BUS.AL4 Price and Income Elasticity of Demand

Total Marks

AQA 7132 · Calculators not allowed · about 50 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions in the spaces provided. Show your working for every calculation. Use the figures given in each question's prompt; no calculator is needed for any calculation.

1 Which one of the following best describes price elasticity of demand (PED) as used in business analysis?

- ☐ A) The percentage change in price divided by the percentage change in quantity demanded
- ☐ B) The percentage change in quantity demanded divided by the percentage change in price
- ☐ C) The change in total revenue after a change in advertising
- ☐ D) The absolute difference between price and marginal cost

(Total for Question 1 is 1 mark)

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2 State the formula for income elasticity of demand (YED) used to measure how demand responds to changes in consumer income.

(Total for Question 2 is 2 marks)

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3 Define what it means for demand to be 'price elastic' in the context of PED values for a product sold by a UK retailer.

(Total for Question 3 is 2 marks)

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4 State two factors that make demand for a good more price elastic for consumers in a local UK market.

(Total for Question 4 is 2 marks)

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5 A small coffee shop raises the price of a takeaway latte from 3 pounds to 4 pounds. Quantity demanded falls from 120 cups per day to 90 cups per day. Without calculation, state whether demand is likely to be price elastic, inelastic or unitary for this price change in this example.

(Total for Question 5 is 1 mark)

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6 A deli reports that when average household income in its area rises from 20,000 pounds to 22,000 pounds, its sales of premium ham increase from 500 to 600 units per month. Calculate the income elasticity of demand (YED) for the premium ham, showing your working, and classify the good as normal or inferior.

(Total for Question 6 is 2 marks)

7 Explain one implication for a firm's pricing decision if its product has price elastic demand, using the concept of total revenue for a UK retailer.

(Total for Question 7 is 2 marks)

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8 Which one of the following YED values indicates the good is an inferior good?

- ☐ A) +0.5
- ☐ B) -0.8
- ☐ C) +1.5
- ☐ D) +0.0

(Total for Question 8 is 1 mark)

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9 A UK fashion retailer reduces the price of a jacket from 80 pounds to 64 pounds and notices sales rise from 200 jackets per month to 300 jackets per month. Calculate the price elasticity of demand for the jacket, showing your working. State whether demand is elastic, inelastic or unitary, and briefly explain what this means for the retailer's total revenue.

(Total for Question 9 is 6 marks)

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10 A bakery increases the price of a loaf from 2 pounds to 2.20 pounds and sales fall from 1,000 to 980 loaves per week. Calculate the approximate percentage change in price and the percentage change in quantity demanded, showing your working. (Do not compute PED in this question.)

(Total for Question 10 is 2 marks)

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11 A convenience food is classified as normal or inferior depending on income changes. If YED for a product is +0.3, state whether it is a normal good or an inferior good, and explain briefly why.

(Total for Question 11 is 1 mark)

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12 Explain one reason why a branded medicine might have more price inelastic demand than a generic alternative, referring to the factors that affect PED.

(Total for Question 12 is 2 marks)

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13 A retailer sells a snack that is income inelastic with YED = 0.4. If average consumer incomes rise by 15%, calculate the expected percentage change in quantity demanded for this snack. Show your working.

(Total for Question 13 is 1 mark)

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14 A student claims: 'If demand is price inelastic, a firm should always raise price to increase profit.' Give one brief criticism of this statement referring to real business considerations.

(Total for Question 14 is 1 mark)

15 Evaluate the usefulness of price elasticity of demand and income elasticity of demand to a firm setting prices and planning sales in the UK market. Use examples and refer to both calculations and limitations in your answer.

(Total for Question 15 is 9 marks)

Mark scheme · BUS.AL4 Price and Income Elasticity of Demand

Question 1

- **B1** B cao
- **Answer: B**

Question 2

- **B1** gives the formula as percentage change in quantity demanded divided by percentage change in income
- **B1** or writes YED = (% change in Qd) / (% change in income) in words or symbols
- **Answer: YED = (percentage change in quantity demanded) / (percentage change in income).**

Question 3

- **B1** identifies that price elastic means quantity demanded changes proportionately more than price
- **B1** gives the numeric condition, e.g. PED absolute value greater than 1
- **Answer: Price elastic means quantity demanded changes proportionately more than price; numerically |PED| > 1.**

Question 4

- **B1** availability of close substitutes
- **B1** the product taking a large proportion of consumers' income, or product being a luxury
- **Answer: Any two, e.g. availability of close substitutes; product taking a large proportion of income or being a luxury.**

Question 5

- **B1** B1 for elastic, since quantity falls by a larger percentage than price rises (intuitive judgement)
- **Answer: Price elastic.**

Question 6

- **M1** method: % change in Q = (600-500)/500 x 100 = 20% or 0.20, and % change in income = (22,000-20,000)/20,000 x 100 = 10% or 0.10, or equivalent seen
- **A1** YED = 20% / 10% = 2.0, good is normal and income elastic (YED positive >1) cao
- **Answer: YED = 2.0, a normal good (income elastic).**

Question 7

- **B1** identifies implication, e.g. lowering price could increase total revenue
- **B1** develops the point, e.g. because quantity demanded rises proportionately more than price falls, increasing revenue
- **Answer: If demand is price elastic, lowering price can increase total revenue because the percentage increase in quantity demanded is greater than the percentage fall in price.**

Question 8

- **B1** B cao
- **Answer: B**

Question 9

- **M1** method: % change in Q = (300-200)/200 x 100 = 50% or 0.50; % change in P = (64-80)/80 x 100 = -20% or -0.20 seen
- **M1** method: PED = % change in Q / % change in P, substitution seen
- **A1** answers PED = 50% / -20% = -2.5 or |PED| = 2.5 cao
- **B1** states classification: elastic because |PED| > 1
- **B1** explains revenue implication, e.g. price fall leads to revenue rising because quantity rise proportionately exceeds price fall
- **B1** links to retailer: therefore retailer's total revenue increases after the price cut (e.g. revenue before = 80 x 200 = 16,000; after = 64 x 300 = 19,200) or equivalent
- **Answer: PED = -2.5, demand is elastic, so the price cut raises total revenue (from 16,000 pounds to 19,200 pounds).**

Question 10

- **M1** % change in price = (2.20-2.00)/2.00 x 100 = 10% and % change in quantity = (980-1,000)/1,000 x 100 = -2% seen
- **A1** 10% price increase and -2% quantity decrease cao
- **Answer: Price +10%, Quantity -2%.**

Question 11

- **B1** normal good, because YED is positive (greater than 0)
- **Answer: Normal good, because YED is positive (0.3 > 0).**

Question 12

- **B1** identifies reason, e.g. strong brand loyalty or perceived lack of close substitutes
- **B1** develops consequence, e.g. consumers are less sensitive to price changes, so demand falls little when price rises
- **Answer: Brand loyalty or perceived uniqueness reduces availability of close substitutes, so consumers are less sensitive to price changes and demand is more price inelastic for the branded medicine than for generics.**

Question 13

- **B1** calculation: % change in Q = YED x % change in income = 0.4 x 15% = 6% cao
- **Answer: Quantity demanded rises by 6%.**

Question 14

- **B1** identifies a limitation, e.g. ignores possible cost changes, competition reaction, or that higher price could reduce long-term demand or brand perception
- **Answer: This ignores competitive responses and long-term effects; rivals may undercut the price or customers may switch later, so profits might not rise in the long run.**

Question 15

- **Level 1** (1-3): Offers simple, undeveloped points about elasticity, such as basic definitions or a brief statement of one way elasticity can affect revenue, with little or no use of examples or evaluation.
- **Level 2** (4-6): Provides developed points about how PED and YED inform pricing and sales planning, with some use of examples or calculations, and starts to consider limitations such as changing market conditions or measurement difficulties.
- **Level 3** (7-9): Gives a well-developed evaluation weighing the practical usefulness against the limitations, uses specific examples and numerical reasoning where relevant, and reaches a justified conclusion about when and how elasticity measures are most valuable for business decision making.
- **Indicative content:**
  - How PED helps predict revenue effects: with calculated PED values a firm can predict whether a price rise will increase or decrease total revenue, illustrated with numerical examples such as a price cut raising revenue when demand is elastic.
  - How YED helps product and market planning: YED indicates whether sales will rise with economic growth (normal luxury goods) or fall (inferior goods), informing stock, capacity and target market decisions.
  - Usefulness in segmentation and promotion: firms can target inelastic segments with higher prices and elastic segments with promotions, improving margin management.
  - Practical limitations: elasticity estimates often vary by time period, market, and the exact price change; data may be unreliable; cross-price effects and competitor reactions complicate simple predictions.
  - External factors and dynamic demand: trends, advertising, and brand loyalty can change elasticity over time, so static PED/YED figures are only a guide and need regular updating.
  - Operational constraints: costs, capacity, legal price controls, and brand strategy may override what elasticity suggests, so firms must balance elasticity insights with wider business strategy.
  - Judgement: conclude by weighing the strengths and limits, for example that elasticity is a valuable tool for short-term pricing and forecasting but should be used alongside market research, competitor analysis and cost considerations for robust pricing decisions.