LC 2013 (Set D): Paper 1

Question 4 (25 marks)

Question 4 (a)

$R = (1 + 0{\cdot}015)^{12} \approx 1{\cdot}20$ ← Input these numbers into your calculator.

Question 4 (b)

The time period is in **months** as the **monthly** interest rate is given.

F = Future value
P = Present value = €800
i = Interest (monthly) = 0·015
t = Time = 15 months

$$F = P(1+i)^t$$
$$= 800(1 + 0{\cdot}015)^{15}$$
$$= €1000{\cdot}19$$

Formulae and Tables Book
Financial mathematics: Compound interest [page 30]

$$F = P(1 + i)^t$$

t = Time period (in years)
i = (Annual) rate of interest expressed as a decimal
F = Final value
P = Principal
Note: The time period can be months or weeks instead of years provided the interest rate is given for that time period.

Question 4 (c)

$€1 = £0{\cdot}8473$ ← Divide both sides by 0·8473 to find the value of £1 in euros.

$\frac{€1}{0{\cdot}8473} = £1$ ← Multiply both sides by 95 to find the value of £95 in euros.

$\frac{€1}{0{\cdot}8473} \times 95 \approx €112{\cdot}12 = £95$

Marking Scheme Notes

Question 4 (a) [Scale 5B* (0, 2, 5)]

2: • Some work of merit e.g. 1·015
• Multiplies by 12
• Accept $(1{\cdot}15)^{12} = 5{\cdot}3502...$ or $(1{\cdot}0015)^{12} = 1{\cdot}0181...$ with or without work shown
* Penalise one mark for incorrect or omitted round-off, provided full marks otherwise

Question 4 (b) [Scale 10C (0, 3, 7, 10)]

3: • Writes correct formula without further work of merit
• Some correct substitution into an incorrect formula, e.g. depreciation
• Calculates 1·5% of an amount correctly

7: • Correct substitution into correct formula but error in calculations
• Calculates the amount at the end of each of 15 months, but with minor errors

Question 4 (c) [Scale 10B* (0, 5, 10)]

5: • Writes $\frac{95}{0{\cdot}8473}$ and stops
• Gives an answer of €80·49 with or without work shown
Note: Correct answer without work shown, award full credit
* Penalise one mark for incorrect or omitted round-off, provided full marks otherwise