

2011 Paper 5 Question 5

Computer Networking

Consider two physically-separated entities **A** and **B**. **B** has been supplied messages that will be sent to **A** following these conventions:

- **A** gets a request from the layer above to retrieve the next data (\mathcal{D}) message from **B**.
- **A** must send a request (\mathcal{R}) message to **B** on the **A-to-B** channel.
- Upon receipt of an \mathcal{R} , **B** will send \mathcal{D} back to **A** on the **B-to-A** channel.
- **A** should deliver exactly one copy of each \mathcal{D} message to the layer above.
- \mathcal{R} messages may be lost (but will not be corrupted) in the **A-to-B** channel.
- \mathcal{D} messages are always delivered correctly (no loss or corruption).
- The delay along each channel is unknown and variable.

Give the FSM describing a protocol employed by **A** and **B**.

This FSM must compensate for the loss-prone channel between **A** and **B**, as well as implementing message passing to the layer above at entity **A**. Your FSM must not use more mechanisms than is necessary.

[20 marks]