Lesson 6.1 Quiz: Payment Rails and Clearing Infrastructure

Module 6: The Infrastructure Problem

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Digital Finance — BSc Course (v2026.05)

Q1: Payment Rail Definition

What is the best description of a **payment rail**?

A. The software installed on a bank's servers to manage customer accounts
B. The underlying network, rules, and settlement mechanisms through which money moves between institutions
C. A government-issued license to process consumer payments
D. A physical cable connecting banks to the central bank

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[Answer hidden – compile with \solutionstrue to reveal]

Q2: SWIFT's Role

Which statement about SWIFT is **correct**?

A. SWIFT is a central bank that settles cross-border payments
B. SWIFT operates the ACH system in the United States
C. SWIFT transfers money between banks in real time
D. SWIFT is a messaging network that sends payment instructions; it does not move money

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Q3: Clearing vs. Settlement

What is the key difference between **clearing** and **settlement**?

- (A) Clearing applies only to securities; settlement applies only to payments
- (B) Clearing calculates mutual obligations; settlement is the actual transfer of funds
- (C) Clearing is done by the central bank; settlement is done by commercial banks
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Q4: RTGS Characteristics

Which of the following is a defining characteristic of a **Real-Time Gross Settlement (RTGS)** system?

- **A** Each payment is settled individually and immediately in central bank money
- **B** Settlement occurs only during overnight batch windows
- **C** Payments can be reversed within 60 days
- **D** Payments are accumulated and netted at end of day

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Q5: Nostro vs. Vostro

Deutsche Bank maintains a USD account at JPMorgan to facilitate dollar payments. From Deutsche Bank's perspective, this account is called a:

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B. Nostro account
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Q6: Payment Finality

In which payment system does the payer face the **highest risk** of the payment being reversed after apparent completion?

A. TARGET2 (RTGS)
B. ACH direct debit
C. CHAPS (RTGS)
D. Fedwire (RTGS)

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Q7: Bilateral Netting Calculation

Bank A owes Bank B $800,000 and Bank B owes Bank A $550,000. After bilateral netting, what is the single transfer required?

- (A) $250,000 (A to B)
- (B) $550,000 (B to A)
- (C) $800,000 (A to B)
- (D) $1,350,000 (A to B)

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Q8: Netting Efficiency

A CCP clears trades with gross obligations totaling \$50 billion. After multilateral netting, only \$3 billion in net transfers are required. What is the netting efficiency?

- A 97%
- B 47%
- C 6%
- D 94%

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Q9: Correspondent Banking Chain

A bank in Kenya wants to send USD to a bank in Vietnam. Neither bank has a direct correspondent relationship with the other. What is the **minimum number of intermediary banks** typically required?

- (A) Two — one USD correspondent for each bank
- (B) One — a single global correspondent bank
- (C) Four — two for each currency in the chain
- (D) Zero — the central banks settle directly

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Q10: DvP Failure Scenario

In a securities transaction **without** DvP, Bank A delivers $10 million in bonds to Bank B, but Bank B fails to pay. What is Bank A's loss?

- (A) Zero — the bonds are automatically returned
- (B) The transaction fee only
- (C) The full $10 million principal
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Q11: T+1 Working Capital

A broker-dealer settles $200 million in equity trades daily. Under T+2, what was the approximate counterparty risk exposure at any time? How does this change under T+1?

A. T+2: $400M, T+1: $400M — no change
B. T+2: $200M, T+1: $200M — no change
C. T+2: $200M, T+1: $100M — risk halved
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Q12: Herstatt Risk Timing

It is 3:00 PM in Frankfurt (9:00 AM in New York). A German bank pays EUR in an FX trade. Why is this the moment of maximum **Herstatt risk**?

- (A) Because the New York Fed is closed at 9:00 AM
- (B) Because SWIFT does not operate during European afternoon hours
- (C) Because the EUR leg has settled but the USD leg has not yet settled due to time-zone difference
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Q13: DNS vs. RTGS Trade-off

A central bank is designing a new national payment system. It must choose between DNS and RTGS. Which statement best describes the **core trade-off**?

- (A) DNS requires less liquidity but carries more credit risk; RTGS requires more liquidity but eliminates credit risk
- (B) There is no meaningful trade-off — RTGS is always superior
- (C) DNS is faster; RTGS is cheaper
- (D) DNS is for domestic payments; RTGS is for cross-border payments

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Q14: CCP Concentration Risk

After the 2008 crisis, G20 mandated central clearing for standardized derivatives. What is the **unintended consequence** of this mandate?

- (A) It eliminated all counterparty risk from derivatives markets
- (B) It reduced the need for initial margin requirements
- (C) It concentrated systemic risk in CCPs, making them "too important to fail"
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Q15: Novation Benefit

A CCP interposes itself between parties via novation. Why does this improve **multilateral netting** compared to bilateral arrangements?

- (A) Novation eliminates the need for netting entirely
- (B) Novation only works for bilateral trades, not multilateral
- (C) With novation, all participants face the CCP, enabling a single net position per participant across all counterparties
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Q16: ISO 20022 Impact

SWIFT's migration from MT to ISO 20022 (MX) messages is expected to improve cross-border payments. Which improvement is **most directly** attributable to richer message data?

- A. Real-time settlement of all cross-border payments
- B. Fewer manual repairs and exceptions due to structured, unambiguous payment data
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Q17: CSD Function

A company issues 1 million new shares. Which entity maintains the **definitive record** of who owns those shares after they are distributed?

- (A) The clearing house that processed the IPO
- (B) The stock exchange where the shares are listed
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Q18: PvP and CLS

CLS Bank settles FX trades using Payment vs. Payment (PvP). What does PvP **specifically** eliminate?

- (A) Principal risk (the risk that one leg settles but the other does not)
- (B) Liquidity risk (the risk of insufficient funds to settle)
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Q19: Blockchain as Settlement Infrastructure

A proposal suggests replacing RTGS systems with a permissioned blockchain for interbank settlement. What is the **strongest argument against** this proposal?

- (A) Blockchain is too slow to process any interbank payments
- (B) Banks would never agree to share a distributed ledger
- (C) Blockchain cannot handle more than 10 transactions per second
- (D) RTGS systems already provide immediate finality in central bank money; blockchain adds complexity without clear settlement benefit

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Q20: Infrastructure Design

You are advising a developing country on building its national payment infrastructure from scratch. Given limited resources, which system should be built **first** and why?

- (A) A CSD for securities, because capital markets need infrastructure
- (B) A real-time retail payment system, because consumers benefit most
- (C) A CCP for derivatives clearing, because it reduces systemic risk
- (D) An RTGS system for large-value interbank payments, because it provides the settlement backbone for all other systems

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