

CSE 347/547 DES 306/525: Usable Security and Privacy

RUBRIC for Quiz VII (TOTAL - 20 POINTS), November 27, 2025

Q1. Can blocks store any amount of data? If not, why not? (3 Points)

Blocks **cannot** store unlimited data because block size is fixed and large data slows network propagation and affects security.

1 Mark if Mentioned No , 2 Marks for mentioning Block size is fixed

Q2. What are the primary use cases of blockchain apart from cryptocurrencies ? What property blockchain lends itself to be widely adopted ? (4 Points)

Blockchain enables use cases like **supply chain tracking**, **smart contracts**, and **secure records**, and is widely adopted because it offers **tamper-proof**, **trustless**, **auditable data**.

2 Marks For Non crypto uses , 2 Marks for explanation why blockchain is widely adopted

Q3. What is stack overflow and why does it happen? (3 Points)

A stack overflow occurs when **the stack exceeds its fixed size**, usually due to **copying more data than the buffer can hold** , deep/recursive function calls or excessive local variables .

1.5 Marks: Defines stack overflow , 1.5 Marks for mentioning why

Q4. What is NOP and what is it used for? (4 Points)

NOP stands for "no-operation" which is a CPU instruction that does nothing but advances the instruction pointer. Used for **padding**, **alignment**, and **creating NOP sleds** in exploit code

2 Mark for NOP explanation . 2 for its use case .

Q5. Can you perform code injection with buffer overflow? (3 Points)

Yes, buffer overflow can inject code by overwriting the return address to execute attacker-supplied instructions.

1 Mark for 'Yes' , 2 Marks for explanation

Q6. What is the significance of reconnaissance? Mention some ways of executing the same ? (3 Points)

Reconnaissance helps understand a target's system setup, using methods like banner grabbing, fingerprinting, and analyzing error messages.

1.5 Marks for significance & 1.5 Marks for methods .