

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.**

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

SURNAME: Davies

FORENAME(S): John Steven

1	Student Number	1504 731/3
2	Title of Examination Paper	Management, innovation & sustainability
3	Module Code	MSX1176 GOAC5004
4	Date and Time of Examination	17/05/2019 2:00 - 4:00
5	Examination Venue	Gower college Swansea main hall
6	Seat Number	
7	Number of Answer Books handed in	

[illegible]

(Gweler yr ochr arall am y fersiwn Cymraeg)

34/75

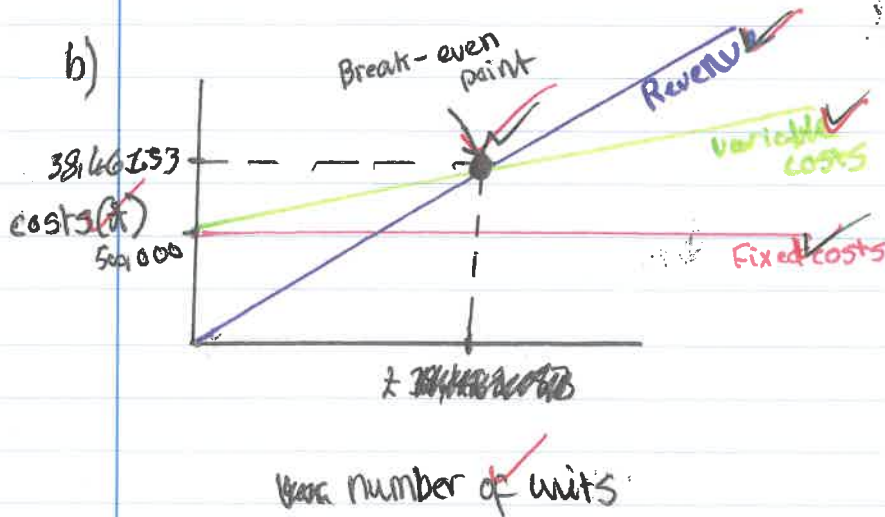
45%

Section A

Question One

- a)
- Fixed costs :- 500,000 per annum
 - Variable costs :- £7
 - Finished product :- £20
 - Can produce :- 60,000 units per annum

$$\frac{\text{Fixed costs}}{\text{Finished product} - \text{Variable costs}} = \frac{500,000}{(20 - 7)} = \text{£ } 38,461.53$$



By

- c) Margin of safety at 45,000 units

$$60,000 - 45,000 = 15,000 \text{ units}$$

d) $500,000 \times 0.75 = 375,000$

4

4.5

e) The limitations of using a break-even analysis are;

- While being relatively accurate, the chart lacks any detail.
- The calculations are not positively accurate.
-

~~Section~~

Section B

Question Two

a)

Project A		
Year	cash flow (£)	cumulative cash (£)
0	(200,000)	(200,000)
1	90,000	(110,000)
2	50,000	(60,000)
3	45,000	(15,000)
4	40,000	25,000

Total Cashflow = £2230,000

$$\frac{15,000}{25,000} = 0.6 \quad \frac{25,000}{120,000} = 0.208333$$

$$\frac{2230,000}{2083.33} = 1070.33 \rightarrow 3 \text{ years and } 8 \text{ months}$$

Project B		
Year	cashflow (£)	cumulative cash (£)
0	(200,000)	(200,000)
1	60,000	(140,000)
2	50,000	(90,000)
3	50,000	(40,000)
4	60,000	20,000

Total cashflow = £490,000

$$\frac{40,000}{120,000} = 0.333333$$

$$\frac{20,000}{333.33} = 60 \rightarrow 3 \text{ years and } 6 \text{ months}$$

Project C		
Year	cash flow (£)	Cumulative cash (£)
0	(200,000)	(200,000)
1	70,000	(130,000)
2	60,000	(70,000)
3	50,000	(20,000)
4	60,000	40,000

Total cash flow (£) = £460,000

$$\frac{40,000}{12} = 3333.33$$

$$\frac{20,000}{3333.33} = 6$$

3 years and 6 months

b)

Project A			
Year	Cashflow	Factor	NPV
0	(200,000)	1.000	(200,000)
1	80,000	0.9091	72,728
2	50,000	0.8264	41,320
3	45,000	0.7513	33,809
4	40,000	0.6830	27,320
5		0.6210	

Total NPV = 375,177

Project B		Factor	
Year	Cashflow	NPV	NPV
0	(200,000)	1.000	(200,000)
1	60,000	0.9091	54,546
2	50,000	0.8264	41,320
3	50,000	0.7513	37,565
4	60,000	0.6830	40,980
5		0.6210	

Total NPV = 374,501

Project C			
Year	Cashflow	Factor	NPV
0	(200,000)	1.000	(200,000)
1	70,000	0.9091	63,637
2	60,000	0.8264	49,584
3	50,000	0.7513	37,565
4	60,000	0.6830	37,260
5		0.6210	

Total NPV = 388,046

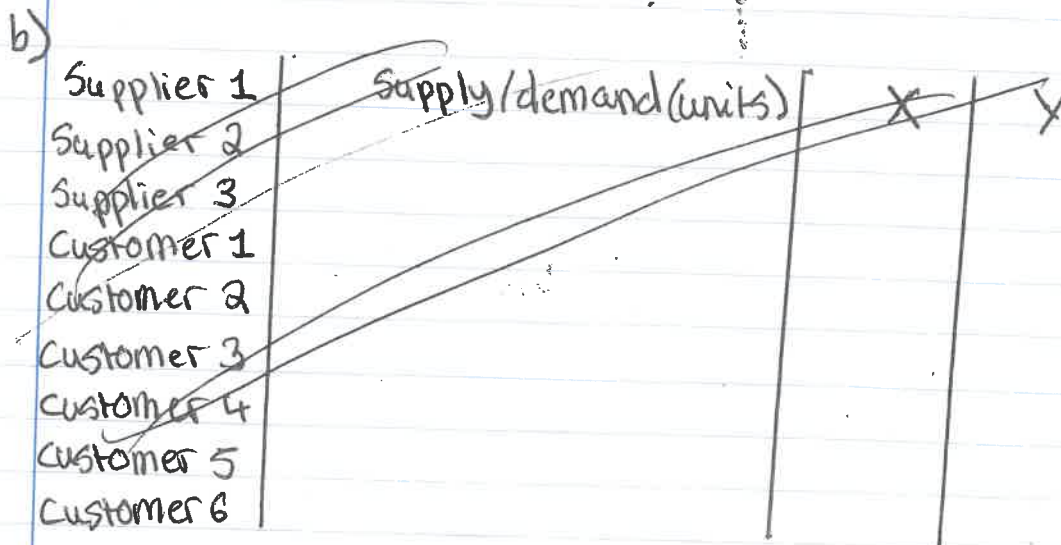
Project A	Project B	Project C
Payback : 3 years and months	Payback : 3 years 6 months	Payback : 3 yr 6 month
NPV : 375,177	NPV : 374,501	NPV : 388,046

c) Project C has the best net present value and payback

d).

Question 3

- a) • The location needs to be by a main road or docks ✓
 • Has the destination been examined, i.e. are there competitors in the area. ✓
 • Is the location suitable for the product being produced. ✓
 • How close is the warehouse or factory, to the customers ✓
 • Will the buildings affect any environmental policies ✓
 • Can the business make a profit from the second warehouse/factory. ✓



Location	Demand (units)	X	Y
Supplier 1	40 (x 91) = 3640		(x 18) = 720
Supplier 2	90 (x 93) = 8370		(x 23) = 2070
Supplier 3	60 (x 4) = 240		(x 46) = 2760
Customer 1	24 (x 83) = 1992		(x 26) = 624
Customer 2	86 (x 89) = 7654		(x 24) = 2064
Customer 3	32 (x 63) = 2016		(x 57) = 1824
Customer 4	78 (x 11) = 858		(x 85) = 6630
Customer 5	92 (x 9) = 828		(x 27) = 2484
Customer 6	48 (x 44) = 2112		(x 57) = 2736

$$X \text{ Total} = 27,710 \quad \checkmark$$

$$Y \text{ Total} = 21,852 \quad \checkmark$$

$$\text{Demand Total} = 550 \quad \checkmark$$

$$\frac{X}{\text{Demand}} = \frac{27,710}{550} = 50.38 \quad \checkmark$$

$$\frac{Y}{\text{Demand}} = \frac{21,852}{550} = 39.73 \quad \checkmark$$

Coordinates are 50.38, 39.73