

POKHARA UNIVERSITY

Level: Bachelor
Programme: BE
Course: Network Programming

Semester: Fall

Year : 2017
Full Marks: 100
Pass Marks: 45
Time : 3hrs.

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) Which transport level protocols will you use to exchange control information (play, pause, rewind, forward, etc.) and real-time audio-video data between client and server in the movie streaming application. Justify your answers. 7
b) Explain TCP state transition with a supporting diagram. 8
2. a) What are the different socket structures used in Unix system to make system calls such as connect and bind independent of IP versions. 8
b) Discuss the use of fork function to develop a concurrent server with the help of pseudo-code? 7
3. a) What is I/O multiplexing? Explain the use of select function in the context of I/O multiplexing in detail. 7
b) Write a program to create a TCP echo server. 8
4. a) What are the socket options? Which functions are used to set and get a value of socket options? Explain them in detail. 8
b) Explain the mechanism of passing file descriptor in the Unix System. 7
5. a) Explain the Winsock architecture. What are the different Winsock asynchronous database functions? 8
b) Differentiate between recv and WSAREcv based on their uses, input/output arguments and return values. 7
6. a) How do you implement stream communication in Winsock? Describe each step with the help of relevant APIs. 8
b) Explain with the help of pseudo-code the use of accept with select such that the accept function doesn't block. 7
7. Write short notes on: (**Any two**) 2×5
 - a) netstat
 - b) ifconfig/ipconfig
 - c) TFTP