2017 年 12 月 CFA 一级百题预测

1. **ETHICS**

2. **QUANTITATIVE**

3. **ECONOMICS**

4. **FINANCIAL STATEMENT ANALYSIS**

5. **CORPORATE FINANCE**

6. **EQUITY**

7. **FIXED INCOME**

8. **DERIVATIVES**

9. **ALTERNATIVE INVESTMENTS**

10. **PORTFOLIO**

对于 2017 年 12 月考试，从全局来看，考试的难度在提高；从科目来说，对于占比较高的几门科目需要引起重视，如：财务报表分析、职业伦理和数量分析；从题目的难易程度来说，百题中所标示的基础题目必须掌握。相比较于 2016 年考纲，改动较大的科目是职业伦理、经济学和企业理财，分别增加了一个全新的章节，基本都是定性的内容，百题中这部分的题目是来自原版书及 Mock 中的精选，复习时要花点时间重点掌握。为了全面应对考试，我们全面推出了的各种学习平台，如金程网校、手机 APP、金程 CFA 微信平台答疑等活动，请各位充分利用。如有学术问题，请登录至金程网校提问。祝大家好运！

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3.   Economics

3.1.   Demand and Supply

3.1.1.   重要知识点

3.1.1.1.   Demand and supply function

➢   Inverse demand function: $P_D= a-bQ_D$ ——需求曲线

➢   Inverse supply function: $P_S =a+bQ_S$ ——供给曲线

■   In order to draw demand and supply curves, own price and own quantity must be allowed to vary. However, all other variables are held constant to focus on the relation of own price with quantity.

➢   Law of Demand and supply:

■   demand decreases as the price increases

■   supply increases as the price increases

3.1.1.2.   Shift or move along

➢   Price 变化使得 move along 需求/供给曲线，其他因素导致 Shift

3.1.1.3.   Market equilibrium

➢   When have a market supply and market demand curve for a good, we can solve for the price at which the quantity supplied equals the quantity demanded. We define this as the equilibrium price and the equilibrium quantity.

3.1.2.   基础题

Q-1.   A college student's monthly demand for pizza is given by the equation:

$Q^D_{pizza}=11-0.70P_{pizza}+0.009I-0.20P_{cola}$	
Where	Q^D_{pizza} is the number of pizzas ordered per month
	P_{pizza} is the price of a pizza
	I is her monthly food budget
	P_{cola} is the price of cola per bottle

The student's current monthly food budget is \$500, the price of a pizza is \$5, and the price of a bottle of cola is \$1.25/bottle. If the student's monthly food budget were to increase to \$700, the slope of her demand curve for pizza would be closest to:

A.   -2.42.

B.   -1.43.

C.   -0.70.

Solution: B.

Initial Price Quantity Relationship:

$$Q^D_{Pizza} =11-0.70P_{pizza} +0.009\times\$500-0.20\times1.25=15.25-0.70P_{Pizza}$$

Resulting Demand Curve:

$$P_{Pizza} = 21.79 - 1.43Q^D_{Pizza}$$

Price Quantity Relationship at New Income Level

$$Q^D_{Pizza} = 11 - 0.70P_{Pizza} + 0.009 \times \$700 - 0.20 \times 1.25 = 17.05 - 0.70P_{Pizza}$$

Resulting Demand Curve:

$$P_{Pizza} = 24.36 - 1.43Q^D_{Pizza}$$

The slope of her demand curve for pizza will still be -1.43 even with the higher income effect will result in a parallel shift of the initial demand curve to the right.

PS: Demand curve is the graph of the inverse demand function.

Q-2. Movement along the demand curve for good X occurs due to a change in:

A. income.

B. the price of good X.

C. the price of a substitute for good X.

Solution: B.

The demand curve shows quantity demanded as a function of own price only.

Q-3. Assume the following:

An individual consumer's demand for tea	$Q^d_t = 1{,}800 - 40P_t + 0.5I + 150P_c$
Seller's supply of tea	$Q^s_t = -516 + 350P_t - 120W$

Legend and Initial Values		Assumed Values
Q^d_t	Quantity of tea	
P_t	Price of tea per 100 grams	
I	Household income	£2,400
W	Hourly wage rate for labor	
P_c	Price of coffee per 100 grams	£22.4
	Equilibrium price of tea	£30.6

If the household income increases by 2.5% while P_c and W do not change, the new equilibrium quantity will be closest to:

A. 5,166.

B. 5,136.

C.   5,163.

Solution: C.

$Q^d_t = 1,800 - 40P_t + 0.5I + 150Pc$

   $= 1,800 - 40 \times 30.6 + (0.5 \times 2400) + (150 \times 22.4) = 5,136 = Q^s_t$ (equilibrium)

$Q^s_t = -516 + 350P_t - 120W = 5,136$

Solve for W = [5,136 + 516 − (350 × 30.6)]/ (−120) = 42.15

I increased by 2.5%; I = 2,400 × 1.025 = 2,460.

Set $Q^d_t = Q^s_t$ and solve for new P_t:

P_t = [1,800 + (0.5 × 2,460) + (150 × 22.4) + 516 + (120 × 42.15)]/390 = 30.68

Q^d = 1,800 − (40 × 30.68) + (0.5 × 2,460) + (150 × 22.4) = 5,162.8

Q-4.   A producer's supply function is given by the equation

$Q = -55 + 26P_s + 1.3P_a$

Where Q is the quantity of steel supplied by the market, P_s is per unit price of steel, and P_a is the per unit price of aluminum. If the unit price of aluminum is 10, the slope of the supply curve is closest to:

A.   0.04.

B.   1.30.

C.   26.00.

Solution: A.

The slope coefficient of Q. in the inverse supply function is 0.04.

Start with the supply equation : $Q = -55 + 26P_s + 1.3P_a$

Insert $P_a = 10$; $= -55 + 26P_s + 1.3P_a$

                                   $= -42 + 26 P_s$

Solve for P_s: $P_s = 1.6 + 0.04Q$ (the inverse supply function)

3.2.   Consumer Surplus
3.2.1. 重要知识点
3.2.1.1. Consumer surplus
➢   Consumer surplus: the difference between the total value to consumers of the units of a good that they buy and the total amount they must pay for those units

3.2.2. 基础题
Q-5.   Assume a market demand function is given by the equation $Q_d = 50 - 0.75P$ where Q_d

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is the quantity demanded and P is the price. If P equals 10, the value of the consumer surplus is closest to: (原版书 R13-20)

A.   67.

B.   1205.

C.   1667.

Solution: B.

We find consumer surplus as the area of the triangle formed by the y(price) axis, the inverse demand curve, and a line segment from the y axis to the inverse demand function at P = 10.

Put the price into the demand equation: $Q_d = 50 - 0.75(10)$

$$Q_d = 42.5 \text{(this is the base of the triangle)}$$

Invert the demand function by solving for P: $-0.75P = Q_d - 50$

$$P = -1.33 Q_d + 66.67$$

Note the price intercept is 66.67. The height of the triangle is 66.67 - 10 = 56.67. The consumer surplus is the area of the triangle above the price of 10 and below the demand curve, with base equal to the quantity of 42.5: 1/2 Base X Height = (1/2) (42.5) (66.7 - 10) = 1,205.

3.3.   Elasticity

3.3.1.   重要知识点

3.3.1.1.   Price elasticity of demand

➢   公式

Price elasticity

$$= \frac{\text{percent change in quantity demanded}}{\text{percent change in price}} = \frac{\%\Delta Q_d{}^x}{\%\Delta P_x}$$

■   弧弹性

$$e_d{}^x = \frac{\Delta Q / Q}{\Delta P / P} = \frac{Q_2 - Q_1 \Big/ \dfrac{Q_1 + Q_2}{2}}{P_2 - P_1 \Big/ \dfrac{P_1 + P_2}{2}}$$

■   点弹性

$$e_d{}^x = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$$

➢   分类

■   If a small percentage price change results in a large percentage change in quantity demanded, the demand for that good is said to be highly elastic. The

absolute value of price elasticity is greater than one.

- If a large percentage price change results in a small percentage change in quantity demanded, demand is relatively inelastic. The absolute value of price elasticity is less than one.

- Perfectly elastic: Demand curve is horizontal at some given price. It implies that even a minute price increase will reduce demand to zero.

- Perfectly inelastic: Demand curve is vertical, quantity demanded is not sensitive to price at all.

➢ The relation between price elasticity of demand and total expenditure (For the market, the total expenditure by buyers becomes the total revenue to sellers in that market.).

- When demand is elastic
  - ◆ Price and total expenditure move in opposite directions.
  - ◆ The price decrease, but the sales volume increase in a higher percentage, total expenditure increase.

- When demand is inelastic
  - ◆ Price and total expenditure move in the same direction.
  - ◆ The price decrease, and the sales volume increase in a lower percentage, total expenditure decrease.

- When demand is unit elastic
  - ◆ The total expenditure is maximized.

➢ Factors that Influence the Elasticity of Demand

- **Availability of substitutes**：If there are <u>close substitutes</u> for the good, then if its price rises even slightly, a consumer would tend switch to the less costly substitute.

- **The relative amount of income spent on the good**：If consumers tend to spend a <u>very small portion of their budget</u> on a good, their demand tends to be less elastic than if they spend a very large part of their income.

- **Time period since the price change**：For most goods and services, the <u>long-run</u> demand is much more elastic than the short-run demand. <u>Durable goods</u> tend to behave in the opposite way.

3.3.1.2. Cross elasticity

➢ 公式

Cross elasticity of demand

$$= \frac{\text{percent change in quantity demanded}}{\text{percent change in price of substitute or complement}} = \frac{\%\Delta Q_d^X}{\%\Delta P_Y}$$

■ 弧弹性

$$e_c = \frac{\Delta Q_X / Q_X}{\Delta P_Y / P_Y} = \frac{\dfrac{Q_2 - Q_1}{\dfrac{Q_1 + Q_2}{2}}}{\dfrac{P_2 - P_1}{\dfrac{P_1 + P_2}{2}}}$$

■ 点弹性

$$e_c = \frac{\Delta Q_X / Q_X}{\Delta P_Y / P_Y} = \frac{\Delta Q_X}{\Delta P_Y} \times \frac{P_Y}{Q_X}$$

➢ 分类

■ If two goods, X and Y, has **positive** cross-price elasticity, the goods X and Y are referred to as **substitutes**.Example: pen and pencil.

■ If two goods, X and Y, has **negative** cross-price elasticity, the goods X and Y are referred to as **complements**. Example: pencil and eraser.

3.3.1.3. Income elasticity of demand

➢ 公式

Income elasticity of demand

$$= \frac{\text{percent change in quantity demanded}}{\text{percent change in income}} = \frac{\%\Delta Q_d^{\ x}}{\%\Delta I}$$

■ 弧弹性

$$e_I = \frac{\dfrac{\Delta Q_X}{Q_X}}{\dfrac{\Delta I}{I}}$$

■ 点弹性

$$e_I = \frac{\Delta Q_X}{\Delta I} \times \frac{I}{Q}$$

➢ 分类

■ **Positive income elasticity** means that as income rises, the demand for the good also rises.Goods with positive income elasticity are called **"normal goods"**.

◆ **Luxuries**: high positive elasticity(elasticity >1).

◆ **Necessities**: normal but have lower elasticity (elasticity between 0~1).

■ **Negative income elasticity** means that as income rises, the demand for the good decreases.Goods with negative income elasticity are called **"inferior"**

goods.

Rice, potatoes, or less expensive cuts of meat.

3.3.1.4. Price elasticity along a linear demand curve

➢ Point in a higher price range has greater price elasticity of demand than point in the lower price range.

➢ Revenue is maximized at the point that has unitary elasticity (elasticity=-1)

3.3.2. 基础题

Q-6. If the number of ice cream bars demanded increases from 19 to 21 when the price decreases from \$1.50 to \$0.50, the price elasticity of demand is:

A.   -5.

B.   -0.2.

C.   -0.1.

Solution: C.

If the number of ice cream bars demanded changes from 19 to 21 when the price changes from \$1.50 to \$0.50, the percentage change in quantity is (21-19) / [(21 + 19)/ 2]=10%, and the percentage change in price is (0.50-1.50) / [(1.50+0.50) /2]= -100%. Thus, price elasticity = 10% /-100%=-0.1

Q-7. The market demand function for item X is a function of its price, household income, and the price of item Y.

Own-price elasticity of demand for X	-0.8
Income elasticity of demand for X	1.5
Cross-price elasticity of demand for X with respect to the price of Y	0.4

Given the above elasticity coefficients for the two items, which of the following statement is most accurate?

A.   X and Y are substitutes

B.   Demand for X is elastic

C.   Item X is an inferior good

Solution: A.

The cross-price elasticity is positive, indicating that as the price of Y increases, more of X is demanded, making X and Y substitutes.

Q-8. The market demand function for four-year private universities is given by the equation

$$Q_{pr}^d = 84 - 3.1\,P_{pr} + 0.8I + 0.9P_{pu}$$

Where Q_{pr}^d is the number of applicants to private universities per year in thousands, P_{pr} is the average price of private universities (in thousands of USD), I is the household monthly income (in thousands of USD), and P_{pu} is the average price of public (government-supported). Assume that P_{pr} is equal to 38, I is equal to 100, and P_{pu} is equal to 18.

The cross-price elasticity of demand for private universities with respect to the price of public universities is closest to:

A.   0.3.

B.   3.1.

C.   3.9.

Solution: A.

From the demand function:

Solve for Q_{pr}^d:

$\Delta Q_{pr}^d / \Delta P_{pu} = 0.9$ (the coefficient in front of P_{pu})

$Q_{pr}^d = 84 - 3.1\,P_{pr} + 0.8I + 0.9\,P_{pu}$

   $= 84 - 3.1(38) + 0.8(100) + 0.9(18)$

   $= 62.4$

At $P_{pr} = 38$, and $P_{pu} = 18$, the cross-price elasticity of demand

$$= (\Delta Q_{pr}^d / \Delta P_{pu})(P_{pu} / Q_{pr}^d) = (0.9)(18 / 62.4) = 0.3$$

Q-9.   If a price cut of a product increases total revenue, demand is best described as: (201

A.   inelastic.

B.   unit elastic.

C.   elastic.

Solution: C.

A product's demand is elastic if demand increases by a greater percentage than the percentage price cut when prices are cut. For example, if a 1% price cut increases the quantity sold by more than 1%, total revenue increases and demand is said to be elastic.

Q-10.   For a particular product produced by a firm, the quantity at which demand is unit elastic is most likely the quantity that maximizes:

A.   total profit from the product but not total revenue from the product.

B.   total revenue from the product but not total profit from the product.

C.   both total profit from the product and total revenue from the product.

Solution: B.

A firm maximizes its revenue at the price (or quantity) where demand is unit elastic. This price or quantity is not the one that maximizes profit unless output can be increased at zero cost (no marginal costs).

3.4.   Substitution Effect and Income Effect

3.4.1.   重要知识点

3.4.1.1.   Substitution effect: When the price of Good X decreases, the relative price of Good X against other goods will decrease. Consumer equilibrium moves along the indifference curve, which leads to an increase in the demand of Good X.

3.4.1.2.   Income effect: When the price of Good X decreases, consumer's real purchasing power will change. Real income increases, and budget constraint moves, which lead to a change in the demand of Good X.

3.4.1.3.   When decrease in the price of Good X:

➤   The substitution effect is positive, and the income effect is also positive—consumption of Good X will increase, Normal goods.

➤   The substitution effect is positive, and the income effect is negative but smaller than the substitution effect—consumption of Good X will increase, inferior goods.

➤   The substitution effect is positive, and the income effect is negative and larger than the substitution effect—consumption of Good X will decrease, Giffen goods

➤   **Income effect & substitution effect** 共同作用决定需求量变化

■   **Normal good** is one for which the income effect is positive.

■   **Inferior good** is one for which the income effect is negative.

3.4.2.   基础题

Q-11.   In the case of a normal good with a decrease in own price, which of the following statements is most likely true?

A.   Both the substitution and income effects lead to an increase in the quantity purchased

B.   The substitution effect leads to an increase in the quantity purchased, while the income effect has no impact

C.   The substitution effect leads to an increase in the quantity purchased, while the income effect leads to a decrease

Solution: A.

In the case of normal goods, the income and substitution effects are reinforcing, leading to an increase in the amount purchased after a drop in price.

Q-12. Which of the following is least likely to be a characteristic of a Giffen good?

A. Its income effect is negative

B. Its demand curve slopes upward

C. Its substitution effect is negative

Solution: C.

A Giffen good is an inferior good. All inferior goods have a negative income effect (less is purchased as income rises). While the substitution effect is always positive for all goods, for a Giffen good the income effect is so strong and so negative that it overpowers the substitution effect. The result is that as its price declines, less of it is purchased: This results in a positively sloped individual demand curve. Therefore, it is least likely that the substitution effect is negative.

Q-13. Which of the following is most accurate regarding only substitution effect?

A. Substitution effect is positive for both normal goods and inferior goods

B. Substitution effect is negative for both normal goods and inferior goods

C. Substitution effect is negative for normal goods and positive for inferior goods

Solution: A.

When the price of Good X decreases, there is a substitution effect that shifts consumption towards more of Good X. Substitution effect is positive for both normal goods and inferior goods. Income effect is the opposite.