

(1)

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QUESTION#1 (a)

ANSWER#1 (a)

Defination

A Link List is a sequence of data structures, which are connected together via links. Linked List is a sequence of links which contains items. Each link contains a connection to another link. -OR-

it is a data structure consisting of a collection of nodes which together represent a sequence. Each node contains data and a reference or a link.

Explanation

Linked Lists are among the simplest and most common data structures. They can be used to implement several other common abstract data types including lists, stacks, queues though it is not uncommon to implement these data structures directly without using a linked list as the basis. A linked list is a list whose elements may not occupy continuous memory location and

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whose elements are connected by means of links between them.

* Each element of a linked list is called a node

* Each node has at least 2 fields

* info field \rightarrow keeps data

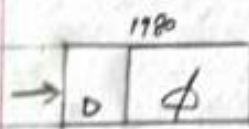
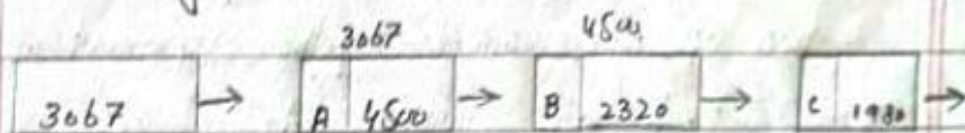
* Link field \rightarrow keeps address of next node.

* A pointer head \rightarrow used to keep the address of 1st node.

QUESTION#2(b)

ANSWER#2(b)

one way linked list



① $p \leftarrow \text{get node}(3067)$

② $\text{Head} \leftarrow p$

③ $\text{info}(p) \leftarrow \text{data}$

$3067 \leftarrow A$

$4500 \leftarrow B$

$2320 \leftarrow C$

$1980 \leftarrow D$

④ $\text{Link}(p) \leftarrow \phi$

③

(3067) (4500) (2320) (1980)

⑤ $q \leftarrow p(3067)(4500)(2320)(1980)$

⑥ Yes · Yes · Yes · Yes, No

⑦ $p \leftarrow \text{get node}(4500)(2320)(1980)$

⑧ $\text{Link}(q) \leftarrow p(4500)(2320)(1980)$

⑨ go to 3

⑩ Exit

Question#3

Answer#3

Queue

A sequential list in which elements are inserted from one end and are deleted or retrieved from the other end is called Queue.

Explanation

Queue is an abstract data structure. A queue is open at both its ends. One end is always used to insert data and the other is used to ~~insert~~ remove data. Queue

④

Follows First in First out methodology
i.e. The data item stored first will be accessed first.

- The end from where an element can be inserted is called Rear of the queue.
- The end from where an element can be detected called Front of the queue.

* Memory representation of Queue

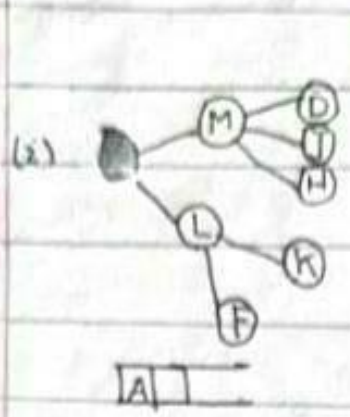
- A linear array $q[]$ is used to represent a queue.
- Two variables (behaving like pointers) F and R are used to denote Front and Rear of $q[]$.

Real Life Example

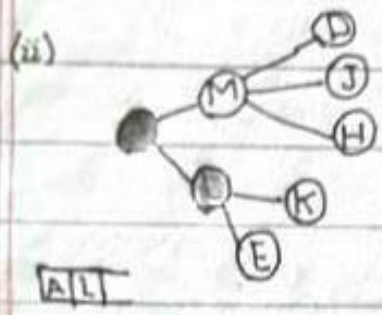
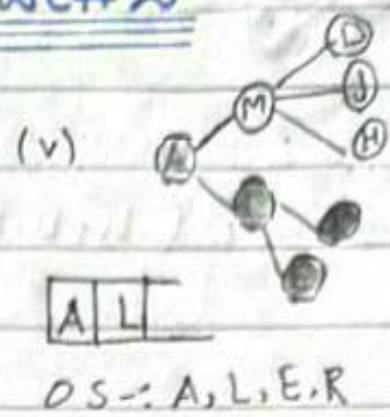
- * Automobiles waiting to pass through a signal make up a queue.
- * People waiting to submit bills at a Bank window.

QUESTION# 2

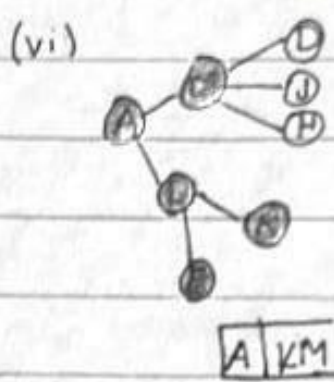
ANSWER# 2



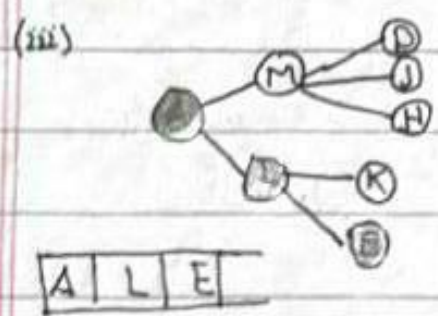
O.S:- A



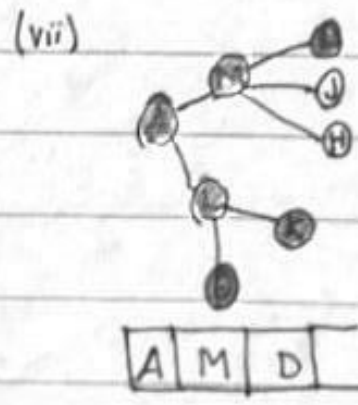
O.S:- A, L



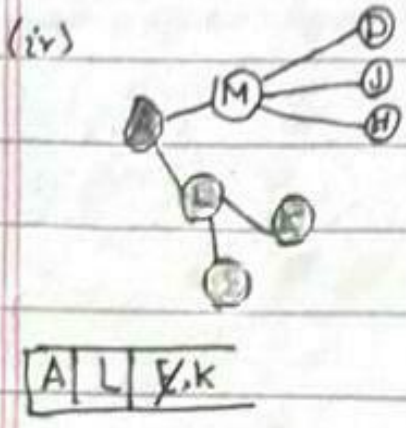
O.S:- A, L, E, K, M



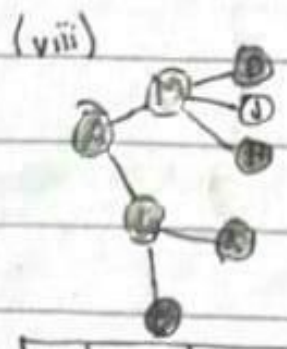
O.S:- A, L, E



O.S A, L, E, K, M, D



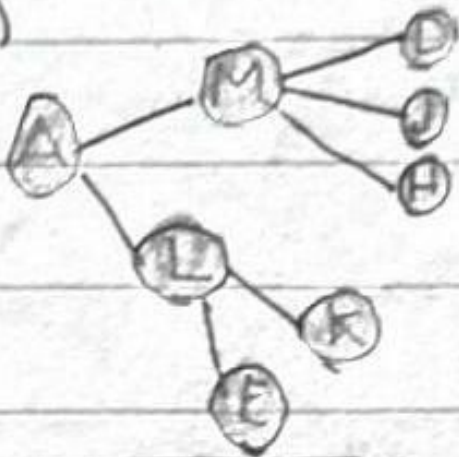
O.S:- A, L, E, K



O.S:- A, L, E, K, M, D, H

6.

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A	M	H	J
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O.S -> A, L, E, R, M, D, H, J