QUESTION 1

1 marks

How many different insertion sequences of the key values using the hash function **h(k) = k mod 10** and linear probing will result in the hash table shown below?

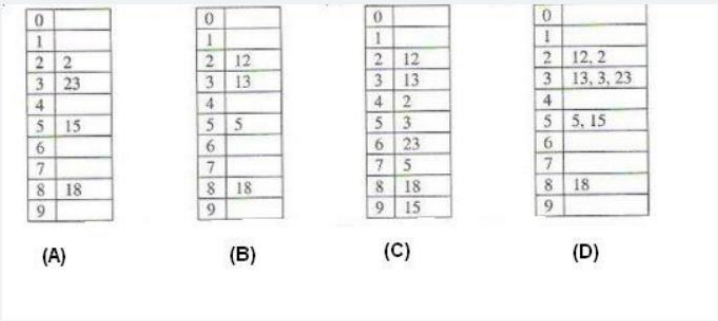
0	
1	
2	42
3	23
4	34
5	52
6	46
7	33
8	
9	

30

QUESTION 2

1 marks

The keys 12, 18, 13, 2, 3, 23, 5 and 15 are inserted into an initially empty hash table of length 10 using open addressing with hash function h(k) = k mod 10 and linear probing. What is the resultant hash table?



(A)

0	
1	
2	2
3	23
4	
5	15
6	
7	
8	18
9	

(B)

0	
1	
2	12
3	13
4	
5	5
6	
7	
8	18
9	

(C)

0	
1	
2	12
3	13
4	2
5	3
6	23
7	5
8	18
9	15

(D)

0	
1	
2	12, 2
3	13, 3, 23
4	
5	5, 15
6	
7	
8	18
9	

C

QUESTION 3

1 marks

Which searching technique takes O(1) time complexity for searching the data?

- ◉ Hashing

QUESTION 4

1 marks

Which among these is not a major application of hashing:-

- ◉ CPU Scheduling

QUESTION 5

1 marks

Which of the following hash functions is most likely to cause clustering in a hash table?

- ◉ h(k) = k % m
- ○ h(k) = floor(m * (kA mod 1))
- ○ h(k) = k
- ○ h(k) = ((k / m) + k * m) + k % m

QUESTION 6

1 marks

Consider a hash table with 100 slots. Collisions are resolved using chaining. Assuming simple uniform hashing, what is the probability that the first 3 slots are unfilled after the first 3 insertions?

- ◉ $(97 \times 97 \times 97)/100^3$
- ○ $(99 \times 98 \times 97)/100^3$
- ○ $(97 \times 96 \times 95)/100^3$
- ○ $(97 \times 96 \times 95)/(3! \times 100^3)$

QUESTION 7

1 marks

A hash function h defined h(key)=key mod 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 ?

- ○ 3
- ○ 4
- ◉ 5
- ○ 6

QUESTION 8

1 marks

Which of the following statement(s) is TRUE?

1. A hash function takes a message of arbitrary length and generates a fixed length code.
2. A hash function takes a message of fixed length and generates a code of variable length.
3. A hash function may give the same hash value for distinct messages.

- ○ I only
- ○ II and III only
- ◉ I and III only
- ○ II only

QUESTION 9

1 marks

An advantage of chained hash table (external hashing) over the open addressing scheme is

- ○ Worst case complexity of search operations is less
- ○ Space used is less
- ◉ Deletion is easier
- ○ None of the above

QUESTION 10

1 marks

Insert the characters of the string **K R P C S N Y T J M** into a hash table of size 10. Use the hash function

```
h(x) = ( ord(x) - ord("A") + 1 ) mod10
```

If linear probing is used to resolve collisions, then the following insertion causes collision

- ○ Y
- ○ C
- ◉ M
- ○ P