

12 Pages

1. Please give the information requested in the boxes below.
2. Enter your name in the space provided to the right, fold over and seal down (using the label provided) to hide your name.
3. The answers must be legibly written. The Examiners can either ignore illegible script or have it typed and the expense of typing charged to the candidate.
4. Write your answers in ink.
5. Begin each answer on a fresh page. Do all rough work in the answer book and cross it through.
6. No part of this book is to be torn out; it must be handed in complete.
7. If more books than one are used, fasten them together using the tags available from the invigilator(s).
8. **Every book must be handed in. In no circumstances may answer books, used or unused, be taken out of the examination venue.**

SURNAME: Marshall

FORENAME(S): Toby

List the numbers of the questions you have attempted	Office Use
4	19 1/2
1	14
2	8
	~~4 1/2~~
Total	55 1/2

4)

i) City and county of Swansea may have many reasons to consider changing their buses to hybrid diesel electric buses. The image of a more cleaner, economical bus will give a positive image to the public, encouraging more people to use the buses. It can cut down on running costs due to the hybrid vehicle element using more greener renewable energy. They may also be changing the buses to comply with new legislation which imposed on them. A better carbon foot print from the buses will help against sustaining and protecting the environment.

ii) Political - Government legislation could mean that stricter constraints are placed on the bus company meaning they to run hybrid buses to comply with these. Stricter emission laws will mean buses will have to be cleaner therefore hybrid buses are the best solution to adhere to these rules. Manufacturers may stop producing regular diesel buses and only produce hybrid buses to comply with their manufacturing legislation.

Economical - Hybrid buses have the potential to reduce running costs of the buses by the use of less diesel and better fuel consumption due to the use of hybrid technology. The cost of purchasing a hybrid in comparison to a regular bus can be more due to hybrid technology still being new and expensive. The repair and maintenance of the hybrid buses is likely to cost more, hybrid component can be expensive to replace and maintain, engineers may need specialised training in order to work on the hybrid buses.

4)
ii)

Social - Hybrid buses are likely to give the company a better image towards their contributions to reducing pollution and protecting the environment. The buses being more environmentally friendly gives a better image to the public, this will encourage more people to use the buses as transport. New modern buses will encourage people to use them more often as the quality of travel/interior of the bus will be newer, this will give customers a better experience when traveling on the buses.

Technological - The advancements of hybrid technology has come a long way in past years, this means hybrid technology is more advanced, reliable and capable of operating on buses which wasn't possible in the past. Hybrid buses being a new venture means that any issues which the buses might cause have not yet been explored and could cost the company to fix/alter. The advanced technology of hybrid buses means only certain engineers will be able to repair/maintain the buses or issues may occur by the maintenance of an engineer with lack of experience with hybrid buses.

iii)

I would recommend that the city and county of Swansea consider the extra cost implication of purchasing the buses, extra cost of staff training or new staff, and the extra cost of maintenance if part of the hybrid system was to fail or break. The hybrid buses would have a large positive impact of the company's image which could encourage more customers to use the buses because of their greener image which would allow the company to earn more money. I would recommend the hybrid buses as they are more likely to comply with stricter emission laws which are current but also emission and

Vehicle quality laws which may be introduced in the future. ~~the~~

3/5

19/11
25.

- i) 500 000 £7 PU 60 000 units
 a) £20 PU = Profit = 1'200'000
 Variable C = 420'000

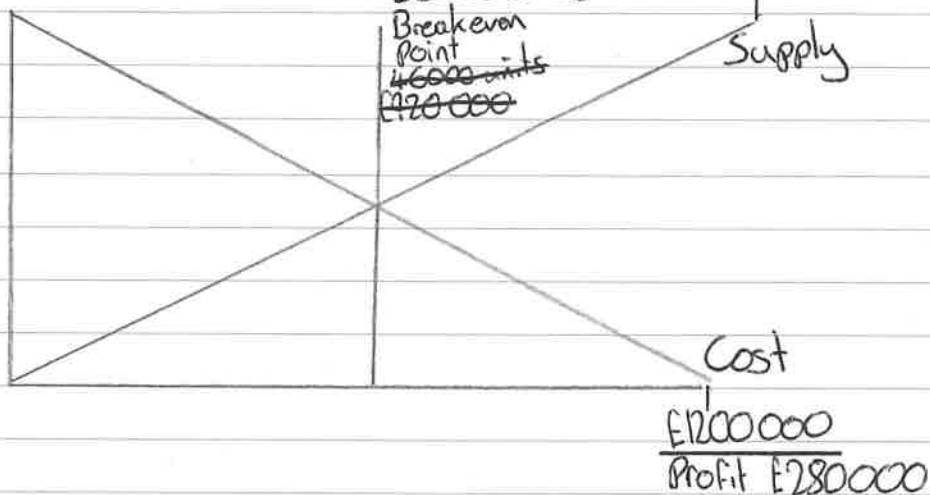
$$\begin{array}{r}
 \text{Total Costs} \\
 500\,000 \\
 + 420\,000 \\
 \hline
 920\,000
 \end{array}
 \qquad
 \begin{array}{r}
 1200\,000 \\
 \hline
 920\,000 \\
 \hline
 280\,000 \div 60\,000 = £4.6 \\
 500\,000 \div 13 = 38462 \text{ units}
 \end{array}$$

~~920 000~~
~~£20~~

~~£769 234~~ to break even

£769 234
 38462 units
 Break even
 Point
~~46000 units~~
~~£120 000~~

b)



c)

$$\begin{array}{r}
 500\,000 \\
 7 \times 45\,000 = \\
 315\,000 \\
 = 85\,000 \\
 \hline
 900\,000 \\
 85\,000
 \end{array}$$

margin of safety 14%

D) $60000 \div 75\% = 45000 \text{ units}$

Fixed 500 000
Variable $7 \times 45000 =$
315 000

total Cost
£815 000

total Profit
 20×45000
 $= 900 000$
 $- 815 000$

Profit = £85 000

- e) Break even analysis doesn't account for depreciation of the products price over time. The method also doesn't account of altering running costs depending of demand.

14
25.

2

- a) The Quotation must be in sterling pounds to allow for easy comparison of quotes without altering exchange rates as the autoclave may be bought from another country

A Quotation must include price of Shipping, fitting and commission of the machine as this may alter depending where the autoclave is purchased. From.

The Quotation must include any extra tooling or components needed by the company to operate.

The Quotation must include costings of future servicing of the autoclave

- The Cost of training to operate the autoclave.

4
12

b) The concept of life cycle costing is how much an item will cost you during ~~and~~ its life operating for you this should then be measured against the profit the item will make during the life cycle.

 $\frac{1}{3}$

c) • The initial cost of the autoclave including, shipping, insulation and commissioning. ✓

• The cost of servicing or replacement of tools whilst the autoclave is in operation. ✓

• How many years the life cycle of the autoclave is predicted to be. ✓

 $\frac{3}{10}$

• The revenue/profit the autoclave will generate during its life cycle and whether it will cover the total costs during the life cycle.

 $\frac{8}{25}$

Question No.

Examiner Onl