

Q3 (a) Collision Resolution Methods /

- 1 - Open address.
- 2 - External or separate chaining.
- 3 - Coalesced Chaining.

advantages of no 2:

- Deletions are easily possible.
- Number of elements can be greater than the table size.
- Retrieval operations are efficient since hash function is computed only once during retrieval.

Disadvantages of no 2.

Q3

b.

201

380

446

116

175

466

451

$$H(\text{key}) = \text{key} \% 5$$

$$H(201) = 201 \% 5 = 1$$

| | |
|---|----------------|
| 0 | P |
| 1 | 201 |
| 2 | e |
| 3 | e |
| 4 | e |
| 5 | 380 |
| 6 | 446 |

$$H(380) = 380 \% 5 = 0$$

| | |
|---|----------------|
| 0 | 380 |
| 1 | 201 |
| 2 | e |
| 3 | e |
| 4 | e |
| 5 | 446 |
| 6 | 446 |

$$H(446) = 446 \% 5 = 1$$

| | |
|-----|-----|
| 380 | 0 |
| 201 | 1 |
| e | 2 |
| e | 3 |
| e | 4 |
| e | 5 |
| 446 | ← 6 |

$$H(116) = 116 \% 5 = 1$$

| | |
|-----|---|
| 380 | 0 |
| 201 | 1 |
| e | 2 |
| e | 3 |
| e | 4 |
| 446 | 5 |
| 446 | 6 |

$$H(175) = 175 \% 5 = 0$$

| | |
|-----|---|
| 380 | 0 |
| 201 | 1 |
| e | 2 |
| e | 3 |
| 175 | 4 |
| 116 | 5 |
| 446 | 6 |

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