Circuit-switched: traditional telephone network design; end-to-end call setup; single path for duration of call; switches maintain important state about calls; dumb devices at network edge; all the smarts are in the network core.

Packet-switched: data network design for Internet; data is split into packets, which are independently addressed and routed through the network; simple core; routers maintain minimal state about active calls; smarts are at network edge.

(b) (3 marks) "client-server" and "peer-to-peer"

Client-server: traditional paradigm for network applications; server is special and well-resourced; clients are simple and numerous; client requests service from the server. Example: World Wide Web

Peer-to-peer: alternative paradigm for network applications; all nodes are equal each node can function both as a client (requesting service or resources) and as a server (providing service or resources). Example: BitTorrent.

(c) (3 marks) "positive ACK" and "negative ACK"

Positive ACK: a control packet that conveys "good news" about the successful delivery of data; used in the PNA protocol for RDT.

Negative ACK: a control packet that conveys "bad news" about the unsuccessful delivery of data; used in the PNA protocol for RDT to indicate corrupted data.

Key difference: ACK triggers new data, while NAK triggers retransmission.