]

- 2: • Effort at listing numbers in order of magnitude
 • Identifying either 1828·6 or 1867
 • Some indication of understanding of the term ‘median’
 • Identifying 1803·4 and/or 1954·9 or equivalent as relating to quartiles
 • Some indication of understanding of interquartile range
- 3: • Median correct or interquartile range correct only

Question 7 (c) (i)

Table 1										
Labour Force Statistics 2004 to 2013 - Persons aged 15 years and over (000's)										
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At work: $\frac{1813.4}{3599.1} \times 100\% = 50.4\%$

Unemployed: $\frac{364.1}{3599.1} \times 100\% = 10.1\%$

Not in the labour force: $\frac{1421.6}{3599.1} \times 100\% = 39.5\%$

		At work	Unemployed	Not in the labour force
Persons aged 15 years and over	2006	57.9%	3.5%	38.6%
	2011	50.4%	10.1%	39.5%

MARKING SCHEME NOTES

Question 7 (c) (i) [Scale 5B (0, 2, 5)]

- 2: • One or two correct (no work shown)
 • All incorrect but sum to 100%
 • Correct numerator or denominator chosen for one category - work shown

Question 7 (c) (ii)

		At work	Unemployed	Not in the labour force
Total population	2006	46.1%	2.8%	51.1%
	2011			

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Persons in the population aged under 15 years of age in 2011 = 979 590

At work: $\frac{1813.4}{3599.1 + 979.59} \times 100\% = 39.6\%$

Unemployed: $\frac{364.1}{3599.1 + 979.59} \times 100\% = 8.0\%$

Not in the labour force: $\frac{1421.6 + 979.59}{3599.1 + 979.59} \times 100\% = 52.4\%$

		At work	Unemployed	Not in the labour force
Total population	2006	46·1%	2·8%	51·1%
	2011	39·6%	8·0%	52·4%

MARKING SCHEME NOTES

Question 7 (c) (ii) [Scale 5B (0, 2, 5)]

- 2:
- One or two correct (no work shown)
 - All incorrect but sum to 100%
 - Correct total population - shown
 - Correct numerator or denominator chosen for one category - work shown

Question 7 (c) (iii)

I agree.

REASON 1: There are more people on the dole which increases the social welfare expenditure.

REASON 2: As fewer people are in the labour force, there is less income tax available to the Government.

MARKING SCHEME NOTES

Question 7 (c) (iii) [Scale 5B (0, 2, 5)]

NOTE: Answer here depends on candidate's answers in previous sections

- 2:
- One reason only
 - Reasons contradictory

Question 7 (d) (i)

No.

As is seen from Liam's chart, females at work suffered a decline in numbers from 2008 to 2013. This decline was less than that suffered by males.

It is seen from Niamh's chart that the number of females working as an overall percentage of the workforce increased throughout the period, even though this was a higher percentage of a declining workforce from 2008 onwards.

Question 7 (d) (ii)

I found Liam's chart more useful. I can see very clearly on this chart the large fall in males at work from 2009 to 2010.

Question 7 (d) (iii)

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At work (2012): $\frac{1773.4}{3590.0} \times 100\% = 49.4\%$

At work (2013): $\frac{1803.4}{3586.2} \times 100\% = 50.3\%$

Between the years 2012 to 2013, there was a 0.9% increase in employment. Assuming a similar rise the following year, 51.2% of persons, aged 15 years and over, will be at work in 2014.

MARKING SCHEME NOTES**Question 7 (d) (i) [Scale 5B (0, 2, 5)]**

2: • Incomplete or contradictory statement

Question 7 (d) (ii) [Scale 5B (0, 2, 5)]

2: • Stating none, one or both without explanation

Question 7 (d) (iii) [Scale 5C (0, 2, 3, 5)]

2: • Effort at finding increase in number from 2012 to 2103

• Effort at finding % increase between 2012 and 2013

3: • Total number predicted at work in 2014

• Percentage increase calculated

NOTE: Candidates not required to round to any particular number of places of decimals