



1.4.2 Linked Lists

Q1

A bus service is storing the names of stops along a bus's route in a linked list.



The names of the stops are stored in the order that they are visited.

a) Describe what is meant by the term 'linked list'.

[3 marks]

- A dynamic/data structure
- Each node/item consists of data and a pointer
- The pointer gives the location of the next node.

b) The bus route is being amended. The new route is: Maple Road, Pine Street, Elm Close then Park Drive. Explain how Oak Avenue is removed from the linked list and how Pine Street is added.

[4 marks]

- The Maple Road pointer is changed to point to Pine Street
- A node is created holding the data Park Drive // Park drive is placed in the next free node
- The pointer in the Elm Close node is changed to point to the Park Drive node
- The Park Drive node points to null

c) Describe how the **second** item in a linked list would be accessed using pointer values.

[3 marks]

- Go to the node indicated by the head pointer
- Read the pointer value on this node
- Follow the pointer value to the next node and access the data

