3.) LAN has the advantages of having the ability to share resources between devices

efficiently, allows for equipment from different manufacturers to work on the same network, and the whole network can be owned privately owned. It does have some drawbacks like each company having to purchase the equipment, all the components can be expensive, and it can only be as strong as the weakest link in the system.

4.) Bus LAN which has the added advantages of being able to transmit to all devices on the

bus as well as being able to use baseband and broadband. Star-wired bus LAN has the advantages of also being able to act as a bus, allowing all workstations to receive transmissions by one workstation. It also uses different devices in order to split the signal, so there’s more failsafes in place so that not the whole network goes down if only one line towards the beginning falls.

7.) Baseband signaling uses only one digital signal as well as having a bidirectional

transmission. Broadband signaling on the other hand uses analog signals in Frequency Division Multiplexing to divide the signal into multiple channels.

9.) A physical design is different from a logical design in that a physical design refers to the

pattern formed by the geolocation of the LAN elements. On the other hand a logical design is the way in which data moves around the LAN nodes.

10.) The “gatekeeper” software that allows devices to send data through a hub-based LAN.

11.) Since a transmission by one workstation is heard by all workstation on the neetwork, all

the other workstations wait until there is no data being sent by any other workstation. Each workstation waits a random amount of time, and begins transmitting its own data. If the transmission of workstation A collides with the transmission of workstation B, the two workstations wait once more. Due note that since a workstation won’t know if it’s transmission has collided until it has gone halfway down the bus, it will usually take the workstation n time to find out. N being the time it takes for the transmission to travel from the workstation to the end of the bus.

16.) The main advantage is that power can be sent over a single ethernet cable to places

where there is no electrical outlet. On the other hand it means that the hub or switch that is providing the ethernet to the device has to be capable of sending enough power to all of the connected devices.

18.) To create separate sub-networks within an existing network. The switch along with

special software logically separate various devices into groups and allows the devices on a sub-network to only communicate with devices on the same sub-network. All the while, each device is physically on a single network.

21.) A switch has the main functions of organizing and scanning incoming data, send out

data to appropriate workstations, minimize collisions, and set the bandwidth for each workstation on the device.

23.) Cut-through architecture is when a data frame is sent out from the switch almost as soon

as it arrives at the switch.

24.) A full-duplex switch allows for a CSMA/CD network to receive data from a workstation

and send data to a workstation at the same time. A half-duplex switch only allows for sending or receiving of the data at a time.

25.) When two or more data paths are combined into a single higher-speed link.