

TRIBHUVAN UNIVERSITY

2080 (New Course)

Bachelor/ Education /5th Semester

ICT.Ed. 456 Data Communication and Networks

Time: 3 hrs

Full Marks: 30

Candidates are required to give answers in their own words as far as practicable. The figures in the margin indicate full marks.

Attempt all questions

Group "B"

6 X 5 marks =30

1. Define Internet Protocol. Discuss the principles and responsibilities of the five layers in the Internet protocol stack.
2. Suppose end system A wants to send a large file to end system B. At a very high level, describe how end system A creates packets from the file. When one of these packets arrives at a router, what information in the packet does the router use to determine the link onto which the packet is forwarded? Why is packet switching on the Internet analogous to driving from one city to another and asking for directions along the way?
3. Define web and HTTP. Discuss working principles of Non-Persistent HTTP with given example. (Where user enters URL: www.tu.edu.np/events (containing text, references to 5 jpeg images)).

OR

Explain the purpose and functionality of the Domain Name System in the context of the Internet.

4. Define the concept of the sender and receiver window in Selective Repeat.

OR

Discuss the handle situation if an acknowledgment for a specific packet is lost in Selective Repeat.

5. Explain the Distance-Vector routing algorithm. How does it differ from the Link-State algorithm in terms of routing updates and convergence speed?

OR

Describe the Medium Access Control (MAC) protocol used in 802.11 Wireless LANs. Discuss the key features of the 802.11 MAC protocol.

6. Explain the function of Link-Layer switches in a LAN environment. Discourse the basic functionality of a Link-Layer Switch in forwarding data frames within a LAN environment.