

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

SURNAME: Pesavillo

FORENAME(S): *Ronan*

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	PES15826963
2	Title of Examination Paper	Management, Innovation and Sustainability
3	Module Code	M5X01176
4	Date and Time of Examination	05/05/2023 10.30'00
5	Examination Venue	68860
6	Seat Number	
7	Number of Answer Books handed in	1

[illegible]

Q1 $\frac{12}{25}$ ✓
Q2 $\frac{14}{25}$ ✓
Q3 $\frac{2}{25} = \frac{28}{75}$ ✓

37%

37 %

RK

Section A) Depreciation
Question 1)

In 3 years, original prices will reduce to 25%. $\rightarrow 22+2+1+3.5+0.5+1=30$
 $\times 10^3 = 30,000$

All Components		Specifics/Individual Items					
		HTLWBTV	PPC	PEG	TFM	TJ, R, etc.	VF
7.00	£ 30,000	£ 22,000	£ 2,000	£ 1,000	£ 3,500	£ 500	£ 1,000
20	£ 7,500	£ 5,500	£ 500	£ 250	£ 875	£ 125	£ 250

a) • Straight Line: $\frac{\text{Original Price} - \text{Full Reduced Price}}{\text{Years in Use}}$ Price Reduction per annum/year;

Full Reduced Price = Original Price $\times$ Final Year Price Percentage; Original Price $\times$ 25%.

Split each part left...

	HTLWBTV	PPC	PEG	TFM	TJ, R, etc.	VF	Total
Year: 0	£22,000	£2,000	£1,000	£3,500	£500	£1,000	£30,000
1	£16,500	£1,500	£750	£2,625	£375	£750	£21,500
2	£11,000	£1,000	£500	£1,750	£250	£500	£15,000
3	£5,500	£500	£250	£875	£125	£250	£7,500
Price Reduction per year	£5,500	£500	£250	£875	£125	£250	£7,500

b) Reducing Balance: $\frac{\text{Full Reduced Price}}{\text{Original Price}} \times \text{Original Price} \times (\text{Final year Percentage})^{\frac{1}{n} \text{ Years until Full Reduction}}$

Assuming payments are rounded down.

Year	HTLWBTV	PPC	PEG	TFM	TJ, R, etc.	VF	Total
0	£22,000.00	£2,000.00	£1,000.00	£3,500.00	£500.00	£1,000.00	£30,000.00
1	£18,898.81	£1,259.92	£629.96	£2,204.86	£314.98	£629.96	£18,898.81
2	£15,905.50	£773.70	£376.35	£1,388.97	£198.42	£376.85	£11,905.50
3	£5,500.00	£500.00	£250.00	£875.00	£125.00	£250.00	£7,500.00

£13,859.13 Year 1

* £8,730.70 Year 2

c) Local Businessman, Mr. Peterson.

New business offering a mobile tyre service, fitting service.

A business plan that he will present to a national bank to apply for a business loan.

For answer to c), See next page.

- 4) c) The 'straight line' method ensures a ^{and easily calculable} consistent decrement in equipment prices ^{per year} while the 'reducing balance' method ensures a functionally realistic perception of equipment usage with the manual decay ~~from~~ the frequency of ~~use~~ influencing the value of the equipment.

The 'reducing balance' method ~~is~~ is usually applied to equipment that is of frequent use for its location and application, whereas the 'straight line' method can be used in commercial stores with ~~the~~ items of infrequent consumption.

The 'straight line' method might consider the equipment more expensive compared to the 'reducing balance' method. ~~And with~~ And the 'reducing balance' method requires a more complex set of ~~mathematics~~ ^{more} to calculate each year's prices which can consume time when applied.

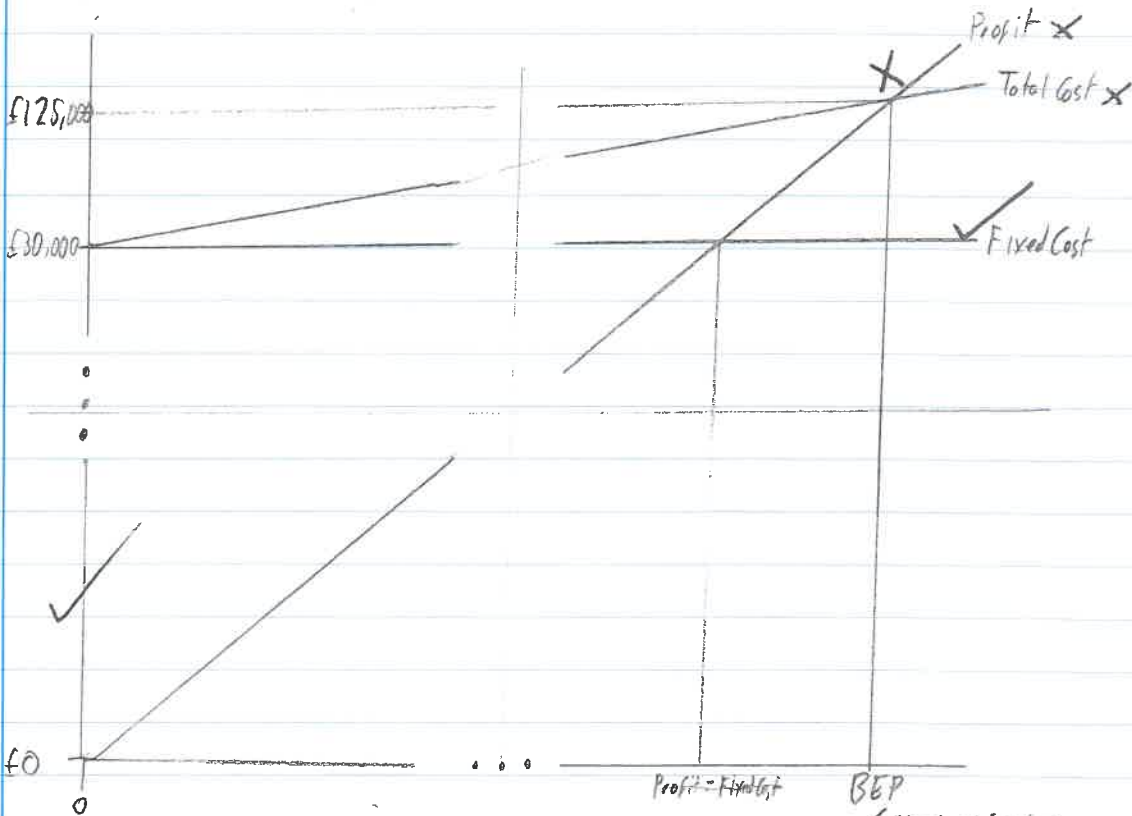
Mobile Tyre Fitting is a public service where vehicular ~~mod~~ ^{mod}ifications of ~~the~~ its caliber require very strenuous physical ability to be able to replace ~~the~~ tyres. And in hotter days, the tyres are more susceptible to ~~the~~ thermal and frictional wear. ~~Setting~~ If the service is in coalition with ^{or workplaces} MOT Industries, a straight line method ~~could~~ ^{could} be preferable since prices are usually rounded with ~~these~~ costs associated with vehicle modification facilities. And if the business plan is ~~the~~ associated with niche consumers, ~~these~~ e.g. extra wheel add-ons, decals, etc. then the ~~reducing~~ ^{reducing} balance method ~~can~~ ^{can} be ~~applied~~ ^{applied}.

- 1 Incurred fixed costs of £30,000. $\frac{£30,000}{£4,284} = 7 \text{ months, 1 day}$
 Total costs i.e. ~~direct~~ direct, variable costs + overheads $\frac{£30,000}{£4,284} = 7 \text{ months, 1 day}$
 Variables $\frac{£57}{\text{per tyre}}$ $\frac{£30,000}{£4,284} = 7 \text{ months, 1 day}$
 Finished tyre profits: £75 $\frac{£30,000}{£4,284} = 7 \text{ months, 1 day}$
 Expected tyre change quantity: 238 $\frac{£30,000}{£4,284} = 7 \text{ months, 1 day}$

$$\begin{array}{r} 238 \times 57 = £13,566 \text{ Tyre cost} \\ 238 \times 75 = £17,850 \text{ Profit/sell} \\ \hline \text{Profit per month} \end{array}$$

Assuming profits are constant per month, a break-even chart will be illustrated as such below.

Tyre Profit -



Fixed Cost	£30,000	£30,000	$\frac{1,666.6}{238} = 7.0028011 \text{ months}$	$\frac{2500}{357}$	Tyre Cost
Total Cost	£30,000	£30,057			$30,000 + 57x = £125,000$
Tyre Profit	£0	£75			
Tyres Sold	0	1	$+ (1,666.6 \times 57) = £95,000$		
Remaining	£30,000	£29,982	$= £125,000$		

$$(\text{£}30,000 + \text{£}57x) - \text{£}75x = \text{£}30,000 - \text{£}18x ; 30,000 = 18x, \frac{30,000}{18} = x = 1666.66 \text{ or } 1,667$$

$$x = \text{Tyre Qty. to gain BEP} = \frac{5000}{3} \text{ (Round up)}$$

2

4

Net Present Value.

Section B) Any 2/3

2)

Capital Investment is £200,000.

Assuming cash flows are of straight line acquiring.

Projects	Cash Flows			Accumulative Totals		
	A	B	C	A	B	C
a) Years 0	(200,000)	(200,000)	(200,000)	(200,000)	(200,000)	(200,000)
1	80,000	60,000	70,000	(120,000)	(140,000)	(130,000)
2	50,000	50,000	60,000	(70,000)	(90,000)	(70,000)
3	45,000	50,000	50,000	(25,000)	(40,000)	(20,000)
4	40,000	60,000	60,000	15,000	20,000	40,000

A: (25,000) to 15,000

B: (40,000) to 20,000

C: (20,000) to 40,000

0

1

0

2+1=3

0

1+2=3

25:15 = 40, 25:15

3 years + 8 months.

3 years + 4 months

62.5:37.5

2:1

66.6:33.3

x 12

= 750:450 = 12000

÷ 100

7.5:4.5 = 12

approx. (2 weeks)

3 years + 7 months + a fortnite

A: 3 years, 7 months ✓

B: 3 years, 8 months ✓

C: 3 years, 4 months ✓ (Quicker Profit)

Without Discount Factor

Projects	Cash Flows x Discount Factors			Discount Factors (5% p.a.)	A (fault)	B (fault)	C (fault)
	A	B	C				
Year 0	(200,000)	(200,000)	(200,000)	1.0000	(200,000)	(200,000)	(200,000)
1	80,000	60,000	70,000	0.9091	(127,272)	(145,454)	(136,363)
2	50,000	50,000	60,000	0.8264	(85,952)	(104,134)	(86,779)
3	45,000	50,000	50,000	0.7513	(52,143.5)	(66,569)	(49,214)
4	40,000	60,000	60,000	0.6830	(24,823.5)	(25,589)	(82,34)
5				0.6210	..X	...X	...X

Yo Acc. + Y₁ Cash Flow x Y₁ Discount Factor = Y₁ Acc.

↑ will be changed on later page.

Lesser
Loss on this faulty formula.

2) b)

		w/ Discount Factor Cash Flow			Accumulative Flow			
Projects		A	B	C	Disc. Factors	A	B	C
Year	0	8200k	4600k	200k	[Shift Down]	(200,000)	(200,000)	(200,000)
	1	80k	60k	70k	1.0000	(120,000)	(140,000)	(130,000)
	2	50k	50k	60k	0.9091	(74545)	(94545)	(75454)
	3	45k	50k	50k	0.8264	(37357)	(53225)	(34134)
	4	40k	60k	60k	0.7513	(7305)	(8147)	10,944
	5				0.6830	Loss	Loss	Produced Profit
					0.6210			Cash Flow

% Acc. + Y, CF x Y, Discount factor = Y, Acc. (34,134) to 10,944, how so that both absolute values equal to the nearest full 1x10.

- c) Due to ensured profit with and without discount factors taken to account, I would prefer Project C. Without discount factor happening, ^{Thomas} he would be able to achieve acquiring his capital investment back. And with discount factors happening either way, Thomas would be able to achieve getting closest to his capital investment acquisition.

$$\begin{array}{r} 34134 \\ + 10944 \\ \hline 45078 \end{array}$$

$$\frac{45078}{120000}$$

$$12 \text{ months} \times 1000 = 0.37565$$

$$12.892.437 \div 4111.1136 \text{ That does not work.}$$

$$12 \text{ months} \times 100$$

$$45078 \times 12$$

$$= 540936$$

$$\div 1000 = 540.936$$

- d) Make sure the discount value effects affects the ^{smaller} cash flow years the least because smaller ^{profits} from late years can still make greater mathematical differences in determining whether the Project causes losses or profits.

$$34,134 \div 45078 = \frac{5689}{7513} = 0.75722017...$$

$$10,944 \div 45078 = \frac{1824}{7513} = 0.242779182...$$

$$\frac{5689}{7513} \times 12 \text{ months} = 2.91338019 \text{ months} \cdot 9.08664 \text{ months}$$

$$\text{Month} \approx 28 \times 31 \text{ days}$$

$$2 \text{ months} \quad \text{If days} = 28, 0.91338019 \times 28 = 25.573$$

$$\text{If days} = 31, 0.91338019 \times 31 = 28.3148$$

$$9.08664980 - 9 = \frac{651}{7513} = 0.08664980$$

$$\text{If days month} = 28, \frac{651}{7513} \times 28 = 2.42 \text{ 3 days}$$

$$\text{"} = 31, \frac{651}{7513} \times 31 = 2.68 \text{ 3 days}$$

$$9 \text{ months, 3 days.}$$

- 3) b) One example of Price Discrimination happens in cinemas where age groups are being segmented to pay specific prices with no other choice. This is classified as 3rd Degree Price Discrimination. The next degree to exemplify is the providing of ~~the~~ grocery coupons in that certain items or total spending can allow you to reduce prices by set values or percentages. Tesco provides these with clubcard members, and Subway prints them in their leaflets/brochures.