

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: Atkinson

FORENAME(S): Deion Glyn

1	Student Number	1703067
2	Title of Examination Paper	Industrial Placement and team management
3	Module Code	M5X02199
4	Date and Time of Examination	17/05/19 15:00-17:00
5	Examination Venue	1Q310
6	Seat Number	G052
7	Number of Answer Books handed in	1

[illegible]



①

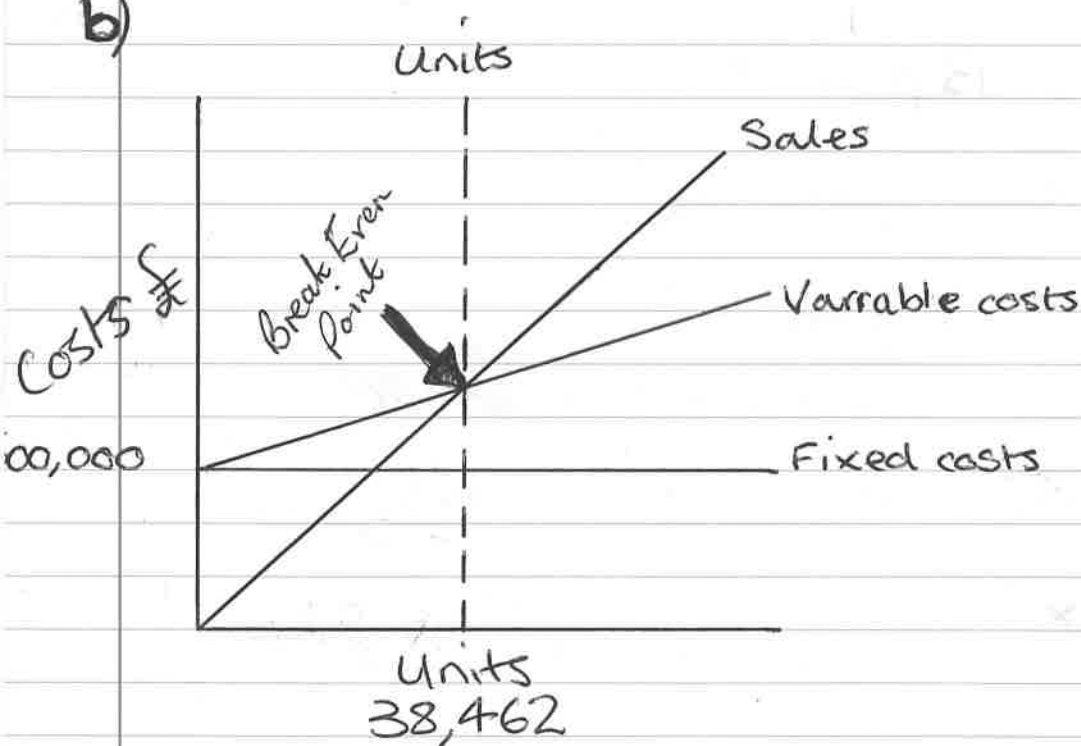
- a) Fixed costs 500,000
 Variable costs 7 per unit
 60,000 units per annum
 £20 per unit sale price

420,000 variable costs
 1,200,000 sales

$$B.E = \frac{500,000}{20 - 7}$$

$$B.E.P = 38,462 \text{ units}$$

b)



Profit = (55)

4/5

c) Variable costs £7 per unit

45,000 units

$$45,000 \times 7 = 315,000 \text{ variable costs}$$

$$45,000 \times 20 = 900,000$$

$$900,000 - (315k + 500k) = \text{£}85,000$$

d) 60,000 units
38,462 B.E.P

$$60,000 - 38,462 = 21,538 \text{ units are profit}$$

$$\text{£}20 - 7 = \text{£}13 \text{ profit per unit}$$

Variable costs + Fixed costs = Costs

$$(60000 \times 7) + 500000 = 920,000$$

$$\text{Profit} = 60000 \times 20 = 1.2 \text{ million}$$

$$1200000 - 920,000 = 280,000 \text{ at } 100\% \text{ rate}$$

$$280,000 \times 0.75 = 210,000 \text{ Profit at } 75\% \text{ rate}$$

e) Limitations of using break even analysis is that the equation to calculate it uses variable costs for the year. These costs could change throughout the course of the year and effect the break even point. It could also occur that the demand is high therefore sale prices would decrease, also affecting the break even analysis.

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④ i) Adopting hybrid engined buses could result in more customers using public transport because of them being ~~green~~ better for the environment. It could also be that the government were offering grants to firms that adopt this change and therefore encourage the Swansea council to do so. Going to hybrid engines would save money on fuel for the council in years to come. It will also provide good publicity towards a greener environment.

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ii) Political

- Government would provide a greener approach to public transport
- The buses would defeat legislations and be adaptive towards future legislations
- Create more jobs ~~for~~ technicians

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Economics

- Cost of tooling/servicing would rise ✓
- New technology would cost a lot to design, develop and produce. ✓
- Sales would rise due to people wanting to be greener.
- Save money on diesel due to rise in MPG ✓

Hybrid motors would be very expensive

- Design of new chassis in the engine bay would acquire experience and money
- Council would require more experienced technicians and/or train them at an expense. Would also require special gearbox that costs a lot. ✓

3 1/2
4

Social

- Media would be happy about the buses being greener. ✓
- Bad media from companies that provide diesel and other components
- Create partnerships with companies that provide hybrid engines
- Gain more advertisement due to being greener
- Gain sponsors/good media reviews to attract more passengers ✓

3
4

Technological

- Could progress to fully electric
- Design could change to make them more economic for example the aerodynamics
- Brakes could be made smaller because of weight reduction
- Future design and development implementation

2/4

iii) I would advise them ~~that~~ to hand out leaflets or create questionnaires about the idea and see whether the number of users would increase. Advertise that the buses are becoming greener therefore other city councils would adopt the idea. Increase awareness of the idea. Advise them to ensure that all costings are going to be made back after so many years. They should come up with a deal with the hybrid engines supplier to design/develop it further for the future.

3/5

16 1/2
25

③ Effects of not having a robust engineering quality system are failures along the way of design and develop. These weaknesses could result in a part being produced, costing a lot of money, and not doing the job it was intended for due to lack of quality system control/management.

Possible causes for the fork seal failure could be that the seals were minutely too small or the fork tube was too small. It could also be that the tube isn't polished enough and that it has scratched the surface of the seals.