

SECTION A

1.a)

Cost £	Land	Buildings	Machinery	Equipment	Motor Vehicles	Total
Opening	300,000	400,000		320,000	230,000	1,250,000
Purchased			30,000		60,000	90,000
Disposal					(75,000)	(75,000)
Closing	300,000	400,000	30,000	320,000	215,000	1,265,000
Cumulative Depreciation						
Opening	-	100,000	-	186,000	96,000	382,000
Disposal					(27,000)	(27,000)
Depreciation charge for year	-	16,000	10,000	64,000	29,200	119,200
Closing	-	116,000	10,000	250,000	98,200	474,200
Net Book Value	300,000	284,000	20,000	70,000	116,800	790,800

Loss on disposal of motor vehicle 28 000 (20 000 – 48000)

Factors to consider in setting a depreciation policy. Discussion to include:

- Accounting standards, prudence,
- technological change and inflation.
- alternative methods of depreciation
- policies on year of acquisition and year of disposal.
- capitalisation and determination of value.

b) AGA Ltd. – Income Statement for year ended 31 January 2019

	£
Revenue	985,000
Cost of sales W1	<u>422,600</u>
Gross profit	562,400
Distribution costs	144,000
Administrative expenses W2	316,000
Loss on disposal of motor vehicles	28,000
Depreciation	119,200
Bad and doubtful debts W3	<u>10,428</u>
Loss from operations	(55,228)
Finance cost	<u>5,000</u>
Loss for the year	(60,228)
Dividend Paid	<u>20,000</u>
Retained Earnings	(80,228)

Workings W1

Cost of sales	
Opening inventory	37,100
Purchases	428,000
Closing inventory $100 \times \$65 + \$36\ 000$	42,500
Total	422,600

W2

Administrative expenses

Per original	346,000
Less: cost of machine	(30 000)
Total	316,000

W3 Bad and Doubtful debts	
Irrecoverable debt	8,800
Provision for doubtful debts	
$(102\ 000 - 8800) \times 4\% = 2100$	1,628
Total	10,428

c) A dividend is a distribution of profit to shareholders. In paying a dividend the company should consider the shareholders wishes, the stock market reaction and the company's financing and cash requirements.

Cash dividend

Company maintains the practice of giving out cash returns to shareholders constantly

Company may have liquidity problem in paying out cash dividend

Short term benefit (cash) vs long term benefit (shares value increase).

Question whether the company should have paid an interim dividend. Do not know the cash position of the company, which could be cash rich hence the payment of an interim dividend despite losses.

Will be difficult to raise further equity if do not have a good track record of paying dividends.

2 Globe co

a)

Interest (Debt service) coverage ratio (2018) = $2,939/274 = 10.7$ times

Interest (Debt service) coverage ratio (2019) = $2,992/395 = 7.8$ times

Debt/equity ratio (2018) = $100 \times 2,425/11,325 = 21\%$

Debt/equity ratio (2019) = $100 \times 2,425/12,432 = 20\%$

Total debt/equity ratio (2018) = $100 \times (2,425 + 1,600)/11,325 = 35\%$

Total debt/equity ratio (2019) = $100 \times (2,425 + 3,225)/12,432 = 45\%$

Current ratio 2018 $4,600/3,600 = 1.3$ times

Current ratio 2019 $9,200/7,975 = 1.15$ times

Quick ratio 2018 $2,200/3,600 = 0.61$ times

Quick ratio 2019 $4,600/7,975 = 0.58$ times

Inventory days 2018 $(365 \times ((2,400+2000)/2))/23,781 = 34$ days

Inventory days 2019 $(365 \times ((4,600+2400)/2))/34,408 = 37$ days

Receivables days 2018 $(365 \times ((2,200+1,500)/2))/26,720 = 25$ days

Receivables days 2019 $(365 \times ((4,600+2,200)/2))/37,400 = 33$ days

Payables days 2018 $(365 \times ((2,000+1500)/2))/23,781 = 27$ days

Payables days 2019 $(365 \times ((4,750+2000)/2))/34,408 = 36$ days

b)

Average overdraft (2018) = £1,300,000

Average overdraft (2019) = £2,412,500

Fixed interest debt proportion (2018) = $100 \times 2,425/(2,425 + 1,200) = 60\%$

Fixed interest debt proportion (2019) = $100 \times 2,425/(2,425 + 3,225) = 43\%$

Fixed interest payments = $2,425 \times 0.08 = £194,000$

Variable interest payments (2018) = $274,000 - 194,000 = £80,000$

Average rate (2018) = $80,000/1,300,000 = 6.2\%$

Variable interest payments (2019) = $395,000 - 194,000 = £201,000$

Average rate (2019) = $201,000/2,412,500 = 8.3\%$

Globe Co has both fixed interest debt and variable interest rate debt amongst its sources of finance. The fixed interest bonds have ten years to go before they need to be redeemed and they therefore offer Globe Co long term protection against an increase in interest rates. At the end of 2018, 60% of the company's debt was fixed interest in nature, but in 2019 this had fallen to 43%. The variable-rate proportion of the company's debt therefore increased from 40% in 2018 to 57% in 2019. The debt service coverage ratio fell from 10.7 times in 2018 to 7.8 times in 2019, a decrease which will be a cause for concern to the company if it were to continue.

From the perspective of an increase in interest rates, the financial risk of Globe Co has increased and may continue to increase if the company does not take action to halt the growth of its variable interest rate overdraft. An increase in interest rates will further reduce profit before taxation, which is lower in 2019 than in 2018, despite a 40% increase in revenue. One way to hedge against an increase in interest rates is to exchange some or all of the variable-rate overdraft into long-term fixed-rate debt. Globe would also be unable to benefit from falling interest rates if most of its debt paid fixed rather than floating rate interest. The company could also consider raising more equity.

c)

2018 Sales/net working capital $26,720/1,000 = 26.7$ times

2019 Sales/net working capital $37,400/1,225 = 30.5$ times

Revenue increase $37,400/26,720 = 40\%$

Non-current assets increase $13,632/12,750 = 7\%$

Inventory increase $4,600/2,400 = 92\%$

Receivables increase $4,600/2,200 = 109\%$

Payables increase $4,750/2,000 = 138\%$

Overdraft increase $3,225/1,600 = 102\%$

Overtrading or undercapitalisation arises when a company has too small a capital base to support its level of business activity. Difficulties with liquidity may arise as an overtrading company may have insufficient capital to meet its liabilities as they fall due. Overtrading is often associated with a rapid increase in revenue and Globe Co has experienced a 40% increase in revenue over the last year. Overtrading could be indicated by deterioration in inventory days. Here, inventory days have increased from 37 days to 49 days, while inventory has increased by 92% compared to the 40% increase in revenue. It is possible that inventory has been stockpiled in anticipation of a further increase in revenue, leading to an increase in operating costs. Overtrading could also be indicated by deterioration in receivables days. In this case, receivables have increased by 109% compared to the 40% increase in revenue. The increase in revenue may have been fuelled in part by a relaxation of credit terms. As the liquidity problem associated with overtrading deepens, the overtrading company increases its reliance on short-term sources of finance, including overdraft and trade payables. The overdraft of Globe Co has more than doubled in size to £3.225 million, while trade payables have increased by £2.74 million or 137%. Both increases are much greater than the 40% increase in revenue. There is evidence here of an increased reliance on short-term finance sources. Overtrading can also be indicated by decreases in the current ratio and the quick ratio. The current ratio of Globe Co has fallen from 1.3 times to 1.15 times, while its quick ratio has fallen from 0.61 times to 0.58 times.

There are clear indications that Globe Co is experiencing the kinds of symptoms usually associated with overtrading. A more complete and meaningful analysis could be undertaken if appropriate benchmarks were available, such as key ratios from comparable companies in the same industry sector, or additional financial information from prior years so as to establish trends in key ratios.

d) The limitations of ratio analysis stem from the need for a benchmark against which to compare the ratios, this is not always available and where it is available it cannot be verified that the calculations and policies behind the numbers are on a consistent basis. Most ratios are calculated using historical data which may be out of date or no longer relevant by the time it is used. Such data does not account for inflation or reflect market values (in most cases). The lack of certainty over the basis of calculation and such issues as different accounting policies can reduce the value of comparators within an industry and make comparisons outside of the industry problematic.

SECTION B

3.

	Budget	Flexed Budget	Actual	Variance
Sales	520,000	559,000	516,000	43,000
Materials	110,000	118,250	135,450	17,200
Labour	240,000	258,000	277,780	19,780
Fixed	80,000	80,000	80,000	-
Total	90,000	102,750	22,770	79,980

All departments produce overall adverse variances.

Reconciliation		£
Actual profit		22,770
Contribution adjustment (sales volume)		<u>(12,750) fav</u>
		10,020
Material price	30,100 fav	
Material usage	47,300 adv	
Labour rate	49,020 fav	
Labour efficiency	68,800 adv	
Sales price	43,000 adv	
		<u>79,980 adv</u>
Budgeted profit		90,000

Contribution adjustment = $(800 - 860) \times 170,000 / 800 = -12,750$

Material price = $(5.5 - 4.5) \times (860 \times 35) = -30,100$

Material Usage = $((860 \times 25) - (860 \times 35)) \times 5.5 = 47,300$

Labour rate = $(17 - 20) \times (860 \times 19) = -49,020$

Labour usage = $((860 \times 15) - (860 \times 19)) \times £20 = 68,800$

Sales price variance = $(650 - 600) \times 860 = 43,000$

All departments produce overall adverse variances.

Possible causes other than those given in the question: -

Materials

Price – poor quality materials

Increased competition in the markets causing a price reduction

Usage – poor quality material causing increased wastage

Labour

Rate - employing less skilled workers at a lower rate of pay

- A fall in the market wages

Efficiency – less skilled workers taking longer to complete the tasks

Sales

Price – reduction in price to undercut the opposition or move slow moving products

- Price reduced because product is of poor quality

Volume – The price reduction resulted in increased sales

- Reduced competition in the market

Assessing of significance of the variances

The labour department produces the largest overall variance.

The labour department also has the largest sub-variances

e.g. the favourable variance is £49,020

compared to sales with £43,000 and materials with £30,100.

The adverse variance is significantly higher than the other two at £68 800 which is over £20,000 higher than the next largest variance at £47 300.

Interrelationship of the variances

The material usage variance could be caused by less skilled workers that have resulted in the adverse efficiency variance.

The labour efficiency variance could be caused by poor quality materials that have resulted in the materials price and usage variances.

The sales price variance could be caused by a poor quality product which is the result of poor materials and a less skilled workforce.

External factors that could cause variances such as:

Materials – price fall due to market change

Labour – lack of skilled workers nationally

Sales – increased competition from abroad

Overall likely both internal and external reasons

Not enough information to decide causes

Question whether original budget was correct.

4.

a) Calculation of net present value (NPV)

£'000

Year	1	2	3	4	5	6
Sales Revenue	1,600	1,600	1,600	1,600	1,600	
Variable costs	1,100	1,100	1,100	1,100	1,100	
Contribution	500	500	500	500	500	
Fixed costs	160	160	160	160	160	
	340	340	340	340	340	
Royalties		102	102	102	102	102
	340	238	238	238	238	(102)
Working capital					90	
Scrap value					40	
Net cash flow	340	238	238	238	368	(102)
Discount factor	0.909	0.826	0.751	0.683	0.621	0.564
Present Value	309	197	179	163	228	(58)

	£'000
Net Present Value of cash inflows	1,018
Initial working capital investment	(90)
Cost of machine	(800)
NPV	128

Since the investment has a positive NPV, it is financially acceptable.

Issues with NPV: -

Advantages

1. Takes into account the time value of money.
2. Looks at all cash flows.
3. Allows consideration of risk

Disadvantages

1. Need to estimate a specific discount rate
2. All cash flows assumed to be at end of year.
3. Can be complex.

(b) Calculation of internal rate of return (IRR)

NPV at 10% was found to be £128,000

NPV at 15%:

Net cash flow	340	238	238	238	368	(102)
Discount factor	0.870	0.756	0.658	0.572	0.497	0.432
Present Value	296	180	156	136	183	(44)

	£000
Present value of cash inflows	907
Working capital investment	(90)
Cost of machine	(800)
NPV	17

IRR = interpolation gives 15.8% - calculated value 15.9% - accept 16%

Since the internal rate of return of the investment (16%) is greater than the cost of capital the investment is financially acceptable.

Issues with IRR: -

Advantages

1. Takes into account time value of money.
2. Looks at all cash flows.
3. Determines break-even rate of return.

Disadvantages/Issues

1. Need a discount rate as an acceptance criteria.
2. Difficult to understand.
3. In certain circumstances may give misleading results

(e.g., non-conventional cash flow)

4. Does not take into account value added by the projects (scale)
5. Complex.

(c) Sensitivity

Selling price sensitivity

The PV of sales revenue = $100,000 \times 16 \times 3.791 = \text{£}6,065,259$

The royalty associated with sales revenue needs be considered

PV of Royalty without lagging = $6,065,259 \times 0.3 = \text{£}1,819,578$

Lagging by one year, PV of Royalty = $1,819,578 \times 0.909 = \text{£}1,653,996$

After Royalty PV of sales revenue = $6,065,259 - 1,653,996 = \text{£}4,411,263$

Sensitivity = $100 \times 128,000/4411263 = 2.9\%$

Discount rate sensitivity

The breakeven discount rate is the IRR calculated in part (b).

Increase in discount rate needed to make NPV zero = $16 - 10 = 6\%$

Relative change in discount rate needed to make NPV zero = $100 \times 6/10 = 60\%$

Scrap value sensitivity

PV of scrap value is $40,000 \times 0.593 = \text{£}23,720$ – thus even if scrap value fell to zero the NPV would still be positive

Conclusion

Of the three variables, the key or critical variable is selling price, since the investment is more sensitive to a change in this variable (2.9%) than it is to a change in discount rate (60%) or scrap value (>100%).

Sensitivity analysis can show where management should focus attention in order to make an investment project successful, or where underlying assumptions should be checked for robustness. All assumptions of initial analysis other than sensitive variable are assumed to be correct. Assumes variables are independent – when they are likely to be interdependent
It is also possible to use probability and Monte Carlo simulations.

SECTION C

5)

- (a) The transaction costs can be defined as administrative costs, which occur due to the coordination of productive activities within firms. Examples include costs for billing, costs for contracts or for negotiation of an agreement. As well costs can be extended to costs for searching of suppliers and stakeholders or reinforcing quality.

A good answer has all the basic aspects above included and differentiates clearly between internal and external transaction costs of a firm. For example Apple has to define an agreement with Foxconn on quality of manufacturing of the iPhone. This as well means defining and designing the artefact, but as well defining quality boundaries. This process is a part of transaction costs. This is based on the fact that Foxconn produces all iPhones for apple.

A better answer clearly separates internal and external transaction costs. This would include internal (administrative costs internal (e.g. high vs low overheads) and external transaction costs (e.g. contractual costs).

- (b) The reduction of transaction costs can be achieved through multiple mechanisms including economies of scale, horizontal integration, vertical integration.

A good answer has multiple aspects above defined with a basic example.

A better answer discusses the multiple aspects including examples contracting costs, cost increase due to dependencies to the outsourcing provider. And internal aspects and risks to transaction costs. examples might include that a burger joint may not be an attractive tech employer and hence not be able to attract good talent.

6)

- (a) a basic definition of product innovation should include the development of new products, changes in design of established products, or use of new materials or components in the manufacture of established products.

a better answer may include a typology of product innovation (customer need vs newness of technology > radical product innovation)

- (b) a basic definition of process innovation may include

- a. are defined as elements introduced into a firm's production or service operation to produce a product or render a service (Damanpour 2010; Utterback and Abernathy 1975)
- b. are orientated towards the efficiency or effectiveness of production (and distribution) and may result in a decrease in the cost of production (and distribution) (Schilling 2005)

- (c) A good answer would discuss both above and would define both aspects above by using examples out of the lectures and current affairs. Additionally then give simple comparison of both.

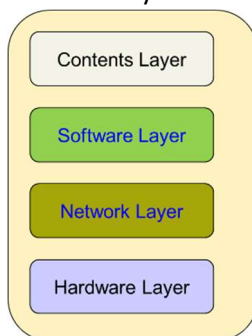
A better answer would discuss both with examples and detail the interaction between both within industry. Additionally detail boundary success stories, where firms had to use both forms of innovation to make their market. (e.g. the Kettle bimetal switch would be seen as a

product innovation. However the building of the process, which produces the bimetal switch itself is a process innovation. One could not have lived without the other)
 A better answer may as well show failure in industry.

SECTION D

7)

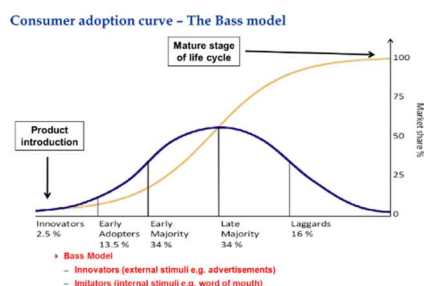
- a) there are multiple ways digital is seen in the academic world. However the most accepted is by Yoo, Y., Henfridsson, O., and Lyytinen, K. 2010. The base is a device layer, connected to a network layer, and a service layer connected to a content layer.
 A good answer will be able to define the layers, and give basic information about them. A very good answer would give details of the layers and give an integrated view of the different layers.



- b) Amazon had multiple situations in which they have used a layered approach to influence their business model. (e.g. changing books to digital books; taking needed servers and selling cloud infrastructure, using digital distribution to understand and detail marketing and make individual offerings) A satisfying answer will take one and state the approach. a good answer will argue the layer model in light of the answer. A better answer will take either one or multiple and discuss them in detail and argue not only the layer, but connect strongly to the business model aspect of the approach.

8)

a)



A good answer would describe the model above. A very good answer would show the model above with significant detail.

- b) A good answer will discuss the above in a real example for a market introduction. Cases from the current affair or from the lectures would be considered good.
 A very good answer would take examples and discuss how this ideal model would be likely met in the real world (e.g. the saddle model, where the rout to market may involve an early increase and then later the late market joining) or a discussion on rout to market.

Examples could include the introduction of a new car model or technology within a car.

Story line e.g. Where electric vehicles were first sold to innovators and early adopters. We are now currently expectedly still in the early adopters phase (at least in Europe). In reflection on the maturity lifecycle, we are expecting that the market will grow extensively. The latter is reflected in the Tesla share prize. However the up and down of the share prize as well reflects that there are maturity issues with the technology and investors do not trust that the battery technology and process innovation will be able to keep up with the speed of the market.