

Examination Answer Books

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 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: JOHN NIGEL JAMES.

FORENAME(S): JOHN NIGEL

1	Student Number	1603327
2	Title of Examination Paper	MANAGEMENT INNOVATION SUSTAINABILITY
3	Module Code	GOAL5004-003
4	Date and Time of Examination	14:00 17 th MAY '19
5	Examination Venue	GCS TYLOCH 68860
6	Seat Number	
7	Number of Answer Books handed in	1 of 2

[illegible]

(Gweler yr ochr arall am y fersiwn Cymraeg)

93%

3.
(b)

LOCATION	X	Y	DEMAND	X WEIGHT	Y WEIGHT
SUPPLIER 1	91	18	40	3640	720
2	93	25	90	8370	2250
3	4	46	60	~~2760~~ 240	2760 ✓
CUSTOMER 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	2484
6	44	57	48	2112	2736

$$X \text{ WEIGHT} = 27710$$

$$Y \text{ WEIGHT} = 22092$$

$$\text{TOTAL DMD} = 550$$

$$X_0 = \frac{\text{TOTAL X WEIGHT}}{\text{TOTAL DEMAND}} = \frac{27710}{550}$$

$$= 50.4 \checkmark$$

$$Y_0 = \frac{\text{TOTAL Y WEIGHT}}{\text{TOTAL DEMAND}} = \frac{22092}{550}$$

$$= 40.2 \checkmark$$

∴ The best possible area in which to locate the manufacturing facility is at co-ordinates 50.4, 40.2 ✓

- (3) a) • **LOCATION** :- Near to local infrastructure with respect to rail, access to major road networks and local minor roads to and from motorways. 2
- **WORKFORCE** :- local skilled workforce either already trained or with required aptitude or skill levels to be able to be trained. 2
- **ECONOMY** :- Average and fair wage expectations of workforce. Availability of local or governmental grants. 2
- **ENVIRONMENTAL** :- local restrictions on traffic flow and congestion, pollution and air quality management. Disposal of waste and recycling requirements. 2
- **GOVERNMENTAL / POLITICAL** :- Is the area safe to operate in, or are there any governmental restrictions or incentives to locate there. 2

SECTION A QUESTION 1

FIXED COSTS	500,000	per annum
VARIABLE COSTS	7:00	per unit
FINISHED PRODUCT PRODUCTION	20:00	per unit.
	60,000	units per annum.

a) ~~BREAK EVEN POINT (BE)~~

$$\text{BREAK EVEN} = \frac{\text{FIXED COSTS}}{\text{SELLING PRICE (Per unit)} - \text{VARIABLE COSTS (Per unit)}}$$

$$= \frac{500,000}{(60,000 \times 20) - (60,000 \times 7)}$$

$$= \frac{500,000}{1200,000 - 420,000} = \frac{500,000}{780,000}$$

a) BREAK EVEN POINT (BE)

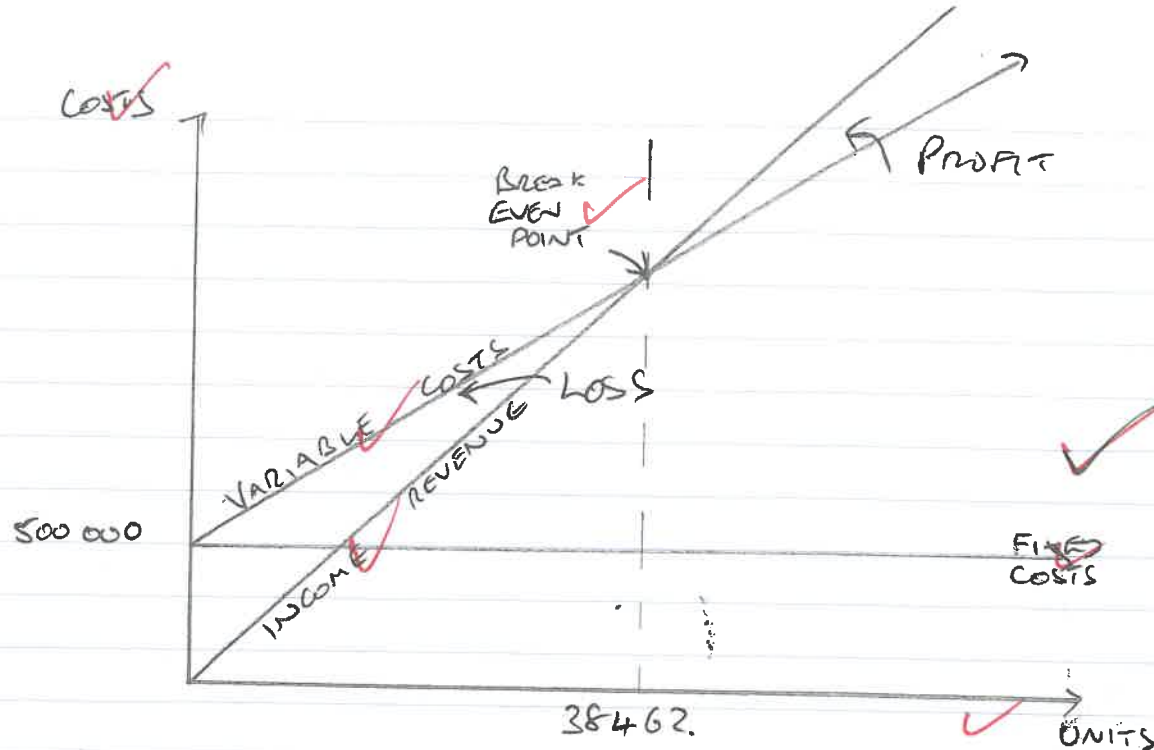
$$\text{BREAK EVEN} = \frac{\text{FIXED COSTS}}{\text{SELLING COST} - \text{VARIABLE COST}}$$

$$\text{BE} = \frac{500,000}{20 - 7} = \frac{500,000}{13}$$

$$\approx 38461.5 \text{ units.}$$

$$\approx 38462 \text{ units}$$

b)



c) Safety margin at 45,000 units

Margin of safety = Current output

Current output - BE output

$$= 45,000 - 38,462$$

$$= 6,538 \text{ units}$$

d) Profit if annual output falls to 75%.

$$\begin{aligned} \text{Current output} &= 60,000 \text{ units per annum.} \\ 75\% &= 0.75 \times 60,000 = 45,000 \text{ units.} \end{aligned}$$

Contribution = Current

Profit = Contribution - Fixed costs.

$$= \quad \quad \quad - 500,000$$

=

e). LIMITATIONS OF BREAK EVEN ANALYSIS.

- Does not take into account "FINISHED ITEMS" held as stock in a warehouse. It has costs attached to produce those items but they have not generated revenue from sales. ✓
- Assumes that there is a linear relationship between production and variable costs when ~~there~~ it may not be. ✓
- It provides only a snapshot in time of the position of the business but is not a "living" real time indication. ✓
- Only as good as the data you have. If the data from the business analysis used is not accurate then the BE analysis will not accurately reflect the position. ✓

4

SECTION B QUESTION 2

B

2) a) Calculate the payback in years and months.

Project A

YEAR	(£k) NET CASH FLOW	CUMULATIVE (£k)
0	(200)	(200)
1	80	(120)
2	50	(70)
3	45	(25)
4	40	15

Payback after 3 years and x months.

$$\text{Payback month} = \frac{\text{INCOME REQUIRED}}{\text{CONTRIBUTION / MONTH}}$$

$$\text{CONTRIBUTION} = \frac{£40000}{12 \text{ months}} = £3333.33 \quad \checkmark$$

$$\therefore \text{PAYBACK MONTH} = \frac{£25000}{£3333.33} = 7.5 \text{ months.}$$

$$\approx 8 \text{ months.} \quad \checkmark$$

$\therefore$ Payback occurs after 3 years 8 months

3

PROJECT B.

(£k).

YEAR	NET	CASH FLOW	CUMULATIVE
0	(200)		(200)
1	60		(140)
2	50		(90)
3	50		(40)
4	60		20.

Payback occurs after 3 years & months.

Payback month:- $\frac{\text{INCOME REQ'D}}{\text{MONTHLY CONTRIBUTION}}$

$$\text{CONTRIBUTION} = \frac{£60000}{12} = £5000.$$

$$\therefore \text{Payback month} = \frac{£40000}{£5000} = 8 \text{ months.}$$

$\therefore$ Payback occurs after 3 years and 8 months. (3)

YEAR	NET CASH FLOW	CUMULATIVE
0	(200)	(200)
1	70	(130)
2	60	(70)
3	50	(20)
4	60	40.

∴ Payback occurs after 3 years and x months

$$\text{Payback month} = \frac{\text{INCOME REQUIRED}}{\text{MONTHLY CONTRIBUTION}}$$

$$\text{CONTRIBUTION} = \frac{£60000}{12} = £5000.$$

$$\therefore \text{Payback month} = \frac{£20000}{£5000} = 4 \text{ months}$$

∴ Payback occurs after 3 years and 4 months

(3)

② b). Net Present Value (NPV) using discount factor of 10%.

PA	Year	Discount	Cash Flow (£k)	Present Value (£)
	0	1.00	(200)	(200 000)
	1	0.9091	80	72728
	2	0.8264	50	41320
	3	0.7513	45	33808.50
	4	0.6830	40	27320
	5	0.6210	0	0

TOTAL PRESENT VALUE = £ 175176.50

NET PRESENT VALUE = ~~TOTAL PRESENT VALUE~~

TOTAL PRESENT VALUE - INITIAL INVESTMENT

= 175176.50 - 200 000

~~= £ 182823.50~~

~~= £ 24823.50~~

NPV = - £ 24823.50



3

PROJECT B.

YEAR	DISCOUNT	CASH FLOW (£k)	PRESENT (£)
0	1.000	(200)	(200 000)
1	0.9091	60	54 546
2	0.8264	50	41 320
3	0.7513	50	37 565
4	0.6830	60	40 980
5	0.6210	0	0

TOTAL PRESENT VALUE = £ 174 411.

$$NPV = \text{TOTAL PRESENT VALUE} - \text{INITIAL INVESTMENT}$$

$$= £ 174 411 - £ 200 000$$

$$\therefore NPV = - £ 25 589.$$



③

PROJECT C.

YEAR	DISCOUNT	CASH FLOW (£k)	PRESENT VAL (£)
0	1.000	(200)	(200 000)
1	0.9091	70	63 637
2	0.8264	60	49 584
3	0.7513	50	37 565
4	0.6830	60	40 980
5	0.6210	0	0

TOTAL PRESENT VALUE = £ 191 766.



③

$$NPV = \text{TOTAL PRESENT VALUE} - \text{INITIAL INVESTMENT}$$

$$= £ 191 766 - £ 200 000$$

$$NPV = £ - 8 234$$



(2) c) COMMENT.

	Project A	B	C
PAYBACK	3y 8m *	3y 8m	3y 4m
NPV (£)	-24823.50	-25589	-8234

* Actual payback of project A was rounded up to 8 months from 7.5.

All projects have similar payback times within 4 months of each other although project A is the fastest with 7.5 months (see *).

Each project has a negative Net Present Value (NPV) but project B has the most negative with project C the least at £ -8234.00.

Based on the above analysis I would choose Project C as it has the fastest payback time and the highest (least negative) NPV.

∴ Project C (a) 3 years 4 months payback
- £ 8234.00 NPV.



Examination Answer Books

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 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	1603327
2	Title of Examination Paper	MANAGEMENT INNOVATION SUSTAINABILITY
3	Module Code	GDAL5004 603
4	Date and Time of Examination	14:00 17 MAY 19
5	Examination Venue	GCS TYLOCH 68860
6	Seat Number	
7	Number of Answer Books handed in	2 OF 2

Complete, fold and seal
(see note 2 below)

SURNAME:

JAMES

FORENAME(S):

JOHN NIGEL

List the
numbers of the
questions you
have attempted

Office Use

SECTION B QUESTION 2 - d

②

d). FINANCE :- Are there any industrial or governmental grants available to offset some of the capital investment? ☒ so do they come at a cost? i.e. do they need to be repaid in full or part or are there any other financial conditions.

Has the business succeeded before?
 Has this idea been successful as a previous venture? ☒ so where and when and is the business still trading. If not, what caused the failure.

2

SECTION A

Profit of annual output falls
to 75%.

Q 1

Part (d).

$$\begin{aligned} \text{Current o/p} &= 60000 \\ 75\% &= 0.75 \times 60000 = 45000 \text{ Units.} \end{aligned}$$

$$\text{CONTRIBUTION} = \text{SALES REVENUE} - \text{VARIABLE COSTS}$$

$$\begin{aligned} &= (45000 \times \text{price}) - (45000 \times \text{variable cost}) \\ &= (45000 \times 120) - (45000 \times 7) \\ &= 585000 \end{aligned}$$

$$\text{Profit} = \text{CONTRIBUTION} - \text{FIXED COSTS}$$

$$585000 - 500000$$

$$\therefore \text{Profit @ 75\%} = 85000$$