

12 Pages

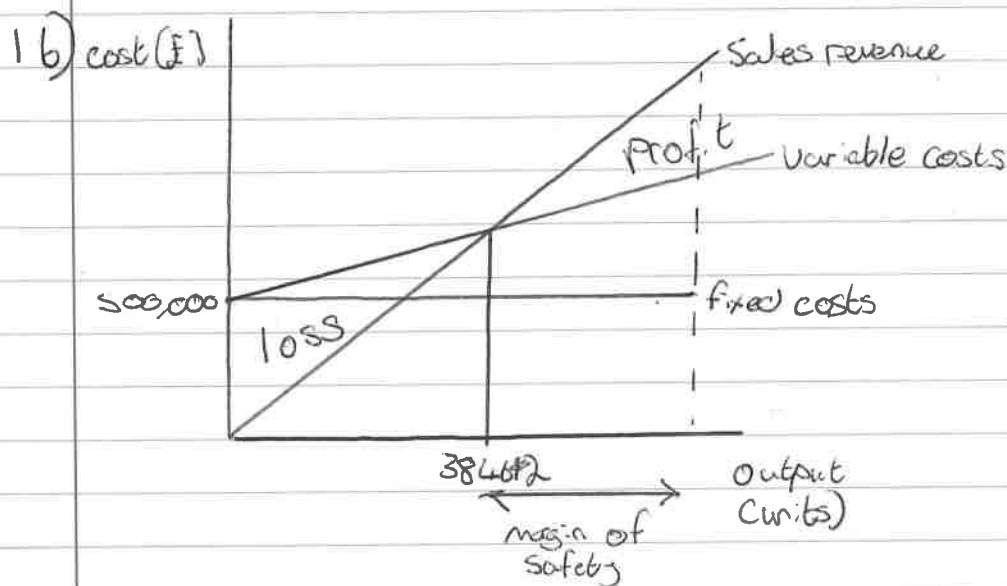
1. Please give the information requested in the boxes below.
2. Enter your name in the space provided to the right, fold over and seal down (using the label provided) to hide your name.
3. The answers must be legibly written. The Examiners can either ignore illegible script or have it typed and the expense 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.**

1	Student Number	1702567
2	Title of Examination Paper	Management Innovation & Sustainability
3	Module Code	MSX01176
4	Date and Time of Examination	17/05/2019 15:00
5	Examination Venue	IQ 103
6	Seat Number	2007
7	Number of Answer Books handed in	1

List the numbers of the questions you have attempted	Office Use
1	21
5	16
7	20 1/2
	57 1/2
Total	77 1/2

Section A

1a) Break even = $\frac{\text{fixed cost}}{\text{selling price} - \text{selling cost variable}}$ $\frac{500,000}{20 - 7} = 38462 \text{ units}$



1c) $60,000 - 45,000 = 15,000 \text{ units}$
 ~~$38462 - 15,000 = 23,462 \text{ units}$~~
 $45,000 - 38462 = 6538 \text{ units}$

1d) $60,000 \times 0.75 = 45,000$
 total variable cost = $45,000 \times 7 = 315,000$
 Total Revenue = $45,000 \times 20 = 900,000$
 Profit = Total revenue - (Variable costs + fixed costs)
 $900,000 - (315,000 + 500,000)$
 $= £85,000$

1e) It doesn't take into account the fluctuations of price over the time period so it may mean that if it's long term it maybe inaccurate. However if the payback period is short then there shouldn't be much of an issue as generally it will be at a similar price.

4/4

3/5

4/4

7/7

1/5

21/25

Question No.

Examiner C

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Section C

5a) Things that need to be considered are the internal size of the autoclave as this will help decide on what size piece of bodywork can be put into the autoclave. Also need to consider the external dimensions & weight of the autoclave so to calculate the transport costs. Also need to be included is the extra equipment needed such as pipes or software ~~needed~~. This could be an issue with fitting and space. Need to get quoted on the operation time so heat up/pressurize and cooling/depressurizing times. This will effect how ~~many~~ long production takes which will relate to wages and production output. To add to that you need to consider what is the energy use/efficiency of the autoclave as this will have an effect on the running costs. You also need to query on the warranty of the autoclave as repair costs could cost a large amount. To add to that the servicing needs to be asked about with such as how often? how much does it cost? and who does it? Also what is the life span of the autoclave as changing it often costs more than buying the actual device. Another consideration is training like how much is the course? where is it? and

$$\frac{10}{12}$$

5b) Life cycle costing is about getting the most amount of a machine for as little money as possible. So in the autoclaves case Pounds/process or Pounds/hours used.

$$\frac{0}{3}$$

5c) One factor is the initial cost. This will include initial purchase, transport, commissioning, auxillaries, software, training, installation and time out from no production during installation.

Then there are the running costs. These will include energy bills, repairs, raw materials, sometimes software updates, wages of the people who run it. Servicing, ^{maintenance} and replacement parts.

Then there could also be decommissioning costs - This will include uninstalling, often removal out of site as they are very large and need cranes in a lot of cases ~~and~~ ^{and} transport - ~~and~~ Some of this cost can be regained from scrapping.

6/10

6/10

7.) It could give the council a greener image as they are supporting low emissions vehicles. It could also cut down on fuel bills as hybrids use less fuel in general. May even encourage more people to use the bus as it may be a smoother engine than just a large chunky diesel.

3/4

7.ii) Political

- Supports government's green agenda ✓
- Supports parliament's green agenda ✓
- has a lot of pressure from green groups ✓
- Helps meet CO₂, NOx emissions targets ✓
- Maybe an issue with diesel at the moment as it is seen as a dirty fuel at the moment. ✓

3/4

Economic

- Large expense of buying a fleet of new busses. ✓
- Need new personnel/facilities/spares to maintain the vehicle. ✓
- Those who are already there will need training. ✓
- Reduces fuel bills as there hybrid ✓
- ~~may be~~ ^{possible} new adjustment ^{revenue} as the busses seen as green ✓

4/4

Social

- Lots of pressure to go green. ✓
- It is currently the fashion for engine downsizing, electrification, hybridization. ✓
- People may start taking the bus more as it's smoother ✓

3/4

Technology

- Effects of brake stability ✓
- Effects of vehicle mass ✓
- Effects of HERS/hybridization ✓
- Safety & security of the busses ✓
- Reliability of the busses ✓
- Serviceability of them. ✓

3/4

7. They need to first do a cost analysis to find out the payback time of the buses would be. Also need to do a market analysis to find how much they think it would be worth. To add to that make a public perception review to find out if the public would like new buses or are they fine with what they already have. Also need to consider the running costs which would then feed back into the payback period.

$$\frac{31}{5}$$
$$\frac{20}{25}$$