(1) Which types of routing (source routing, centralized routing or distributed routing) should BGP be categorized to? Justify your choice.

- BGP uses distributed routing.
- BGP uses the distributed routing since the BGP routing table primarily contains route information based on its neighbor ASs (the BGP routing tables do NOT contain the information about all the links in the Internet).

(2) What are the possible performance metrics for routing (mention at least four)?

- Number of the intermediate hops
- Available transmission bandwidth
- End-to-end delay to reach destinations
- Cost ($ amount to transfer 1M bits)
- Reliability (error rate)

There are more acceptable solutions.
(3) What is “centralized routing”?

Centralized routing is a type of routing where all nodes (except routing servers) do not have any routing information. Before a host computer starts transmissions, it has to contact a routing server to find the best way for the transmitting host to reach its destination. The routing server calculates the best path (route) for the requesting host computer and sends the result to the requesting host. The requesting host computer uses the path (route) calculated by the routing server.

(4) What is the primary advantage in “distributed routing”? What is the primary problem in “distributed routing”?

**Advantage**: scalability

**Disadvantage**: poor quality in routing (the accuracy in the routing decisions is poor, sometime even wrong routing can occur especially if the routing information is obsolete).

(5) What is the condition “Dijkstra Shortest-Path Algorithm” uses to finish its calculation?

When all the nodes are connected.