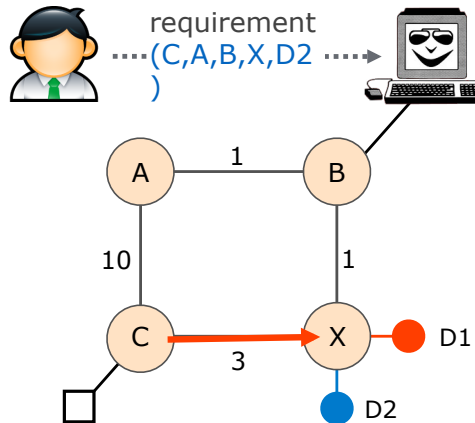**13   Principles of Communications (JAC)**

(a) Distributed link-state routing algorithms can be enhanced by a central controller, such as the *fibbing* scheme, to modify the results of the computation. Explain by an example, starting from the topology below, how a specific path can be added from router C to host D2 via nodes A, B and X, by the introduction of virtual nodes in the topology, and their advertisement via the routing protocol.

[10 marks]

(b) Dynamic Alternative Routing (DAR), also known as Sticky Random Tandem, is a way to shed load from the most direct path in a circuit switched network to other, slightly longer paths. It depends on properties of the backbone topology of the telephone network, and, to some extent, on the properties of telephone call statistics. Describe the basic algorithm and give an overview of why it works well. [10 marks]