

**Complete, fold and seal
(see note 2 below)**

SURNAME: Jones

FORENAME(S): Aleigh

12 Pages

Instructions to Candidates

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 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	1707088
2	Title of Examination Paper	Industrial planning and Team management
3	Module Code	MSX021aa
4	Date and Time of Examination	17/5/19 3.00pm
5	Examination Venue	EQ310
6	Seat Number	G051
7	Number of Answer Books handed in	1

[illegible]



1. a.

1 yr = £500,000 fixed
 per unit = £7 = £6,000 per year
 product sells for = £20

£7 × 60,000 = £420,000 ^{Variable cost} ~~in costs for product~~

£20 × 60,000 = £1,200,000 for product

$\frac{1,200,000}{12} = £100,000$ per month

fixed cost?

~~find again the break even point~~

£420,000 + £500,000 = £920,000 in costs

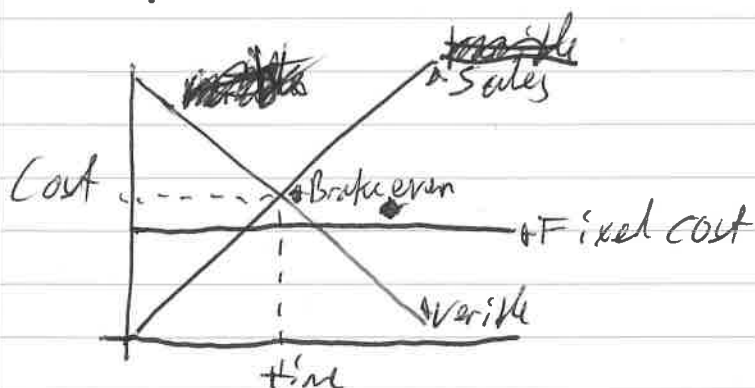
break even cost of £920,000 per year

2/4

~~time taken to break even is =~~

$\frac{£920,000}{100,000} = \underline{9.2 \text{ months to break even.}}$

b.



"Down to Earth"

2 1/2 / 5

c. Fixed = £500,000

£7 × 45,000 = £315,000 variable costs

£20 × 45,000 = £900,000 sales

£315,000 + £500,000 = £815,000 costs

£815,000 - £900,000 = £85,000 profit

$\frac{£900,000}{12} = £75,000$ a month

$\frac{815,000}{75,000} = 10.86$ months to break even.

d.

~~£1,200,000 × 0.75 = £900,000~~

~~£1,200,000 - £900,000 = £300,000~~

£1,200,000 × 0.75 = £900,000 profit

e.

The main limitations of break even analysis is the fact that the costs may vary through out the year meaning that the break even point may change throughout the course of the year. This means that break-even analysis can only be used as a guide.

2.

a. RFA document for the autoclave

- Cost of equipment ✓
- Cost of shipping ✓
- Cost of installation ✓
- Cost of supporting equipment ✓
- rough estimation of the running costs ✓
- Training ✓

Explanation of each criterion

- The cost of the equipment is first highlighted to gain a understanding in the investment of the equipment.
- The cost of transportation of the product could be vast and sometimes difficult. By providing this service ensuring that the company can provide the product in one piece.
- There is installation cost relating to any piece of equipment so that it can be utilised and used correctly.
- There may be additional costs for extra equipment like the need for a three phase converter or ~~extra~~ additional safety ~~perme~~ precaution ~~equipment~~ equipment.
- Running costs of the vehicle gives a understanding for the consumer about the efficiency and the longterm cost of the equipment.
- there could be additional training to operate the equipment safely.

b. Throughout a product's life there may be certain factors that limit the longevity of the product. One main aspect that affects the product's life span is product redundancy.

Throughout a product's life there may be additional costs associated with it. These costs are as follows:

- additional supporting materials needed
- additional tooling
- product efficiency (compared to other models)
- energy usage
- Repairs and reliability

These factors can have an effect on the cost of a product throughout its lifetime.

b. Throughout a product's life, there may be additional or unexpected costs throughout the years. Products can break down requiring additional maintenance, extra tooling may be needed to replace older worn out tools. Energy usage and efficiency can also be a factor due to newer and more efficient machines coming out making the current machine ~~redundant~~ redundant. All factors are analyzed to identify if the product is worth the investment. This analysis can also be conducted to existing products to identify its viability.

C6

There is many factors that affect the lifecycle of a product and its viability. If a product is too expensive over the years, the product isn't a viable solution for the company. Factors that affect the lifecycle is as follows:

- Additional tooling

When running machinery, the tooling can ~~wear~~ wear out causing the need for additional tools to be bought.

- Energy usage.

If a product is expensive to run ~~because it~~ ~~expensive~~ due to it being inefficient, the manufacturing process can ~~possibly~~ increase. This means that the fixed costs for the product can be ~~increased~~ increased, causing

6/10

- Repairs and Reliability

choosing a reliable machine is ^{essential} ~~important~~.

If the price of machinery breaks down, the manufacturing process is delayed. Repairs can be expensive so it is vital to choose a reliable machine.

- Efficiency

If the machine is slow, this may increase the manufacturing time and increase costs by increasing labour, ~~and delaying~~

Also if the machine requires more energy to run, it may increase the break even point.

16/15

3. d. Total Quality Management is a certain management style that ensures that all of the employees and ~~teams~~ teams stick to a set deadline. This is done by employing a 10 step strategy. By using this strategy a certain ~~quality~~ standard of ~~the~~ quality is maintained.

0/5

B. Jura's 10 steps.

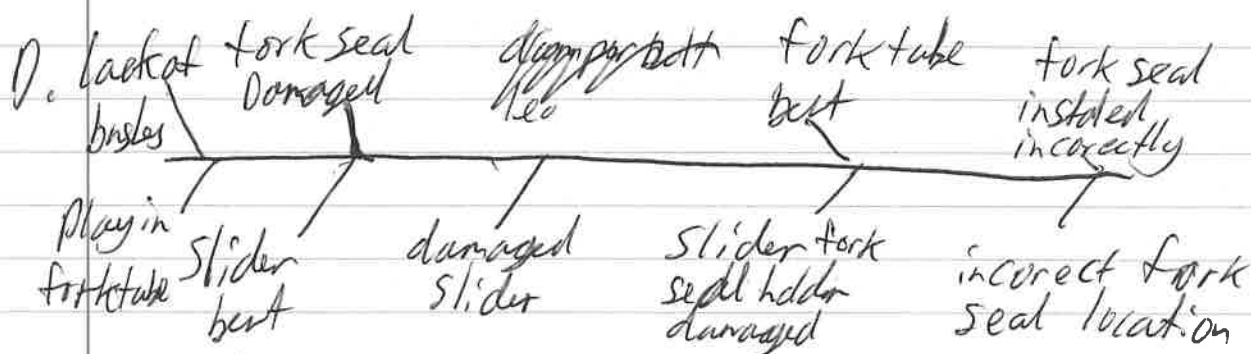
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C. If a robust engineering quality system

If a product isn't robust enough, or doesn't conform to a certain quality, the system can develop problems. These problems can cause the systems to become out of tolerance causing damage, can cause the problems overtime or the ~~the~~ systems not working at all. Quality checks are conducted to ensure that the system works and is fit for duty. ~~without~~

1/3

~~Motor Vehicle Maintenance~~



structure?

possible causes

- The fork seal is in a vulnerable position being exposed. If the fork seal was more in the slider then this can resolve the issue.
- The fork tube has a gap between the slider causing play and causing the fork seal to not seal.

2/11

3/15

4. i.

There are many factors that may affect the decision of switching to hybrid diesel electric buses. The first reason is ~~the~~ environmental factors. Due to political powers and the public, it is a responsible decision to have a economical hybrid vehicle. The second reason is running costs. ~~As~~ Diesel is increasing in price everyday and is increasing running costs of vehicles. By reducing running costs can also reduce the price of tickets which encourages more people to use the service reducing the emissions output.

ii.

PEST (political, Economic, Systems, Technology)

Political =

- Government reducing city pollution
- raising Diesel prices which causes high running costs
- Government budgets
- Government initiative to buy hybrid vehicles.

Economic =

- Reduced ticket prices due to reduced running costs causing more people to use the service.

- Low running costs
- High purchase price
- More people traveling causes more people to travel to local businesses.
- Creates more jobs in bus manufacturing

Systems : • Lower Diesel usage
 • More things to go wrong
 • Training needed for the new system ✓

1/4

Technology : • More research into hybrid vehicles
 • More research into batteries
 • development of electric motors

1/4

iii) By using the PEST analysis a understanding of the impact can be identified. The disadvantage of using a hybrid bus is that ~~that~~ they are expensive to buy. More training is needed to understand the new technology. The advantages of running this system ~~are~~ overweighs the disadvantages. The advantages of this system is that it uses less fuel meaning reduced running costs resulting in cheaper ticket fares.

3/5

~~The conclusion~~
 using all of the advantages and disadvantages, the advice to Swansea council is to adopt the buses because the costs and advantages greatly overweigh the disadvantages.

15/25

Question No.

Examiner Only

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Rhif y Cwestiwn