

Complete, fold and seal
(see note 2 below)

SURNAME: Williams

FORENAME(S): Jacob Nicolas

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	1603333/1
2	Title of Examination Paper	Management, Innovation Sustainability
3	Module Code	EOAC5004-003
4	Date and Time of Examination	17/05/19
5	Examination Venue	Main hall
6	Seat Number	
7	Number of Answer Books handed in	

[illegible]

59/75

79%

(Gweler yr ochr arall am y fersiwn Cymraeg)

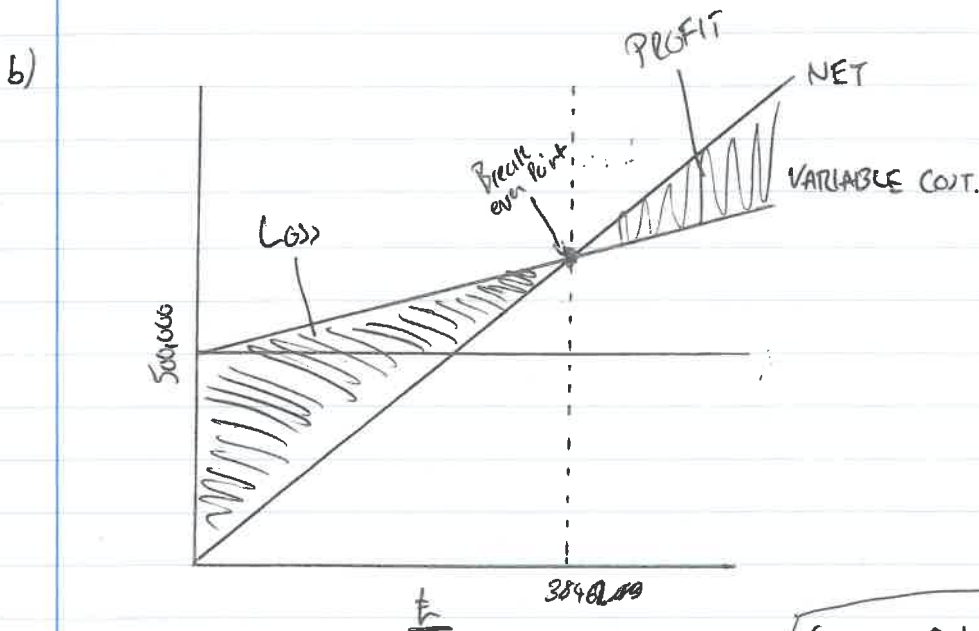
Question No. Q1

Fixed Cost = £500,000 PA.
Variable Cost = £7 PU
Selling price = £20 PU
60,000 units PA.

a) Break even point = $\frac{\text{Fixed cost}}{\text{Selling price PU} - \text{Variable Cost PU.}}$ ✓

= $\frac{500,000}{20 - 7} = 38,462$ — Rounded up to whole number. ✓

4



4

c) Safety Margin = $45,000 - 38,462$
= 6,538 units ✓

4

d) $60,000 \times 0.75 = 45,000$ ✓

$45,000 \times 7 = £315,000$

$45,000 \times 20 = £900,000$

$900,000 - 315,000 = £585,000$ ✓

(Selling price × output @ 75% - Variable Cost @ output @ 75%)

2

3

Profit = $585,000 - 500,000$
= £85,000

2

2

- e) Break even assumes that the relationship is linear. ✓
Break even doesn't account for stock. ✓

Q2

2

a) Project A

YEAR	CF	CUMULATIVE CF
0	(200,000)	(200,000)
1	80,000	(120,000)
2	50,000	(70,000)
3	45,000	(25,000) — 3Y.
4	40,000	15,000

$$\frac{40,000}{12} = 3333.3$$

$$\frac{25,000}{3333.3} = 7.5 = 8 \text{ Months}$$

Payback = 3 Years 8 Months. ✓

3

Project B

YEAR	CF	CUMULATIVE CF
0	(200,000)	(200,000)
1	60,000	(140,000)
2	50,000	(90,000)
3	50,000	(40,000) — 3.
4	60,000	20,000

$$\frac{60,000}{12} = 5000$$

$$\frac{40,000}{5000} = 8M$$

Payback = 3 Years 8 Months. ✓

3

Project C.

YEAR	CF	CUMULATIVE CF
0	(200,000)	(200,000)
1	70,000	(130,000)
2	60,000	(70,000)
3	50,000	(20,000) - 3Y.
4	60,000	40,000

$$\frac{60,000}{12} = 5000$$

$$\frac{20,000}{5000} = 4M$$

✓ 3

Payback = 3 years 4 months - Best payback.

b) Project A

YEAR	CF	DF	NET P VALUE
0	(200,000)	1	(200,000)
1	70,000	0.9091	72725
2	50,000	0.8264	41320
3	45,000	0.7513	33808.5
4	40,000	0.6730	27320
			175176.5

$$\text{NET P VALUE} = 175176.5 - 200,000$$

$$= -24823.5$$

✓

3

Project B

YEAR	CF	DF	NET P VALUE
0	(200,000)	1	200,000
1	60,000	0.9091	54546
2	50,000	0.8264	41320
3	50,000	0.7513	37565
4	60,000	0.6730	40900
			174411

$$\text{NET P VALUE} = 174411 - 200,000$$

$$= -25589$$

✓

3

Project C.

YEAR	CF	DF	NET P VALUE
0	200,000	1	200,000
1	70,000	0.9091	63637
2	60,000	0.8264	49584
3	50,000	0.7517	37585
4	60,000	0.6830	40980
			<u>191766</u>

$$\text{NET P VALUE} = 191766 - 200000$$

$$= \pounds -8234 \quad \checkmark$$

3

c)

	PA	P.B	PC
PAYBACK	3Y 8M	3Y 8M	3Y 4M
NET P VALUE	<u>-24823.5</u>	<u>-25589</u>	<u>-8234</u>

From analysing the above Project C is the best as it has the quickest payback time and has the biggest NET ^{Present} Value Project C is the one I would Choose. $\checkmark$

3

d)

Risk Must be taken into account, Will it work.

Investment, will all of the Money be returned and when.

1

Q3

- a)
- Competitive - Must remain in a competitive location for logistics cost to be lower. ✓
 - Is the infrastructure in place? is the location accessible. ✓
 - Cost - Must keep the cost down.
 - Grants, an incentive from the government to set up. ✓
 - Environmental + Electricity, gas, water are all of these in place. ✓
 - Environmental restrictions - can we make more power if required. ✓
 - Next day delivery - a lot of people like next day delivery and would suit a lot of people. ✓

6

6)

Location	x-y	Demand	X weight	Y weight
Supp 1	91, 18	40	3640	720
2	93, 25	90	8370	2250
3	4, 46	60	240	2760
Cost 1	83, 26	24	1992	624
2	89, 24	86	7654	2064
3	63, 57	32	2016	1824
4	11, 85	78	858	6630
5	9, 27	92	828	2414
6	44, 57	48	2112	2736
		550	27710	~~22092~~ 22092

✓

$$X_0 = \frac{X_{\text{weight}}}{\text{Demand}} = \frac{27710}{550} = 50.381$$

$$Y_0 = \frac{Y_{\text{weight}}}{\text{Demand}} = \frac{22092}{550} = 40.167$$

$$X_0 = 50.381$$

$$Y_0 = 40.167$$

✓