Seminar Questions and Answers for
Foundation of the Finance Economics: Money and Cryptocurrency

Section A — Multiple Choice Questions

Select the single best answer for each of the following twenty questions.

1. A farmer has eggs and wants a haircut, but the only barber does not want eggs. Which problem of barter does money solve?

a) The need for physical goods
b) The double coincidence of wants
c) The difficulty of transporting goods
d) The absence of a central authority

Answer:

b) The double coincidence of wants. Barter requires each party to want what the other offers at the same moment. Money is accepted by everyone, so the two sides of a trade no longer have to match.

2. Which of the following is NOT one of the three functions of money?

a) Medium of exchange
b) Unit of account
c) Store of value
d) Source of debt

Answer:

d) Source of debt. Money is a medium of exchange, a unit of account and a store of value. Creating debt is a function of credit, not of money itself.

3. Roman soldiers were paid partly in salt, and cowrie shells were exchanged for goods. These are examples of:

a) Money backed by a government promise
b) Money usable only for specific goods
c) Commodity money, which has intrinsic value
d) Digital currency used for trading commodities

Answer:

c) Commodity money, which has intrinsic value. Commodity money is valuable in itself — salt preserved food and shells were scarce and durable — independently of any government decree. The word “salary” derives from the Latin salarium.

4. Why did people trust early stamped coins?

a) The metal had real value and the state promised to accept the coin back in taxes

b) Coins could be exchanged for shares in the mint

c) Coins were issued only by private merchants

d) The supply of coins was unlimited

Answer:

a) The metal had real value and the state promised to accept the coin back in taxes. The metal carried genuine value, the stamp acted as an IOU from the ruler, and the state undertook to accept the coin in payment of taxes.

5. A ruler mixes cheap copper into gold coins while keeping their face value unchanged. This practice is called:

a) Deflation

b) Debasement

c) Quantitative easing

d) Fractional reserve banking

Answer:

b) Debasement. Debasement reduces the precious-metal content so more coins can be minted from the same treasure. The result is lost trust and rising prices — inflation.

6. The shift from gold coins to paper banknotes meant that the value of money increasingly rested on:

a) Scarcity of paper

b) Durability of the note

c) Trust in a promise

d) The weight of the note

Answer:

c) Trust in a promise. A banknote is worth something only because its holder trusts the issuer will honour it. Value moved out of the metal and into a promise.

7. What does it mean to say that a £20 note is “legal tender”?

a) It is backed by a fixed quantity of gold

b) It is money the law says must be accepted

c) Its value can never fall

d) It may be issued by any high-street bank

Answer:

b) It is money the law says must be accepted. Legal tender is the state's official money, which the law says must be accepted — usable to settle taxes, debts and fines.

8. Which statement about legal tender did the lecture highlight as surprising?

a) US dollars are legal tender throughout the UK

b) Scottish banknotes are not technically legal tender in England

c) Coins are not legal tender anywhere

d) Only the Bank of England may issue any banknote

Answer:

b) Scottish banknotes are not technically legal tender in England. Scottish notes are not technically legal tender in England, yet shops generally accept them — showing that everyday acceptance can run ahead of legal status.

El Salvador shows the reverse: it declared Bitcoin legal tender in 2021, but everyday use stayed low (~1–7%).

9. Which of the following is a core responsibility of a central bank?

a) Managing private businesses

b) Setting the price of every good and service

c) Supervising banks and acting as lender of last resort

d) Lending money directly to individuals

Answer:

c) Supervising banks and acting as lender of last resort. Central banks supervise banks, issue the currency and act as lender of last resort so that one bank's failure does not bring down the whole system.

10. Which measure of money consists of currency plus current-account (checking) deposits?

a) M0

b) M1

c) M2

d) M3

Answer:

b) M1. M1 is the money that can be spent immediately. M2 adds savings accounts and money-market funds, which are one step removed from spending.

11. Which of the following assets is the LEAST liquid?

a) Cash

b) A current-account deposit

c) A savings account

d) Real estate

Answer:

d) Real estate. Liquidity measures how quickly and cheaply an asset becomes spending. Property takes months to sell, placing it at the far end of the spectrum.

12. When a bank grants a £10,000 loan, where does the money mostly come from?

a) The bank prints new banknotes

b) The bank creates it by crediting a new deposit to the borrower's account

c) The bank collects it from taxation

d) The bank sells shares to the government

Answer:

b) The bank creates it by crediting a new deposit to the borrower's account. Banks do not hand over another customer's savings; they type a new deposit into existence. This is why roughly 90% of money is digital bank deposits.

13. If the reserve ratio is 25%, the money multiplier equals:

a) 2

b) 4

c) 10

d) 25

Answer:

b) 4. The multiplier is 1 ÷ reserve ratio = 1 ÷ 0.25 = 4.

14. Which of the following is a tool the central bank uses to influence the money supply?

a) Setting the prices of consumer goods

b) Open-market operations

c) Controlling company profits directly

d) Fixing every bank's lending rate to customers

Answer:

b) Open-market operations. Buying or selling government bonds changes the monetary base. The other tools are reserve requirements and the interest paid on reserves.

15. Paying for goods with a credit card means that:

a) Physical money has changed hands

b) A cryptocurrency has been used

c) A line of credit has been used — a promise to pay later

d) Digital money you already owned has been transferred

Answer:

c) A line of credit has been used — a promise to pay later. A credit card is borrowing, not money. The issuer pays the merchant and the cardholder owes that sum, plus interest if it is not repaid promptly.

16. The most important difference between Bitcoin and the digital pounds held in a bank account is that Bitcoin is:

a) Purely electronic

b) Used for online payments

c) Decentralised, with no central bank in charge

d) Backed by gold

Answer:

c) Decentralised, with no central bank in charge. Bank money is digital too, but it passes through banks, payment firms and a central bank. Bitcoin is designed to need none of them.

17. A blockchain is described as tamper-proof because:

a) Only a few trusted people are allowed to see it

b) Each block carries a fingerprint of the block before it, so altering an old record breaks every later one

c) It is stored on a single secure government server

d) Transactions are deleted after they are confirmed

Answer:

b) Each block carries a fingerprint of the block before it, so altering an old record breaks every later one. Changing an old record changes its fingerprint, which breaks the fingerprint of every subsequent block, so the network detects the fraud immediately.

18. The lecture compares a blockchain to the stone money of Yap. The shared idea is:

a) Money must be physically heavy to be trusted

b) A record of who owns what, kept and trusted by everyone without a bank

c) Only a central authority can safely track ownership

d) Ownership should be kept secret from the community

Answer:

b) A record of who owns what, kept and trusted by everyone without a bank. The islanders did not move the stones; the community collectively remembered who owned which stone. That shared public ledger is the same underlying idea as a blockchain.

19. In Bitcoin mining, the puzzle miners compete to solve involves:

a) Solving a complex algebraic equation

b) Guessing a random number (a nonce) that makes the block's hash begin with enough zeros

c) Predicting the future price of Bitcoin

d) Identifying fraudulent transactions manually

Answer:

b) Guessing a random number (a nonce) that makes the block's hash begin with enough zeros. There is no shortcut — miners guess trillions of times per second until a hash with the required leading zeros appears. The cost of that work is what secures the network.

20. Which of the following is a genuine drawback of cryptocurrencies identified in the lecture?

a) They cannot be sent across borders

b) They depend entirely on central banks

c) Extreme price volatility and the heavy energy use of mining

d) They cannot exist in digital form

Answer:

c) Extreme price volatility and the heavy energy use of mining. With no central bank anchoring the price, value swings on supply, demand and sentiment; proof-of-work mining is also power-hungry. Hacks, scams and lost keys are further risks.

Section B — Analytical Questions

Answer the following questions fully, showing your reasoning and any calculations.

1. Explain why barter makes trade difficult, and how the invention of money solves this problem.

Answer:

Barter requires a double coincidence of wants: a trade can only occur if each person happens to want exactly what the other is offering, at the same moment. A farmer with eggs who needs a haircut must find a barber who wants eggs; if no such barber exists, no trade takes place even though both parties would like to trade something.

Money removes this requirement. Because money is generally accepted, the farmer can sell eggs to anyone who wants them, receive money, and use that money to buy a haircut. The two sides of the transaction no longer have to match, so trade becomes far easier, and specialisation — people concentrating on what they do best — becomes possible.

2. Money is usually said to perform three functions. Explain each function, and explain why trust is described as the hidden fourth ingredient.

Answer:

Medium of exchange: money is accepted in payment, removing the need for a double coincidence of wants and allowing specialisation and trade.

Unit of account: money provides a common measuring rod for value, so a coffee, a car and a house can be priced in the same units. This makes comparison, accounting and calculation possible.

Store of value: money carries purchasing power into the future, so income earned today can be held and spent later — something impossible with perishable goods such as fish or milk.

Trust is the hidden fourth ingredient because money performs all three functions only while people believe it will hold its value. Once that belief collapses, through debasement or hyperinflation, money ceases to work even though the notes and coins physically remain. The store-of-value function is normally destroyed first, which is why people in hyperinflations spend their wages within hours.

3. What is debasement? Explain why rulers debased their coinage, and analyse the consequences.

Answer:

Debasement is the practice of reducing the precious-metal content of coins while keeping their face value unchanged — for example by mixing cheap copper or iron into gold and silver. It allowed rulers to mint more coins from the same quantity of treasure, providing a way to fund spending and wars without raising taxes. It occurred repeatedly in Rome, ancient Persia and medieval Europe.

The consequences were a loss of trust at home, refusal of the coinage abroad, and rising prices, because a larger number of coins was chasing the same quantity of goods. This is inflation.

Pushed far enough, the process destroys money altogether. In Weimar Germany and in Zimbabwe, where a one-hundred-trillion-dollar note was issued, money lost its store-of-value function entirely and

the currency ceased to function. The wider lesson is that money is sustained by shared belief, and that governments face a permanent temptation to over-issue it.

4. Before central banks existed, banking was chaotic. Describe the problems of that period, and explain how a central bank addresses them.

Answer:

Before central banks there were hundreds of competing banknotes in circulation, some genuine, some forged and some worthless, so people could not easily judge which notes to trust. Banks over-lent and failed, and their depositors simply lost everything. There was no safety net and no single authority capable of restoring confidence, so fraud, confusion and instability were common.

A central bank addresses these problems in several ways. It issues a single trusted currency, which removes the confusion of competing notes. It supervises banks so that reckless lending is restrained. It acts as lender of last resort, lending to sound banks during a panic so that one failure does not cascade through the system. It also monitors the money supply using measures such as M1 and M2, to judge whether there is too much money in the economy, risking inflation, or too little, risking a slump.

5. Explain how commercial banks create money when they lend, and why most money in a modern economy is created in this way.

Answer:

When a bank grants a loan it does not hand over another customer's savings. It credits the borrower's account with a new deposit — in effect creating new money by making an entry in its records. That deposit is spendable money, while the loan is an obligation to repay.

Because banks are required to keep only a fraction of deposits as reserves, they can lend out the remainder. The borrower spends the money, the recipient deposits it in another bank, and that bank in turn keeps a fraction and lends the rest. The process repeats through the banking system, so each initial deposit supports a much larger quantity of deposits overall.

Consequently most money in a modern economy consists of commercial-bank deposits created by lending, rather than notes and coins issued by the central bank. This is why roughly 90% of money is digital, and why the distinction between money and credit matters.

6. An initial deposit of $1,000 is made, and every bank keeps 10% of deposits as reserves and lends out the rest.

a) Show how the first three banks in the chain contribute to the money supply.

b) Calculate the money multiplier.

c) Calculate the total amount of deposits created in the banking system.

Answer:

a) The first bank receives the $1,000 deposit, keeps $100 (10%) as reserves and lends $900. That $900 is deposited in a second bank, which keeps $90 and lends $810. The $810 is deposited in a third bank,

which keeps $81 and lends $729. Each round is 0.9 times the round before it, so the series is $1,000 + $900 + $810 + $729 + …

b) The money multiplier is 1 ÷ reserve ratio = 1 ÷ 0.10 = 10.

c) Total deposits created = multiplier × initial deposit = 10 × $1,000 = $10,000. A single $1,000 deposit therefore supports $10,000 of deposits across the banking system, of which $9,000 is newly created money.

7. You deposit £200 in a bank. Every bank in the system keeps 20% of deposits as reserves and lends the remainder.

a) Calculate the money multiplier and the total money created.

b) Recalculate if the reserve ratio falls to 10%.

c) What happens if banks are required to hold 100% of deposits as reserves? Explain the significance of your result.

Answer:

a) The multiplier is 1 ÷ 0.20 = 5, so the total money created is 5 × £200 = £1,000.

b) With a reserve ratio of 10% the multiplier rises to 1 ÷ 0.10 = 10, so the total becomes 10 × £200 = £2,000. Lowering the reserve ratio increases the multiplier and therefore expands the money supply.

c) With a 100% reserve requirement the multiplier is 1 ÷ 1 = 1, so the total remains £200 and no new money is created at all.

The significance is that money creation depends entirely on banks lending out part of their deposits. The smaller the fraction held in reserve, the more money the banking system creates — which is precisely why the reserve requirement is one of the central bank's policy tools.

8. The money supply can be expressed as the monetary base multiplied by the money multiplier. Explain each element, and describe the three tools a central bank can use to influence the money supply.

Answer:

The monetary base is the currency in circulation plus the reserves held by banks. It is the raw material of the money supply and is set directly by the central bank. The money multiplier measures how far the banking system stretches that base through lending, and is determined by the reserve ratio. Multiplying the two gives the money supply. Control is therefore indirect: the central bank sets the base, but the behaviour of banks and households determines the multiplier.

Reserve requirements: raising the minimum proportion of deposits that banks must hold reduces the multiplier, so less money is created; lowering it has the opposite effect.

Open-market operations: buying government bonds injects reserves into the banking system and expands the base, while selling bonds drains reserves and contracts it. This is the principal day-to-day tool.

Interest on reserves: paying banks a higher rate of interest on reserves held at the central bank encourages them to hold reserves rather than lend, reducing money creation; a lower rate encourages lending.

9. Explain what a blockchain is and why it is described as tamper-proof. Relate your answer to the stone money of Yap, and explain what this implies about where trust comes from in a cryptocurrency.

Answer:

A blockchain is a shared public record of transactions, held simultaneously by many computers rather than by a single institution. Transactions are grouped into blocks, and each new block is added to the end of the chain.

It is tamper-proof because every block carries a cryptographic fingerprint of the block before it. Altering an old record changes that block's fingerprint, which in turn breaks the fingerprint of every block that follows, so the alteration is immediately visible to the entire network. Rewriting history would require redoing all the subsequent computational work faster than the rest of the network combined.

The parallel with Yap is that both are shared ledgers. The islanders did not move their giant stones; the community collectively remembered who owned which stone, and a stone lost at sea was still regarded as owned. That shared record was the money.

The implication is that trust has not been eliminated — it has been relocated. Instead of trusting a bank, users trust the mathematics, the software and the fact that the network as a whole agrees. Critics note that this still requires trusting developers, exchanges and the security of one's own private keys.

10. What is a Central Bank Digital Currency (CBDC)? Assess the case for and against introducing one, considering the effects on individuals, on commercial banks and on cryptocurrency.

Answer:

A CBDC is official state money issued in fully digital form by the central bank. It combines the backing and stability of fiat currency with the speed and convenience of digital payment. It differs fundamentally from cryptocurrency in that it is centrally issued and controlled rather than decentralised. Many central banks, including the Bank of England, are currently testing such currencies.

The case in favour is that a CBDC could improve financial inclusion by giving everyone access to central-bank money without needing a commercial bank account; make payments faster and cheaper by removing intermediaries; provide a completely safe digital asset that cannot fail as a private bank can; and give the central bank more precise tools for conducting monetary policy.

The case against centres on privacy and control. A fully traceable digital currency would give the state visibility of individual spending in a way that cash does not, and a programmable currency could in principle be restricted to certain goods or given an expiry date.

For commercial banks the risk is disintermediation: if households move deposits from commercial banks to the central bank, banks would hold fewer deposits to lend, which could reduce the availability of credit and push banks towards advisory and service roles.

For cryptocurrency, a CBDC would compete directly with stablecoins as a means of payment and would probably accelerate regulation. Bitcoin might nonetheless retain its niche as a scarce, decentralised store of value, since a CBDC offers the opposite properties: centralised control and an adjustable supply.

Seminar Activities (tutor use only)

The following activities are for the tutor to run during the two-hour seminar. They do not appear in the student question sheet. Each may be slotted in wherever it best supports the questions above.

Activity 1 — The Barter Game (10 minutes)

Purpose: to let students experience the double coincidence of wants (Section A Q1; Section B Q1).

Set-up: give each student a slip naming one good they HAVE and one good they WANT, arranged so that wants and haves do not match up neatly.

Run it: in the first round students may only trade directly, and only when both parties want what the other offers. Allow three minutes. In the second round, nominate one common item — for example paperclips — as money that everyone agrees to accept, and trade again.

Debrief: very few trades are completed in the first round and most in the second. That difference is the double coincidence of wants, and it explains why every society eventually invents money.

Activity 2 — The Trust Experiment (10 minutes)

Purpose: to demonstrate inflation and the collapse of trust in money (Section B Q3).

Set-up: give every student the same number of paper "notes" and prepare two identical small prizes.

Run it: auction the first prize and record the winning bid. Then hand half the class ten times as many notes and auction the identical second prize. The winning bid rises sharply.

Debrief: nothing about the prize changed — only the quantity of money chasing it. This is inflation in miniature, and it links directly to debasement, Weimar Germany and Zimbabwe.

Activity 3 — Banking Chain Simulation (10 minutes)

Purpose: to make the money multiplier concrete before students attempt the calculations (Section B Q6 and Q7).

Set-up: line up six students at the front, each representing a bank, and give the first a card marked £1,000.

Run it: the first bank writes down 10% as reserves and passes the remainder to the next bank, which repeats the process. Record each deposit on the board as the chain progresses, then total the column.

Debrief: the running total approaches £10,000, matching $1 \div 0.10 \times £1{,}000$. Repeat quickly with a 20% reserve ratio to show the multiplier falling to 5, which sets up Section B Q7 directly.

Activity 4 — Crypto Debate (15 minutes)

Purpose: to apply the trade-offs in Section A Q16–Q20 and Section B Q9 and Q10.

Set-up: divide the room into two sides and assign one motion, for example "This house would abolish physical cash", "Bitcoin is digital gold, not a bubble", or "Governments should ban proof-of-work mining on energy grounds".

Run it: allow four minutes of preparation for three arguments per side, then two speakers each, followed by open floor.

Debrief: assess students on their use of lecture concepts — trust, volatility, scarcity, decentralisation, energy and inclusion — rather than on confidence. Point out that most economists occupy the middle ground.

Activity 5 — Design a CBDC (15 minutes)

Purpose: to make the trade-offs in Section B Q10 concrete.

Set-up: groups of three or four act as the design team for a digital pound.

Run it: each group must decide and justify three things — whether the currency is anonymous like cash or fully traceable; whether it can be programmed, for example money that expires or that may only be spent on certain goods; and whether people hold it directly with the central bank or through commercial banks. Each group presents for sixty seconds.

Debrief: draw out the trade-offs every group encounters — privacy against crime prevention, convenience against control, and the consequences for commercial banks if deposits migrate to the central bank. There is no perfect design, which is the point.