IP Routers Exercises ANS

Q1. Longest Prefix Matching

In this question, consider the longest-prefix-matching trie below. All subparts are independent.

1) How many of the 16 possible 4-bit IP prefixes are forwarded along the default route?

2) In this subpart only, suppose we delete the node labeled 010. (Port 5). How many of the 16 possible 4-bit IP prefixes are forwarded along a different port using the modified trie (compared to the original trie)?

3) Which of these IP prefixes represents exactly the set of IPv4 addresses that will get forwarded along Port 2?

4) How many 32-bit IPv4 addresses are forwarded along Port 3?