

Started on	Thursday, 10 March 2022, 9:19 PM
State	Finished
Completed on	Thursday, 10 March 2022, 9:19 PM
Time taken	27 secs
Marks	2.00/5.00
Grade	40.00 out of 100.00

Question 1

Complete

Mark 1.00 out of 1.00

A hash table of length 10 uses open addressing with hash function $h(k)=k \bmod 10$, and linear probing. After inserting 6 values into an empty hash table, the table is as shown below.

0	
1	
2	42
3	23
4	34
5	52
6	46
7	33
8	
9	

Which one of the following choices gives a possible order in which the key values could have been inserted in the table?

Select one:

- ☐ a. 34, 42, 23, 52, 33, 46
- ☒ b. 46, 34, 42, 23, 52, 33
- ☐ c. 46, 42, 34, 52, 23, 33
- ☐ d. 42, 46, 33, 23, 34, 52

Question 2

Complete

Mark 0.00 out of 1.00

A hash function h defined $h(\text{key}) = \text{key} \bmod 7$, with linear probing, is used to insert the keys 44, 45, 79, 55, 91, 18, 63 into a table indexed from 0 to 6. What will be the location of key 18?

Select one:

- ☐ a. 5
- ☒ b. 3
- ☐ c. 6
- ☐ d. 4

Question 3

Complete

Mark 1.00 out of 1.00

What will be the cipher text produced by the following cipher function for the plain text KMIT with key $k = 7$. [Consider 'A' = 0, 'B' = 1, 'Z' = 25]. $C_k(M) = (kM + 13) \bmod 26$

Select one:

- ☐ a. RJCH
- ☐ b. GQPM
- ☒ c. FTRQ
- ☐ d. XPIN

Question 4

Complete

Mark 0.00 out of 1.00

Consider a hash table of size seven, with starting index zero, and a hash function $(3x + 4) \bmod 7$. Assuming the hash table is initially empty, which of the following is the contents of the table when the sequence 1, 3, 8, 10 is inserted into the table using closed hashing? Note that '_' denotes an empty location in the table.

Select one:

- ☐ a. 1, 8, 10, _, _, _, 3
- ☒ b. 8, _, _, _, _, 10
- ☐ c. 1, _, _, _, _, 3
- ☐ d. 1, 10, 8, _, _, _, 3

Question 5

Complete

Mark 0.00 out of
1.00

A hash table with ten buckets with one slot per bucket is shown in the following figure. The symbols S1 to S7 initially entered using a hashing function with linear probing.

0

S7

1

S1

2

3

S4

4

S2

5

6

S5

7	
8	S6
9	S3

The maximum number of comparisons needed in searching an item that is not present is

Select one:

- ☐ a. 5
- ☒ b. 4
- ☐ c. 3
- ☐ d. 6