INTERNATIONAL
ECONOMICS
OLYMPIAD

Answers and Comments

Question 1. Crowdfunding

Maisie is embarking on a new business venture, producing luxury clothing for sale in the retail market. She has estimated that she requires $10,000 to cover initial setup costs. Maisie intends to crowdfund the funds needed, and she is considering either repaying contributors as long as her business becomes profitable or providing free clothes each year to her contributors.

She figured out that the following two financing options would allow her to achieve the goal:

    1) Promise to repay $1,700 a year for the next 10 years.

    2) Promise to provide $1,700 worth of clothes free of charge a year for the next 10 years.

If she is not confident in the future demand for her luxury clothing, which option is better for her?

    A. Option 1.
    B. Option 2.
    C. Both options are equally good.
    D. Option 1 is better if interest rates are smaller than 10%, option 2 is better if interest rates are larger than 10%.

Correct answer: B
Explanation: If Maisie is uncertain about future demand, offering clothes (non-cash repayment) shifts the risk to contributors; she avoids debt repayment obligations in case of poor sales.

Question 2. Investment, Financial Instruments, and Risk Management

Hakan has embarked on an asset investment project which requires an initial investment of $240,000. The project will generate a net cash inflow of $60,000 at the end of each of the four years of the project's life. The asset will have a residual value of $120,000.

What is the payback period of Hakan's investment, to the nearest year?

    A. 3 years   B. 4 years   C. 1 year   D. 2 years

Correct answer: B

Explanation: Annual inflow is $60,000; after 4 years, cumulative inflow = $240,000, which matches the initial investment. Payback period = 4 years.

Question 3. Financial Planning

Brown Co. has equity shareholders' funds of $20m and a profit before interest of $4m. It has an interest coverage ratio of 3.2 times. It has a short-term credit facility which charges a variable rate, which at the moment is 5% per year.

If Brown Co. uses its short-term credit facility to repay a $4m long-term bank loan, which costs 6% per year, what will be the company's new interest coverage ratio?

    A. 3.1 times   B. 3.3 times   C. 3.5 times   D. 4.0 times

Correct answer: B

Explanation: Original interest = $4m / 3.2 = $1.25m. By repaying $4m at 5% instead of 6%, the company saves 0.04 (1 p.p.) in interest, so the new interest = $1.21m → new ratio = $4m / $1.21m ≈ 3.3.

Question 4. Financial planning

The Lin family is organizing a wedding and preparing individual meal boxes for their invited guests. Based on previous events, their total spending is as follows:
- Preparing 400 meals costs $12,000
- Preparing 1,000 meals costs $27,000

The family usually rents a small space, but if they invite more than 1,200 guests, they need to rent additional space, increasing their fixed costs by 50%.

If they decide to invite 1,500 guests, what will be their total cost?

    A. $35,000   B. $37,500   C. $39,500   D. $40,500

Correct answer: D

Explanation: We first determine the fixed and variable costs using the given data: 400 meals cost $12,000 and 1,000 meals cost $27,000. Hence, the variable cost per meal is ($27,000 – $12,000)/(1,000 – 400) = $25, we find a fixed cost as $12,000 – $25 × 400 = $2,000. Since inviting more than 1,200 guests increases the fixed cost by 50%, the adjusted fixed cost becomes $3,000. Therefore, the total cost for 1,500 meals is $3,000 (fixed) + $37,500 (variable), amounting to $40,500.

Question 5. Investment, Financial Instruments, and Risk Management

The Garcia family is considering making a long-term investment in solar panels for their home, which would require an initial cost of $21,000. They expect the investment to reduce their electricity bills by $4,000 per year for the next ten years, with savings beginning one year from now.

The family uses a discount rate of 12% per year to evaluate long-term financial decisions. The annuity factor for 12% over 10 years is 5.65.

What is the net present value of the Garcia's family planned investment?

A. $1,600 Negative   B. $1,600 Positive
C. $21,000 Positive   D. $21,600 Positive

Correct answer: B

Explanation: Present value of savings = $4,000 × 5.65 = $22,600. NPV = $22,600 – $21,000 = $1,600 (positive).

Question 6. Investment, Financial Instruments, and Risk Management

James is planning to set up his own sole trade business in three years' time, and needs to raise $16,000 for the initial set up costs. James's friend Mira has approached him with an investment opportunity which would yield the $16,000 required in three years' time. Compound interest would be earned at an annual rate of 10%.

What is the amount which James would need to invest now to receive $16,000 in three years' time?

A. $11,643.56   B. $10,909.10   C. $13,200.00   D. $12,002.10

Correct answer: See Jury's comment below

Explanation: Present Value = $16,000 / (1.10)^3 = $12,021.04$

Jury's comment: Provided that there was a typo in the correct option D, all contestants get full marks for the question.

Question 7: Saving Money

Assel is planning to take her daughter, Grace, to Europe on a graduation trip in four years time when Grace graduates from university. Assel estimates that currently the trip costs $18,000. As this is a significant sum, Assel will need to save up to pay for it, and to do this she has selected a savings account which earns 5.5% annual interest, compounded annually. She plans to deposit a lump sum now to generate the sum she requires for her trip. If she estimates that the travel prices increase at about 3% per year, how much should Assel invest now to fully fund her trip in 4 years' time? (rounded to the nearest $1).

A. $18,000   B. $16,354   C. $14,530   D. $20,259

Correct answer: B

Explanation: Future cost = $18,000 × (1.03)^4 ≈ $20,259$.
Present Value = $20,259 / (1.055)^4 ≈ $16,354$

Question 8. Financial planning

Little Pastry Co (*Pastry*), a company in the food industry, produces baked goods for sale to the public. *Pastry* is evaluating a project to produce a new cake which requires 400 kg of sugar. The company has 150 kg of sugar in inventory which was purchased six months ago for $55 per kg. The company no longer has any use for this sugar. The inventory of sugar could be sold for $40 per kg. The current purchase price for sugar is $53 per kg. In deciding if the project is worth undertaking, what is the total relevant cost of sugar? (ignore tax implications)

    A. $21,200   B. $19,250   C. $16,000   D. $17,950

Correct answer: B

Explanation: Relevant cost = opportunity cost of 150 kg ($40 × 150 = $6,000) + purchase cost of 250 kg ($53 × 250 = $13,250) = $6,000 + $13,250 = $19,250.

Question 9. Financial Planning

Riley has been trading as a retailer of shoes for many years. During the current year, Riley required more funds to expand his business, so paid $20,000 into his business bank account from his personal savings.
Which of the following would be the dual effect of the above transaction for Riley's business?

    A. Increase in capital, increase in assets
    B. Increase in capital, decrease in assets
    C. Decrease in capital, increase in assets
    D. Decrease in capital, decrease in assets

Correct answer: A

Explanation: When Riley deposits $20,000 from personal savings into his business account, it increases the business's capital (owner's equity) and also increases the business's assets (cash).

Question 10. Investment, Financial Instruments, and Risk Management

Alice purchased 100 shares of company Astro Inc at the price of $10 a share that pays 10% dividends a year. She has also purchased 100 shares of another company, Revo Inc, that does not pay any dividends but increases in price at 10% a year. Ignoring any taxes and any other potential differences between the two firms, which investment is a better use of Alice's funds?

    A. Astro Inc investment is better because it pays a dividend.
    B. Revo Inc is better because it allows Alice's capital to grow.
    C. Astro Inc investment will deliver the same return to Alice as Revo Inc if she reinvest the dividends into Astro Inc shares or into the Revo Inc
    D. Both investments will be worth the same in 10 years, no matter what Alice does to the dividends from Astro Inc.

Correct answer: C

Explanation: If dividends from Astro Inc are reinvested, the return will be equivalent to Revo Inc's capital appreciation, assuming both yield 10% annually.

Question 11. Saving Money

Which of the following strategies is generally the most effective for building retirement savings over time in a well-functioning financial system, assuming you have access to a tax-deferred brokerage account?

    A. Prioritize saving in a regular savings account because it's safer and earns consistent interest.

    B. Wait until you're earning a high salary to start contributing to a retirement account, so you can invest larger amounts.

    C. Start contributing early to a tax-deferred account, even with small amounts, to benefit from compound growth and tax advantages.

    D. Invest only in stocks through regular broker accounts to avoid restrictions on withdrawals and contributions from retirement accounts.

Correct answer: C

Explanation: Starting early allows compound interest to work over a longer period, and using a tax-deferred account maximizes tax efficiency, even if the initial contributions are small.

Question 12. Cryptocurrencies

Why is it extremely difficult to alter a transaction that has already been recorded on a blockchain like Bitcoin?

    A. Because each transaction is encrypted with a private key that only the government can access.

    B. Because changing one block would require recalculating all subsequent blocks and gaining control of the majority of the network's computing power.

    C. Because the blockchain is stored offline and cannot be accessed or modified by anyone.

    D. Because once a transaction is made, it is automatically deleted from the network to prevent tampering.

Correct answer: B

Explanation: In blockchain systems like Bitcoin, altering a transaction requires changing that block and all subsequent blocks—making tampering computationally infeasible.

Question 13. Financial Fraud and Ponzi Schemes

You receive an advertisement stating that a financial company, BIG GAINS Inc., guarantees 35% a year return on any invested amount in USD. You verify the investment prospectus, and indeed it promises exactly that. You know that the high-yield savings accounts from traditional reputable banks deliver at most 3.5% per year, while US government bonds trade with yields that are less than 4%. Which of the following is most likely to be true:

A. This company found a revolutionary way to invest your money and your capital is for sure safe.

B. This is most likely a fraud or a Ponzi scheme, as risk-free rates in USD are below 4%; hence, no financial institution can credibly guarantee a return without exposure to risk above that.

C. If you try to invest $100 and then take the investment out in one month, and you encounter no problem, then it must be a valid financial investment and NOT a fraud or a Ponzi scheme.

D. This is most likely an arbitrage opportunity, as risk-free rates in USD are below 4%, hence, you have the chance to earn a guaranteed return without exposure to risk above that.

Correct answer: B

Explanation: A guaranteed 35% return is implausible when risk-free rates are under 4%. Such claims are classic red flags for Ponzi schemes or financial frauds that promise high returns without associated risk.

Question 14. Investment, Financial Instruments, and Risk Management

Talia, who is 65 years of age, has recently retired from her employment with a pension and a lump sum payment of $150,000. She is keen to invest the lump sum amount but is unsure which of the available investment options to choose, as she has only ever held her money in a bank account. Talia is naturally risk-adverse, but she would like to have a regular flow of income from her choice of investment.

Which of the following investment options available to Talia would be the most suitable for Talia's needs and risk profile?

A. Preferred shares

B. Ordinary shares

C. A high-yield savings account

D. An annuity—an insurance contract that pays her a fixed amount each month while she is alive.

Correct answer: D

Explanation: An annuity provides a guaranteed and regular income stream, which aligns with Talia's need for stability and income in retirement while minimizing investment risk.

Question 15. Investment, Financial Instruments, and Risk Management

Maria lives in the U.S. and wants to buy a fancy blender from Germany. The blender currently costs $1,800. There is talk of a potential tariff that could affect trade relationships between the U.S. and the EU. In particular, a tariff of 25% is being discussed at the moment. If the tariff is introduced, economists expect that imports to the U.S. will decrease. Which of the following is most likely to be true, everything else constant:

    A. A decrease in imports would strengthen the USD against other currencies, including the EUR, and effectively make the blender cheaper than $1,800.

    B. A decrease in imports would strengthen the USD against other currencies, including the EUR, but such a change is unlikely to offset the price increase due to the tariff, so Maria should expect the blender to cost more than $1800 after the tariffs.

    C. A decrease in imports would weaken the USD against other currencies, including EUR, and effectively make the blender's price increase above $1800.

    D. A decrease in imports would weaken USD against other currencies, including EUR, so much so that such a change would offset the increase in the price due to the tariff, and effectively make the blender cheaper than $1800.

Correct answer: B

Explanation: A reduction in imports tends to strengthen the domestic currency (USD) as fewer dollars are exchanged for foreign currency. However, the strengthening of the USD is unlikely to fully offset the 25% tariff. Therefore, Maria should expect the price of the blender to rise above $1,800.

Question 16. Borrowing Money, Credit

You have a 20-year mortgage contract with a 10-year rate lock. You are in year 8 of your contract, and expect that the rate would be reset in 2 years. Your current rate is 6%. Which of the following best describes your interest rate risk exposure?

    A. Your monthly payments would fall if the interest rates increase to 8%.

    B. Your monthly payments won't change if the interest rates increase to 8%.

    C. Your monthly payments would increase if the interest rates increase to 8%.

    D. None of the other statements is true.

Correct answer: C

Explanation: Once the 10-year rate lock ends (in 2 years), the mortgage will be subject to the prevailing interest rate. If rates increase to 8%, the new rate will be higher than your current 6%, leading to increased monthly payments.

Question 17. Borrowing money, Credit

Asif has recently purchased a luxury motorcycle priced at £120,000. Asif was unable to pay for this in full at the point of purchase as he did not have sufficient savings, and he has therefore taken on the motorcycle dealer's finance option to finance the entire cost of £120,000 over four years at an annual interest rate of 5.4%, compounded monthly. [Hint: use simple interest to calculate the monthly rate, but then compound it monthly]
What is Asif's monthly payment, if the first payment is due in one month's time?

    A. £3,040   B. £2,846   C. £2,785   D. £2,500

Correct answer: C
Explanation: Given: PV = £120,000. Annual interest rate = 5.4%, Monthly rate (r) = 5.4% / 12 = 0.45% = 0.0045. n = 4 × 12 = 48 months.
Monthly instalment = $(PV \times r) / [1 - (1+r)^{-n}]$
Monthly instalment = $(120{,}000 \times 0.0045)/ (1 - (1.0045^{-48})) = £2{,}785$
Jury's comment: The question does not state the level of precision, and thus assumes no rounding. Rounding during intermediate calculations can lead to significant inaccuracies, and simply dictating decimal precision wouldn't solve this, as students' intermediate steps vary. Therefore, the Jury advises against intermediate calculations entirely. Instead, students should utilize their calculator's memory function or input all values into the calculation at once.

Question 18. Investment, Financial Instruments, and Risk Management.

You come to the U.S. as an exchange student and realize that you can get an unsecured loan from a U.S. bank at a rate of 7%. The government bonds in your home country yield 15% per year return. You decide to borrow money on that loan and invest in the government bonds in your home country. Which of the following is most likely true:
    A. This is a risk-free investment that would earn you 8% return a year.
    B. You might not earn much with this investment, but at least you can always recover your invested capital.
    C. If the USD appreciates relative to your country's currency, you might not have enough capital left to pay off the loan you took.
    D. If the USD depreciates relative to your country's currency, you might not have enough capital left to pay off the loan you took.

Correct answer: C.
Explanation: If the USD appreciates, you'll need more of your home currency to repay the USD-denominated loan, which can wipe out your returns or leave you unable to repay; this reflects currency risk.

Question 19. Investment, Financial Instruments, and Risk Management.
York Co. paid $1m for a plot of land three years ago and has done nothing with the land since the purchase. The directors of York Co. are now trying to decide whether to sell the land now, which they could do for a sales price of $1.2m, or develop the land for use in their business at an initial cost of $1.5m.
York estimates the net operating cash inflow during the first year following development would be $500,000.
What is York Co's opportunity cost of the development?

    A. $1.5m   B. $1.2m   C. $0.3m   D. $0.5m

Correct answer: B.
Explanation: The opportunity cost of development is the value of the next best alternative forgone, which is selling the land for $1.2m. The original purchase price is irrelevant.

Question 20. Investment, Financial Instruments, and Risk Management
Solenta SA, a Swiss manufacturer of precision instruments, has signed a contract to deliver a custom-built device to a client in South Africa. The sale is denominated in South African Rand (ZAR), while Solenta's production costs are in Swiss Francs (CHF). The payment will be made 60 days after the contract is signed, upon delivery of the product.
Which of the following best explains why Solenta SA should consider using a derivative contract rather than a spot foreign exchange transaction to manage the financial risk associated with this deal?
    A. Solenta SA will receive payment in ZAR while its production costs are in CHF.
    B. There is a 60-day gap between the contract signing and the expected receipt of ZAR payment.
    C. Solenta SA cannot use the spot market to exchange ZAR for CHF today for a transaction that will be settled in 60 days.
    D. The South African Rand is not freely convertible in the international currency market.

Correct answer: B
Explanation: The 60-day delay exposes Solenta SA to exchange rate risk, making a derivative (e.g., forward contract) appropriate to lock in a rate and avoid uncertainty. A forward contract hedges this timing mismatch, unlike a spot transaction.
C is incorrect because it is possible to use spot market to hedge the currency risk exposure — Solenta could borrow today in ZAR and convert it into CHF, then repay the loan in ZAR from the revenue it receives in 90 days

Question 21: Borrowing Money, Credit

You live in Austria and earn a salary in EUR. You compare two mortgages of the same value as of today and the same length—one is from a Swiss bank denominated in CHF at 2% a year and another one is from an Austrian bank denominated in EUR at 3% a year. Which of the following statements are true:

    A. Your monthly mortgage payments would always be lower if you took the mortgage from a Swiss bank because of the lower interest rate.
    B. If you take a mortgage from a Swiss bank, you are exposed to currency risk.
    C. If you take a mortgage from a Swiss bank, your monthly mortgage payment, when calculated in EURO, would stay the same for the duration of your mortgage contract.
    D. Both mortgages would always have the same monthly payments because you are considering buying the same apartment with them.

Correct answer: B
Explanation: A mortgage in CHF exposes a borrower earning in EUR to currency risk—if the CHF appreciates relative to the EUR, the effective cost in EUR increases. Lower nominal interest (A) doesn't guarantee lower real payments in EUR due to exchange rate fluctuations, and (C) incorrectly assumes fixed euro payments, while (D) ignores currency denomination.

Question 22. Financial planning

Tom is deciding on the best option to arrange for his dinners. He is working as a freelancer for a publishing house and has a flexible work schedule, he can take extra work any time he wants or decide to work less if he wants. If he decides to make his own dinners, he would spend two hours per week on grocery shopping, three hours on prepping the meals once a week and then half an hour a day on re-heating and cleaning extra dishes. The total cost of groceries would be $300. Alternatively, he can order meals from a meal-delivery service, which would eliminate any need to cook or clean, so he would not spend any extra time in the kitchen. Such a service costs $500 a month. What is a break-even hourly wage for Tom to be indifferent between the two options?

    A. $15   B. $10   C. $23.50   D. $34.50

Correct answer: See Jury's comment below
Explanation: Tom saves $500 – $300 = $200 a week by cooking. He spends 2 + 3 + (0.5 × 7) = 8.5 hours/week on cooking. Break-even wage = $200 / 8.5 = $23.5/hour.
Jury's comment: Provided there was a typo ("month" should be "week"), all answers get full credit.

Question 23. Financial Planning

You were admitted to a university—congratulations! It is the 1st of June and you are looking forward to your summer before you start your studies on the 1st of September. As a student, you will receive student support for the 9 months of the year that you attend school. Your board and tuition would be covered. However, you estimate that you would be short every month about $200 for incidentals like new clothing. You plan to find a summer job to cover these expenses as well as to cover your living expenses in the summer. If you expect to spend at least $1500 each month in summer, how much should you earn per month this summer to make sure you have enough funds to last you the next academic year? For simplicity, you do not have access to any savings accounts or other types of investment.

A. $1,500   B. $2,000   C. $2,100   D. $1,700

Correct answer: C
Explanation: The student needs $200/month for 9 months = $1,800 plus $1,500/month for 3 summer months = $4,500, totaling $6,300. Divided by 3 months of summer work, the required monthly earnings are $6,300 / 3 = $2,100.

Question 24. Investment, Financial Instruments, and Risk Management

Angel is considering where to invest $1000 that he received as a performance bonus this month. His investment horizon is 15 years, and he wants to save to help his son pay for his college education. He discovered that through his bank, he can buy shares of a mutual fund "Carrot", which delivered an annual return after fees of 4% last year, and a mutual fund "Tomato", which delivered an annual return after fees of 7% last year. A broad stock market index delivered a 10% return last year. What would you recommend Angel do:

A. Invest all the $1000 in "Tomato" because it will continue earning higher returns than "Carrot".
B. Invest all the $1000 in "Carrot" because the stress of lower returns last year would make the manager more motivated to work hard this year and this fund will earn higher returns.
C. Invest $500 in "Carrot" and $500 in "Tomato" because this way Angel would not lose any money and get the best possible return by diversifying the investment.
D. Research other available mutual funds and exchange-traded funds and invest in an option that follows a broad market index and has low management fees.

Correct answer: D
Explanation: For a 15-year investment horizon, it is better to invest in a diversified, low-fee index fund rather than relying on past short-term performance of active funds like "Carrot" or "Tomato." Past returns do not guarantee future performance.

Question 25. Investment, Financial Instruments, and Risk Management
Rick is a young devoted father and wants to save up to finance his daughter Collete's college expenses. The cost of four years of college right now is $250,000 and it is projected to grow at 12% a year. Colette is currently 3 years old so Rick has 15 years of investment. He is considering the following options: high-yield savings account that delivers 5% a year or investing in a mutual fund that replicates S&P 500 returns with annual return on average of 10% a year. What is the annual investment that Rick needs to do under each one of the investment plans: (annuity factor for 15 years at 5% is 21.58, at 10% is 31.77)

  A. Savings: $63,410, Investment: $43,071
  B. Savings: $53,410, Investment: $53,410
  C. Savings: $60,000, Investment: $30,000
  D. Savings: $61,315, Investment: $40,851

Correct answer: A
Explanation: Future cost = $250,000 × $(1.12)^{15}$ = $1,368,391. For savings at 5%: $1,370,296 / 21.58 ≈ $63,410. For investment at 10%: $1,370,296 / 31.77 ≈ $43,071.