Q3: Secure Implementation of Fiat-to-Token Conversion On-Chain

To securely implement a Fiat-to-Token conversion process on-chain:

- Price Oracle Usage:
  You should use chainlink as your decentralized oracle solution to retrieve current exchange rates between fiat currencies and cryptocurrencies. The system avoids inaccuracy through accurate price monitoring and minimizes potential manipulation in the process.

- Rounding/Slippage Handling:
  Top-precision mathematical methods (e.g. 18 decimal values) should be applied to token units. Users should specify a minimum amount needed for outgoing transactions to protect against slippage that arises from rate fetch and token issuance operations.

- Auditability:
  Every process transaction needs detailed events displaying fiat values and token amounts and user account data to achieve proper auditing and tracking of transactions.

- Security Measures:
  The backend wallet must act as an authorized service for conversion releases after verifying fiat payments through off-chain processes.

Q4: Design of a Competition-Based Payout System Using Smart Contracts

To build a secure and transparent competition payout system:

- Token Pooling Mechanism:
  The central prize pool receives token deposits from competition participants. The smart contract oversees management of the pool which remains locked during the competition period.

- Distribution Logic:
  A predefined system distributes rewards according to competition results through ranking methods where first-place participants receive 50% while second-place players receive 30% and so on. An automated and transparent system should control the distribution process.

- Dispute/Admin Mechanism:
  Include a time-limited dispute window. A DAO member or administrator team can inspect results prior to any payout transactions. Final payout releases require admins to run the adminApprove() function as a fairness precaution.

- Transparency:
  The system needs to generate recording events whenever stakeholders participate and results emerge and compensation distributions occur for a clear audit trail.