

**EDUCATION DEVELOPMENT INTERNATIONAL PLC
LCCI IQ
SAMPLE PAPER
ADVANCED BUSINESS CALCULATIONS
LEVEL 3
MARKING SCHEME**

**DISTINCTION MARK 75%
CREDIT MARK 60%
PASS MARK 50%**

TOTAL 100 MARKS

**QUESTION 1
Syllabus Topic 1: Simple and compound interest (1.3)**

	Investment A	Investment B	Investment C	Investment D
Sum invested	£150,000	£110,000	£85,000	£43,250
Rate of interest per annum	3%	3.5%	4.5%	4%
Time invested (years)	5	6	5	6
Final amount (Principle + Interest)	£173,891	£135,218	£105,925	£54,725
Interest earned	£23,891	£25,218	£20,925	£11,475

M1r

Investment B

$$\text{Amount} = £110,000 \times 1.035^6 = £135,218$$

M1 A1

$$\text{Interest earned} = £135,218 - £110,000 = £25,218$$

M1 A1

Investment C

$$\text{Sum invested} = £105,925 - £20,925 = £85,000$$

M1 A1

$$\text{Time invested (n years), given by: } £85,000 \times 1.045^n = £105,925$$

$$n = 1, \text{ amount} = £85,000 \times 1.045^1 = £88,825$$

$$n = 2, \text{ amount} = £85,000 \times 1.045^2 = £92,822$$

$$n = 3, \text{ amount} = £85,000 \times 1.045^3 = £96,999$$

$$n = 4, \text{ amount} = £85,000 \times 1.045^4 = £101,364$$

$$n = 5, \text{ amount} = £85,000 \times 1.045^5 = £105,925 \text{ so } n = 5$$

M1 A1

Investment D

$$£54,725 = \text{Sum invested} \times 1.04^6 = \text{Sum invested} \times 1.26532$$

M1

$$\text{Sum invested} = £54,725 / 1.26532 = £43,250$$

A1

$$\text{Interest earned} = £54,725 - £43,250 = £11,475$$

M1 A1

(Total 13 marks)

QUESTION 2

Syllabus Topic 2: Stock exchanges (2.2)

- (a) Commission = $0.25\% \times 15,000 \times \text{£}4.50 = \text{£}168.75$ M1
Cost of shares including commission = $(15,000 \times \text{£}4.80) + \text{£}168.75 = \text{£}72,168.75$ M1 A1
- (b) Income = $15,000 \times \text{£}9.12 = \text{£}136,800$ M1 A1
- (c) Dividend = $\{(3 + 6.5)p \times 15,000\} + \{2\% \times 15,000 \times \text{£}4.50\} = \text{£}1,425 + \text{£}1,350 = \text{£}2,775$ M1 A1
Total profit = $\text{£}136,800 + \text{£}2,775 - \text{£}72,168.75 - \text{£}80 = \text{£}67,326.25$ M1 A1
- (d) Total profit percent per annum = $\frac{100\% \times \text{£}67,326.25}{5 \times \text{£}72,168.75} = 18.66\%$ M1 A1

(Total 12 marks)

QUESTION 3

Syllabus Topic 3: Business ownership (3.2) and (3.3)

- (a) Contribution per unit = $\text{£}780 - \text{£}720 = \text{£}60$ M1
Profit on sales of 28,000 units = $(28,000 - 20,000) \times \text{£}60 = \text{£}480,000$ M1 A1
- (b) Contribution per unit = $\text{£}249 - \text{£}210 = \text{£}39$ M1
Break even point = $\text{£}1,170,000 / \text{£}39 = 30,000$ units M1 A1
- (c) Contribution per unit = $\text{£}1,099 - \text{£}925 = \text{£}174$ M1
Fixed costs per period = $\text{£}174 \times 22,250 = \text{£}3,871,500$ M1 A1
- (d) Contribution = $\text{£}2,960,000 / \text{£}80,000 = \text{£}37$ M1
Variable costs per unit = $\text{£}349 - \text{£}37 = \text{£}312$ M1 A1

(Total 12 marks)

QUESTION 4**Syllabus Topic 4: Profitability and liquidity (4.2) and (4.3)**

(a)

$$(i) \text{ Overheads} = \text{£}4,033 + \text{£}12,101 + \text{£}42,600 = \text{£}58,734 \quad \text{M1}$$

$$\text{Net sales} = \text{£}463,000 - \text{£}11,200 = \text{£}451,800 \quad \text{M1}$$

$$\text{Ratio for overhead expenses} = \frac{\text{overheads}}{\text{net sales}} \times 100\% = \frac{\text{£}58,734}{\text{£}451,800} \times 100\% \quad \text{M1}$$

$$= 13\% \quad \text{A1}$$

$$(ii) \text{ Net purchases} = \text{£}329,600 - \text{£}12,050 = \text{£}317,550 \quad \text{M1}$$

$$\text{Average credit taken} = \frac{\text{average creditors}}{\text{net purchases}} \times 365 = \frac{\text{£}15,399}{\text{£}317,550} \times 365 \quad \text{M1}$$

$$= 17.7 \text{ days} = 18 \text{ days} \quad \text{A1}$$

$$(iii) \text{ Average credit given} = \frac{\text{average debtors}}{\text{net sales}} \times 365 = \frac{\text{£}23,750}{\text{£}451,800} \times 365 \quad \text{M1}$$

$$= 19.2 \text{ days} = 19 \text{ days} \quad \text{A1}$$

(b) Average credit given is the average length of time it takes for the retailer's creditors to pay the retailer, and is approximately 19 days. A1 A1

(c) Cost of goods sold (COGS) = stock at start + net purchases - stock at end

$$= \text{£}20,901 + \text{£}317,550 - \text{£}21,631 = \text{£}316,820 \quad \text{M1}$$

Average stock at cost price = $\frac{1}{2}$ (stock at start + stock at end)

$$= \frac{1}{2} (\text{£}20,901 + \text{£}21,631) = \text{£}21,266 \quad \text{M1}$$

$$\text{Average time in stock} = \frac{\text{average stock}}{\text{COGS}} = \frac{\text{£}21,266}{\text{£}316,820} \times 365 \text{ days} = 24.5 \text{ days} \quad \text{M1 A1}$$

(Total 15 marks)

QUESTION 5**Syllabus Topic 5: Investment appraisal (5.2), (5.4) and (5.6)**

(a) Cost outstanding after 2 years = £720,000 - £120,000 - £250,000 = £350,000 M1

As a proportion of year 3 inflow = £350,000 / £500,000 M1

Payback period = 2.7 years = 2 years 8.4 months A1

(b)	Cash flow £	Discount factor	Present Value £	
Cost	(980,000)		(980,000)	M1
Year 1 cash inflow	(95,000)	0.870	(82,650)	M1
Year 2 cash inflow	400,000	0.756	302,400	M1
Year 3 cash inflow	800,000	0.658	526,400	
Year 4 cash inflow	400,000	0.572	228,800	
			(5,050)	M1 A1

(c) Project Q has a negative net present value at a discount rate of 15%, and is not acceptable. A1

Project P has the shorter payback period and a positive net present value at this rate. A1

Project P is therefore recommended to proceed. A1

(Total 11 marks)

QUESTION 6**Syllabus Topic 6: Bankruptcy (6.2), (6.3) and (6.4)**

(a) (i) Owed to unsecured creditors = £85,790 - £11,110 = £74,680 M1 A1

(ii) Assets available for unsecured creditors = £52,184 - £11,110 = £41,074 M1 A1

(iii) Rate in the £ paid to unsecured creditors = £1 x £41,074 / £74,680 = 55p M1 A1

(b) (i) Owed to unsecured creditors = £23,310 / 0.6 = £38,850 M1 A1

(ii) Owed to secured creditors = £64,950 - £38,850 = £26,100 M1 A1

(iii) Total assets available for creditors = £23,310 + £26,100 = £49,410 M1 A1

(Total 12 marks)

QUESTION 7**Syllabus Topic 7: Depreciation of Business Assets (7.2)**

(a) Total depreciation over five years = $1,060,000 - 20,000 = 1,040,000$

M1

$$\begin{aligned} &\% \text{ of cost to be written off each year} \\ &= \frac{1,040,000}{1,060,000 \times 4} \times 100\% = 24.5\% \end{aligned}$$

M1 A1r

(b) Annual depreciation = $1,040,000 \div 4 = \text{£}260,000$

M1

Depreciation schedule (£)

<u>End of year</u>	<u>Annual Depreciation</u>	<u>Accumulated Depreciation</u>	<u>Book Value</u>	
0	0	0	1,060,000	
1	260,000	260,000	800,000	
2	260,000	520,000	540,000	
3	260,000	780,000	280,000	
4	260,000	1,040,000	20,000	
	M1	M1	M1	A1

(c) Depreciation of Machine B from end year 1 to end year 6 = $800,000 - 20,000 = \text{£}780,000$

M1

Number of years from end year 1 to end year 6 = 5

M1

Depreciation of Machine B per year = $780,000 / 5 = \text{£}156,000$

M1

Original cost of Machine B = $800,000 + 156,000 = \text{£}956,000$

M1 A1

(Total 14 marks)**QUESTION 8****Syllabus Topic 8: Index numbers (8.2), (8.3) and (8.5)**

(a) Price relative for year 2006 with year 2005 as base = $10.50 / 11.25 = 0.93$

M1 A1

(b) Index for year 2005 with year 2004 as base = $100 \times 11.25 / 12.5 = 90$

M1

Index for year 2006 with year 2004 as base = $100 \times 10.50 / 12.5 = 84$

M1

Index of prices:	Year	2004	2005	2006
Index		100	90	84

A1

(c) Index for year 2005 with year 2004 as base = $100 \times 276,000 / 240,000 = 115$

M1

Index for year 2006 with year 2005 as base = $100 \times 345,000 / 276,000 = 125$

M1

Index of sales:	Year	2004	2005	2006
Index		100	115	125

A1

(d) Relative income = $1.08 \times (10.50 - 0.51) / 10.50 = 1.0275$

M1

Percentage increase = $100\% \times (1.0275 - 1) = 2.75\%$

M1 A1r

(Total 11 marks)