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| Course name | **Network Architectures and Protocols / Computer networks** |
| The topic of the document | **Laboratory exercise booklet for university students** |
| Laboratory exercise booklet no. | **7.** |
| The title and the topic of the laboratory exercise | **Addressing and routing in IPv6** |

IVF370

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| 4.1. | A) What modes do we have to configure on each network adapter? Bridged adapter |
|  | B) What command the IP addresses can be configured with? Ifconfig |

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| 4.2. | A) What is the meaning of the routing table? A table stored in a router or network computer that lists routes to different network destinations |
|  | B) What command the access of a direct network can be configured with? ip route |
|  | C) What command the access of a remote network can be configured with? ip route |

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| 4.3. | 1. How can we find the number of routers between two nodes? Determine the command.   Trace route |
|  | B) What does RTT (Round-Trip Time) value prove?  The Round-Trip Time (RTT) value in networking refers to the time it takes for a packet to travel from the source to the destination and back again. It is a measure of the total time elapsed between sending a packet and receiving its acknowledgment or response. |

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| 4.4. | 1. How many 16-bit fields does Ipv6 address in a preferred form contain? 8 |
|  | B) Which compression rules did you apply to shorten the Ipv6 address?  Leading zeros compression rule |

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| 4.5. | A) How many IPv6 addresses does the network adapter of your VM have? 1 |
|  | B) In what way were the interface ID parts of the IPv6 addresses of the network adapter produced? Justify your answer. The interface ID parts of the IPv6 addresses of the network adapter are derived from its MAC address. This process ensures that each network adapter has a unique IPv6 address |

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| 4.6. | A) Can a routing table include static routes? Yes the routing table can include both static and dynamic routes |
|  | B) What is the difference between the access of a remote network and that of a direct network?  Remote network access refers to accessing network that is not directly connected to the local segment, the network is accessible through one or more intermediary routers  Direct network refers to accessing a network that is directly connected to the local network |

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| 4.7. | 1. Above which protocol does the *traceroute6* command operate by default?   ICMPv6(Internet control message control protocol |
|  | B) What do the three asterisks (\*\*\*) denote in the output of *traceroute* command? Router along the path did not respond within the allotted time or that it has been configured not to respond to the TTL-ICMP packet sent . |