

# POKHARA UNIVERSITY

Level: Bachelor  
Programme: BE  
Course: Network Programming

Semester: Fall

Year : 2023  
Full Marks: 100  
Pass Marks: 45  
Time : 3 hrs.

*Candidates are required to give their answers in their own words as far as practicable.*

*The figures in the margin indicate full marks.*

**Attempt all the questions.**

1. a) Explain the importance and applications of Network Programming? Define Client and Server with their role in network communications. 7
- b) What are the ways to pass the length of socket address structure for different socket API's argument? Explain them in detail with function prototype and argument detail. 8
2. a) What is synchronous and asynchronous communication? Why it is necessary to call bind() function in server program? What will be the outcomes if we do not specify IP address, port, both, or neither during bind () system call? 7
- b) Explain the importance and implementation approaches of Byte Ordering in Socket Communication. Provide the program snippet to implement byte manipulations function in Socket Programming. 8
3. a) What are the different types of I/O model? Explain select() and pselect() function with function prototype and calling example. 7
- b) What is a file descriptor? How do you pass a file descriptor in UNIX socket communication? Explain. 8
4. a) What are the importances of socket option during socket communication? Explain fcntl() and ioctl(). 7
- b) Why syslog() is required? Explain the steps to demonize a process. 8
5. a) How windows socket is different from berkeley socket? Explain the role of setup(), cleanup() and WSASStartup() function in winsock architecture. 7
- b) What do you mean by Window's Socket? What are API, SPI and ABI in Windows Kernel Architecture? Explain. 8
6. a) How do you implement Window's socket descriptor? Explain with syntax the implementation of recv() and WSAREcv() function. 7

- b) Why WSAGetLastError() is required in winsock programming? Explain the types of dynamic linking in winsock programming with pros and cons of each types. 8
7. Write short notes on: (**Any two**) 2×5
  - a) Netstat and rlogin
  - b) WSAAsynchSelect()
  - c) Tools for Remote Server Login in UNIX server