35B TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2074 Bhadra

Exam.	Regular		
Level	BE	Full Marks	80
Programme	BCT, BEX	Pass Marks	32
Year / Part	IV / II	Time	3 hrs.

Subject: - Networking With IPv6 *(Elective II) (CT76503)*

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ *Attempt **All** questions.*
- ✓ *The figures in the margin indicate **Full Marks**.*
- ✓ *Assume suitable data if necessary.*

1. Explain about the historical development of IPv6? Explain some Unforeseen Limitations of IPv4 over IPv6. [4+4]
2. Describe how IPv6 interface identifiers are derived, you can choose your own IPv6 prefix to answer this question. [8]
3. Explain how IP datagram fragmentation is carried out in IPv6 with an example. [8]
4. Explain how IPv6 addressing integrates security in its protocol header. Briefly describe the IPSec framework designed for IPv6. [8]
5. Explain the working principle of RIPng and also explain how the routing tables are exchanged in RIPng? [8]
6. What do you mean by Address Family Translation (AFT)? Explain working principle of Dual Stack approach with its pros and cons. [2+8]
7. If you are Telco's/ISP if you have native IPv4 deployed in you network, which translation mechanism will you choose for IPv6 migration? Explain your answer with the translation mechanism you choose with appropriate figure. [2+8]
8. What do you mean by AAAA record and for what purpose this type of record is used? Explain briefly challenges and risk while migration from IPv4 to IPv6 protocol. [2+6]
9. What is Multiprotocol Label Switching (MPLS) and also explain working principle of MPLS with an appropriate figure? [8]
10. The IPv4 address of a node is 120.89.99.1, calculate the following. [2*2]
    a. 6to4 Address
    b. NAT64 Address, provided the prefix is 2407:1400:AAAA:AAAA::/96

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