

TELE9751 2016 mid-session exam sample questions with answers

1. [3] How can a source inform circuit switches on the path between itself and the destination of which destination it wishes to communicate to so that the switches can establish the circuit?

In two ways, either by the switches being connected to a separate packet network that is just used for signalling between the source and switches, or by the source progressively extending the circuit by first using the circuit between itself and the first switch to tell the first switch of the destination, and that switch will then connect to the next switch leading to the destination, extending the circuit and allowing the circuit to progress towards the destination.

2. [4] When multicasting is achieved by iterated unicasting, then which switch function(s) can be eliminated [2] and what performance penalty is incurred by using this approach [2]?

Comment: This is an example of the test covering a fairly minor topic.

The switches do not need to run group management protocols through which they learn which ports lead to members of the multicast group.

With iterated unicast, the information must be repeated once for each destination, so multiple copies cross links close to the source, imposing a heavy load on them and limiting the bandwidth available.

3. [4] Why are fixed-length packets preferable for multi-stage switches?

If packets were of varying length, then one element in a stage may finish processing its short packet before other elements in that stage or other stages have finished processing their packets, leading to the fast element sitting idle and wasting capacity.

4. [6] An 8-port Banyan fabric has packets waiting at input ports 0 to 4 which are destined to output ports 3 (at input port 0), 1, 4, 1 and 5 (at input port 4) respectively. Which of those packets reach the output ports of the switch, and for each other packets describe where it progresses to through the fabric and what prevents it from progressing further.

Comment: State any assumptions you may need to make. This is an example of a more applied, rather than descriptive, question.

