

Question 1 [10 marks]

A. $(1 + 7\frac{1}{2}\%)^3 \times 5800 = \7205.32

B. $(1952 - 800) / 4 \times 800 = 36\%$

C.

Ocean Bank $(1 + 8\frac{3}{4}\%/365)^{365} = 1.0914$
Effective interest rate = 9.14% p.a.

Sea Bank $(1 + 9\%/12)^{12} = 1.0938$
Effective interest rate = 9.38% p.a.

River Bank Effective interest rate = 9.25% p.a.

Choose Sea Bank because the effective interest rate is the highest

D.

Interest = $\$100\,000 - 92\,500 = \7500
Rate = $7500 / 92500 \times 100\% \times 12/6 = 16.22\%$

Question 2 [10 marks]

A.

i. $\$24\,000 / 0.96 = \25000

ii. $[8\% \times 2 \times 25\,000 / 24\,000] \times 100\% = 16.67\%$

B.

i. $\$2.45 \times 4500 + 1.5\% \times \$4500 = \$11092.50$

ii. $[(16\% + 20\%) \times \$4500 / \$11092.50] \times 100\% = 14.6\%$

iii. $\$3.80 \times 4500 - \$67.50 + \$1620 - \$11092.50 = \$7560$

Question 3 [20 marks]

A. Calculate the Payback Period of each machine. [4 marks]

Machine A = 3 years + 72/116 years = 3.62 years
Machine B = 3 years + 114/122 years = 3.93 years

B. Calculate the Accounting Rate of Return (ARR) of each machine.

ARR = (average annual profit / average cost of investment) x 100%

[4 marks]

Machine A

Average annual profit $[110 \times 2 + 140 \times 3 - 24 \times 5 - 300] \div 5 = 44$

ARR $44 / [360+60] \div 2 = 20.95\%$

Machine B

Average annual profit $[120 \times 2 + 150 \times 3 - 28 \times 5 - 340] \div 5 = 42$

ARR $42 / [420+80] \div 2 = 16.8\%$

C. Calculate the Net Present Value (NPV) of each machine at 8% and 16% interest rates. [8 marks]

Present value at 8%

Year 0	(360000)	(420000)
Year 1	79636	88504
Year 2	73702	78844
Year 3	92104	96868
Year 4	85260	89670
Year 5	<u>78996</u>	<u>83082</u>
Net present value	<u>49698</u>	<u>16968</u>

	Machine A	Machine B
Present value at 16%		
Year 0	(360000)	(420000)
Year 1	74132	79304
Year 2	63898	68356
Year 3	74356	78202
Year 4	64032	67344
Year 5	<u>55216</u>	<u>58072</u>
Net present value	<u>(28366)</u>	<u>(68722)</u>

D. Calculate the Internal Rate of Return (IRR) of each machine. [4 marks]

Machine A = 8% + [49698 / (49698 + 28366)] x 8% = 13.09%

Machine B = 8% + [16968 / (16968 + 68722)] x 8% = 9.58%

Question 4 [10 marks]

A. Calculate the cash available after liquidation but before payments to the liquidator and creditors. [2 marks]

$$\mathbf{\pounds 36000 + 16300 + 5800 + 1200 = \pounds 59300}$$

B. Calculate the amount payable to the mortgage loan creditor. [1 mark]

$$\mathbf{\pounds 30,000}$$

C. Calculate the dividend rate payable to unsecured creditors. [2 mark]

$$\mathbf{\pounds 59300 - 2450 - 30000 / 35800 = 0.75}$$

D. Calculate the amount payable to an unsecured creditor who was owed £4,680. [2 marks]

$$\mathbf{\pounds 4680 \times 0.75 = \pounds 3510}$$

E. Calculate the amount owing to an unsecured creditor who received £10,920. [2 marks]

$$\mathbf{\pounds 10920 / 0.75 = \pounds 14560}$$

F. Calculate the amount received by the ordinary shareholders. [1 marks]

Nil

Question 5 [16 marks]

- A. Using year 2000 as the base year, what is the GDP relative for year 2002? (Correct to three significant figures) [2 marks]

$$35512 / 31266 = 1.14$$

- B. Using year 2000 as the base year, what is the GDP index for year 2003? (Correct to three significant figures) [2 marks]

$$37288 / 31266 \times 100 = 119$$

- C. Calculate the chain base index for each year from 2001 to 2004. [6 marks]

2001	2002	2003	2004
107	106	105	107

- D. If the chain base index for year 2005 is 110, what is the GDP index for this year with year 2000 as the base? (Correct to 3 significant figures) [2 marks]

$$(1.1 \times 39890 / 31266) \times 100 = 140$$

- E. Calculate the composite index of all the exports of Lala Land in 2009 with year 2000 as the base year. [4 marks]

$$\frac{(250 \times 185) + (128 \times 94) + (382 \times 216) + (171 \times 144) + (69 \times 173)}{(250+128+382+171+69)} = 177$$

Question 6 [12 marks]

- A. Calculate the depreciation rate per year using the reducing balance method. [2 marks]

$$1 - (4536/35000)^{1/4} \\ = 40\%$$

- B. Prepare a depreciation schedule that shows (i) the annual depreciation for each year, (ii) the accumulated depreciation for each year, (iii) the net book value at the end of each year. [6 marks]

Year	Depreciation	Accum Dep	Net Book Value
1	14000	14000	21000
2	8400	22400	12600
3	5040	27440	7560
4	3024	30464	4536

- C. What was the cost of the machine? [2 marks]

$$\$3600 \times 5 + \$6000 = \$24000$$

- D. What percentage of cost was written off each year? [2 marks]

$$3600 / 24000 = 15\%$$

Question 7 [10 marks]

- A. Draw a breakeven chart. [6 marks]

- B. Indicate on your chart, the break-even sales units. [1 mark]

5000 units

- C. Indicate on your chart, the sales revenue at break-even. [1 mark]

\$100 000

- D. Indicate on your chart, the profit or loss at sales of 3,000 units. [1 mark]

Loss \$16000

- E. Indicate on your chart the sales units that would give a profit of \$8000. [1 mark]

6000 units

Question 8 [12 marks]

Calculate the following ratios (correct to 1 decimal place):

- A. Net Profit as a Percentage of Sales [2 marks]
 $18800 / 126000 = 14.9\%$
- B. Rate of Stockturn. Opening stock was \$7,500. [2 marks]
 $72000 / (7500+8700) \div 2 = 8.9$
- C. Debtors Collection Period [2 marks]
 $7400 / 126000 \times 365 = 21.4 \text{ days}$
- D. Creditors Payment Period [3 marks]
 $3600 / 72000 \times 365 = 18.3 \text{ days}$
- E. Explain the meaning of rate of stockturn. If Michael Tan sells candies and chocolates, is this ratio acceptable to you? [3 marks]
Number of times stock is bought and sold, unacceptable.